



Saskatchewan
Health Authority

Saskatchewan Critical Care Resource Allocation Framework: COVID-19 Pandemic

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Saskatchewan Critical Care Resource Allocation Framework – COVID-19 Pandemic

1. Overview & Purpose.....	3
2. Ethical Principles & Special Populations	4
2.1 Principles.....	4
2.2 Special Populations and Considerations.....	4
3. Pre-Conditions, Coordination and Activation.....	5
3.1 Preconditions and Coordination	4
3.2 Activation	5
4. Critical Care Resource Allocation Framework	6
4.1 Overview.....	6
4.2 Staged Critical Care Triage Protocol.....	7
5. Triage Team	10
5.1 Roles	10
5.2 Structure & Composition.....	10
5.3 Referral Process.....	10
5.4 Documentation.....	12
5.5 Oversight.....	12
5.6 Communication with Families	13
5.7 Reviews.....	13
6. Termination	13
7. Psychological Support.....	14
8. Limitations.....	14
9. Resource Allocation Framework Development Framework.....	14
10. Appendices	15
10.1 Appendix 1 Funded ICU Beds in Saskatoon.....	15
10.2 Appendix 2 Literature Review.....	16
10.3 Appendix 3 Detailed Exclusion Criteria for Critical Care Triage Stages 1-4	18
10.4 Appendix 4 Scoring Systems.....	19
10.5 Appendix 5 Triage Documentation.....	21
10.6 Appendix 6 Family Communication.....	24
10.7. Appendix 7 Abbreviations.....	27
11. References.....	28

1. Overview & Purpose

This *Critical Care Resource Allocation Framework* outlines the use of critical care resources within Saskatchewan Health Authority during the COVID-19 pandemic cause. The Resource Allocation Framework **applies to all adult (≥ 18 years old) patients requiring ICU care** in Saskatchewan, not just those who test positive for COVID-19. This document is to serve as a guide and living document, which can be modified by the Critical Care Triage Oversight Committee (see 5.5 Oversight) in real time as new information becomes available.

The Resource Allocation Framework incorporates an approach to rationing critical care resources that is both proportional and responsive to the pandemic state. Therefore, resource allocation criteria become increasingly selective as baseline funded ICU capacity is increasingly exceeded. Baseline funded ICU capacity is defined as 79 adult critical care beds in Saskatchewan (see Appendix 1 for distribution). We have defined Critical Care Triage stages as follows:

- Critical care triage Stage 1: 91 – 125% of baseline ICU capacity occupied (51 – 70 beds in Regina/Saskatoon)
- Critical care triage Stage 2: 126 – 140% of baseline ICU capacity occupied (71 – 78 beds in Regina/Saskatoon)
- Critical care triage Stage 3: 141 – 175% of baseline ICU capacity occupied (79 – 98 beds in Regina/Saskatoon)
- Critical care triage Stage 4: >175% of baseline ICU capacity occupied (98+ beds in Regina/Saskatoon)

Triggers to launch the triage process are set to the ICU occupancy in Regina and Saskatoon. When ICU admissions reach 126% of baseline beds (71 – 78 beds in Regina/Saskatoon combined), the Critical Care Resource Allocation Committee will meet to determine when stage activation of stage two of the triage process will be implemented.

ICU SYSTEM CRISIS; CARE STANDARDS LARGELY ABANDONED	<p>> 175% capacity 139 beds or > (98 + beds in Regina and Saskatoon) Over 126 patients ventilated, maximal overtime required where possible - Human Resource Crisis Standards of care abandoned, expected avoidable harm and death to patients Stage 4 Resource Allocation Framework invoked</p>
ICU SYSTEM CRISIS; CARE STANDARDS SIGNIFICANTLY COMPROMISED	<p>141% - 175% capacity 111- 138 beds (79 - 98 beds in Regina and Saskatoon) Up to 126 patients ventilated, 20%+ overtime usage - Human resources compromised Restrictive triage required- services limited to Emergency Care Only – Stage 3 Resource Allocation Framework invoked Standards of care significantly compromised, expected avoidable harm or death to patients</p>
ICU SYSTEM SEVERELY CHALLENGED; SIGNIFICANTLY ALTERED CARE STANDARDS	<p>126% - 140% capacity 99 – 110 beds (71 – 78 in Regina and Saskatoon) Up to 100 patients ventilated, > 10 - 20% overtime usage – Human resources challenged Baseline ICU RN:Pt Ratio significantly altered, contract nurse/upskilled staff being used Stage 2 Resource Allocation Framework invoked Widespread Service Slowdown & required use of non icu staff</p>
ICU SYSTEM CHALLENGED; CARE IMPACTED	<p>91 – 125% capacity 71 – 98 beds (51 – 70 beds in Regina and Saskatoon) Up to 85 patients ventilated, > 5% overtime usage – Human Resources achievable ICU RN:Pt Ratio slightly altered with enhanced nurse/patient ratio at times No Triage required – Stage 1 Resource Allocation Framework invoked Minimal Service disruption</p>
ICU SYSTEM EFFECTIVELY MEETS DEMAND	<p>90% or less capacity 71 beds or less in use (50 beds in Regina and Saskatoon) 66 or less patients ventilated, < 5% overtime usage – Baseline Human Resources Normal access to critical care surgical care, Baseline ICU RN:Pt Ratio No triage required No service disruption</p>

2. Ethical Principles & Special Populations

2.1 Principles

In the case of a mass critical care incident, guidelines, literature and public focus groups generally support a triage plan that will provide the maximum benefit. Benefit in these situations has been widely defined as saving the most lives (1-4). This consequentialist approach aims to improve incremental survival more than a first-come, first-served approach (1,2,5).

In the face of a pandemic, the weighing of common ethical principles may occur differently than in usual practice. In usual practice, clinicians and their patients undergo a process of shared decision-making regarding life-sustaining therapies. The decision to institute, continue, withhold, or withdraw life-sustaining therapies is based upon the interplay of medical prognosis and patient autonomy. In contrast, in pandemic situations, autonomy considerations are considered secondary to distributive justice (1). However, the principles of respect for human dignity and non-abandonment must always be upheld, particularly for patients who are not offered ICU care. These patients should be provided appropriate palliative care (2).

In the implementation of a triage protocol that allocates scarce resources, the following decision-making process principles must be upheld 1) transparency; 2) consistency; 3) accountability; 4) proportionality; and 5) responsiveness (3-5). Therefore, it is necessary to develop an *a priori* triage protocol that uses objective physiologic criteria upon which resource allocation decisions can be made. The protocol must be agreed upon by relevant stakeholders and be implemented in a manner that allows review, modification, and oversight.

2.2 Special Populations and Considerations

Patients who are already receiving life-sustaining treatments in long-term care settings or at home are excluded from the *Critical Care Resource Allocation Framework*. Palliation of long-term ventilator patients in order to re-allocate their ventilators is not justifiable, even if it allows a greater number of healthier patients to survive. This type of a policy would risk inappropriate quality-of-life judgements and could be seen as disadvantaging vulnerable patients. However, should patients requiring long-term ventilation require treatment in an acute-care facility, they should then be considered as part of the acute care cohort and subject to the *Critical Care Resource Allocation Framework* (2). This is regardless of whether they can be managed on their home ventilator, as the scarce resource is not one of ventilators alone, but of critical care beds, manpower, and equipment. Chronically ventilated patients represent a unique subpopulation who should not be excluded from critical care simply because of the requirement for chronic ventilation, and for whom application of the *Critical Care Resource Allocation Framework* will require substantial clinical judgement.

Other vulnerable patients include those with intellectual, developmental, or physical disabilities. The goal of the Resource Allocation Framework is to save as many lives as possible. Discussions of quality of life do not factor into these resource allocation discussions (see Figure 2, Patient Case Presentation). Therefore, it is patients with end-stage, progressive, and incurable illness who are less likely to be admitted to the ICU in situations of scarcity (See 10.3 Appendix 3 Detailed exclusion criteria). Patients with progressive conditions will be assessed based on current condition and likelihood of survival. In contrast, those with stable, non-progressive conditions will not be excluded on the basis of having these conditions though associated factors may be considered if they are clinically relevant to treatment and its effectiveness

3. Preconditions, Coordination and Activation

3.1 Preconditions and Coordination

The Saskatchewan Health Authority has established a System Flow Coordination Centre (SFCC), which supports patient flow and movement throughout the province. Tracking of critical care and non-critical care hospital utilization, location of available critical care and non-critical care beds at a system level, and COVID-19 cases across Saskatchewan is supported by both Digital Health technology and SFCC processes. The SHA centralized dashboard of information will facilitate patient flow and thus allow for equitable access to the needed resources across the province. Tertiary Intensive Care Units (Regina and Saskatoon) should utilize current remote technology, where appropriate, to support clinicians in the care of critically ill patients in regional centers.

Prior to the activation of the *Critical Care Resource Allocation Framework*, three conditions must be met:

- 1) Maximization of surge capacity
 - a. Maximization of surge capacity includes opening of additional ICU beds and utilizing all provincial ICU resources, including surge spaces such as the Pediatric Intensive Care Unit (PICU) in Saskatoon. The PICU would be able to support adult patients (up to 50 years old less a day) with appropriate admission criteria focused on but not limited to a single system disease process. This may or may not include appropriate COVID 19 patients¹.
- 2) Service slowdowns for elective and semi-elective procedures
 - a. Service slowdowns assist with redeployment of critical human resources to the ICU, and attempts to reduce the number of elective and semi-elective surgical cases that may require ICU admission postoperatively.
- 3) Level - Loading
 - a. The level-loading process attempts to balance hospital utilization across the province, while ensuring that patients' needs are matched with the center in which they are being cared. This may create some tertiary ICU capacity by transferring less acute patients to regional ICUs, and may also help reduce the strain on localized areas experiencing COVID-19 case surges. There may also be a need to level load tertiary services between Saskatoon and Regina directly.

3.2 Activation, Escalation and De-escalation.

The *Critical Care Resource Allocation Framework* will be activated upon a declaration by the Chief Medical Officer of Saskatchewan Health Authority. The Critical Care Triage Stage will be determined based on information provided by the System Flow Coordination Centre and extensive consultation with healthcare system administrators and public health experts. The resource allocation criteria in each Critical Care Triage Stage will be applied uniformly across the province. The Critical Care Triage Oversight Committee will continue to meet regularly to examine the 7- and 14-day rolling averages of ICU capacity, future modelling, preconditions, and other contextual factors. We will recommend the escalation (within 48h) or de-escalation (within 24h) of triage stages based on this data.

¹ Recognizing the physiologic and management differences between children and adults, and that some pediatric ventilators are unable to support adults, the critical care resources in the PICU should be prioritized for infants and children. If, however, adolescent cases surge, reciprocity dictates that, if necessary and efficacious, children should have access to adult critical care resources

4. Critical Care Resource Allocation Framework

4.1 Overview

The goal of the *Critical Care Resource Allocation Framework* is to identify patients whose outcome would be fatal if ICU care is denied, but who are likely to survive if they do receive ICU care (1,6). The effectiveness of triage is affected by:

- The level of demand. Higher demand increases the likelihood that triage will improve mortality.
- The scale of difference between the patients admitted to ICU and those refused for ICU care, in terms of both length of stay and critical care survival (7).
- The ability to support patient flow through the ICU. The scarce resource is not ventilators or ICU beds, but ventilator-time or bed-days, and minimizing the time spent utilizing critical care resources can increase overall population survival (8).

This *Critical Care Resource Allocation Framework* has largely been developed based on the Ontario Health Plan for an Influenza Pandemic (OH-PIP), which was published in 2006 in CMAJ (6). Since then, multiple institutions and critical care guidelines have largely replicated this protocol and criteria (9-13). This protocol has been modified based on a literature review that is included in Appendix 2. In order to maximize lives saved, the OH-PIP developed exclusion criteria that attempt to identify patients who are not likely to survive an ICU stay, or are likely to have prolonged, complicated ICU stays. These poor outcomes may be due to underlying progressive disease, or because of the severity of presenting illness (6).

The majority of published triage protocols assume a state of absolute scarcity in which demand outstrips supply of resources. However, in a pandemic scenario, as demand increases, there will be a period of relative scarcity. In these stages of relative scarcity, all options to increase capacity for ICU beds should be operationalized, and measures to cope with the surge in demand can be implemented that are proportional to the level of scarcity (9). Based on this principle of proportionality, the *Critical Care Resource Allocation Framework* defines exclusion criteria to identify patients who have poor prognoses despite ICU care in Stages 2 and 3 (Appendix 3). Critical Care Triage Stage 4 represents a dire stage when 1) all surge capacity for critical care resources has been exhausted and 2) demand for critical care resources is greater than the ability to provide these resources. In Stage 4, the exclusion criteria remain the same as for Stage 3 (Appendix 3). However, there is an added recommendation to consider early transitions to palliative care if the ICU patient shows objective signs of worsening clinically. **Note that clinical judgement should always supplement the defined clinical inclusion and exclusion criteria for all Critical Care Triage Stages included in this document.**

On a final note, **we recommend that all patients have a Goals of Care discussion on admission to hospital.** Patients have a right to exercise their autonomy and decline critical care interventions at any time. Dr. Amy Tan (University of Calgary, Family Medicine) has developed a conversation guide to explore Goals of Care that includes patient tested language and COVID-19 specific facts relevant to these discussions. Please see Guide for Talking About Wishes and Goals in COVID-19 (attached). Further resources are also available from the Ariadne Labs Serious Illness Conversation Guide.

4.2 Staged Critical Care Triage Protocol

4.2.1 Critical Care Triage Stage 1: 91 – 125% of baseline ICU capacity occupied (51 – 70 beds in Regina/Saskatoon)

Critical Care Triage Stage 1 describes a state of “business as usual”. Therefore, there are neither defined exclusion nor inclusion criteria. Clinicians should exercise their best clinical judgement for decisions about admission to the ICU. Clinicians are encouraged to engage in goals of care discussions for patients who are believed to have poor prognoses and use the process of shared decision-making to achieve consensus on plans of care.

4.3.2 Critical Care Triage Stage 2: 126 – 140% of baseline ICU capacity occupied (71 – 78 beds in Regina/Saskatoon)

See Appendix 3 for exclusion criteria. In Critical Care Triage Stage 2, patients with end-stage organ failure are excluded from ICU care. These criteria for end-stage organ failure have been used to determine need for transplant, and generally carry an expected survival of less than one year, regardless of admission to ICU (9,14). Patients with cardiac arrest and poor prognostic factors are also excluded (14,15). Inclusion criteria for admission to the ICU, and assessment for the withdrawal of life-sustaining therapy should occur according to usual practice. Where supplemental expertise is necessary, clinicians making triage decisions should consult the appropriate specialists for estimates of prognosis (Hematology, Oncology, Neurology, Neurosurgery, Respiriology, Cardiology, etc.).

4.3.3 Critical Care Triage Stage 3: 141 – 175% of baseline ICU capacity occupied (79 – 98 beds in Regina/Saskatoon)

See Appendix 3 for exclusion criteria. In Critical Care Triage Stage 3, there are added exclusions for patients who have a history of life-threatening underlying medical conditions, or whose illness severity carries an extremely high mortality, regardless of ICU care (9,14). Inclusion criteria for admission to the ICU, and assessment for the withdrawal of life-sustaining therapy should continue to occur according to usual practice. Where supplemental expertise is necessary, clinicians making triage decisions should consult the appropriate specialists for estimates of prognosis (Hematology, Oncology, Neurology, Neurosurgery, Respiriology, Cardiology, etc.).

4.3.4 Critical Care Triage Stage 4: >175% of baseline ICU capacity occupied (98+ beds in Regina/Saskatoon)

The Critical Care Stage 4 Protocol flowchart is outlined below in Figure 1. Initially, the patient must meet inclusion criteria for ICU care to that ensure that the patient does truly require critical care resources. Then, the Triage Team will assess whether the patient has any exclusion criteria. If there are no exclusion criteria noted, the patient is deemed eligible for critical care. At this point, it is expected that there may be a number of patients waiting for critical care beds. Therefore, patients are prioritized by SOFA score, with less sick ($SOFA \leq 7$) patients having the greatest priority, as they are the most likely to survive a critical care stay.

Tiebreaker criteria are only instituted if there are many patients within the same priority level, in the following fashion:

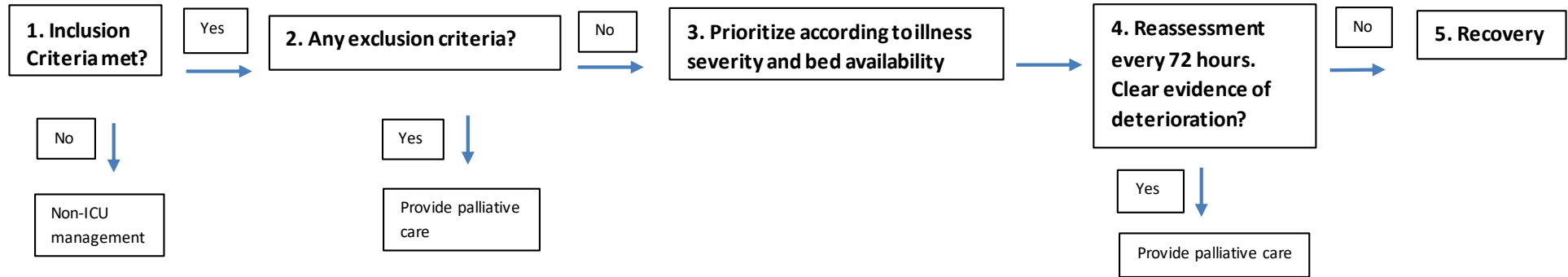
- Physiologic criteria should be first assessed. Of patients in the highest priority level, choose patients with the least comorbid disease, and the worst severity of presenting illness.

Saskatchewan Critical Care Resource Allocation Framework – COVID-19 Pandemic

- Secondly, life cycle criteria can be used to break ties between patients. Prioritize patients who have lived through fewer life cycles first. This includes prioritization of pregnant women who have a potentially viable fetus (present heartbeat, at ≥ 26 weeks gestational age) (16).
- If there are still patients who are equally situated, consider social role as it contributes to the betterment of the community in the circumstances. In particular, healthcare workers who may be able to return to the workforce and save more lives could be given priority.
- Finally, a lottery can be used, but this is the least desirable tiebreaker (17)

The Critical Care Triage Stage 4 protocol also includes criteria for the early identification of patients who are worsening despite ICU care. These patients should be assessed by the MRP and the Triage Team to determine whether they should be considered for palliative care only. It is imperative that the criteria for palliation are **independent** of the number and characteristics of patients on the waiting list for critical care. That is, a decision to palliate a patient is based on that individual patient's clinical status, not because a patient waiting for an ICU bed is a better candidate for ICU. Criteria for palliation, and cases that have been palliated based on the Stage 4 protocol, should be continually reviewed by the Critical Care Triage Oversight Committee (see 5.5 Oversight).

Figure 1. Critical Care Triage Stage 4 Protocol



1. Inclusion Criteria

a) Refractory Hypoxemia

- SpO2 <90% with FiO2 > 0.85
- Respiratory acidosis (pH < 7.2)
- Inability to protect or maintain airway
- Clinical evidence of impending respiratory failure

b) Hypotension refractory to volume resuscitation with clinical evidence of shock requiring vasopressor or inotropic therapy

- SBP < 90mmHg or relative hypotension PLUS one of:
- Altered level of consciousness, decreased urine output, elevated lactate, or other evidence of end-organ failure

2. Exclusion Criteria (Overview, see Appendix 3 for detailed exclusion criteria)

a) Patient preference (ACP or GOC designation)

b) Past Medical History

- Metastatic or hematologic malignancy with an estimated survival < 6 months
- Advanced and irreversible immunocompromise
- Severe, irreversible and terminal neurologic event or condition
- Advanced untreatable neurodegenerative disease
- End stage organ failure not on the transplant list

c) Severity of presenting illness

- Cardiac arrest with poor prognostic factors
- Severe trauma or burn
- Severe neurologic injury

d) Age >80 and Clinical Frailty Scale 5 or greater

3. Prioritization

- Highest priority for care: SOFA < 7
- Intermediate priority for care: SOFA ≥ 8

If a number of patients are in the same priority category, further tiebreaker protocols may be necessary (see above). The following are suggested as tie-breakers, in order of acceptability: 1) physiologic criteria 2) life cycle criteria 3) social role, and 4) lottery

ICU Admission Phase

At any time during ICU admission, triggers to consider palliative care (to be discussed with Triage Team)

- SOFA score > 20
- Development of 2 additional organ failures

5. Reassessment every 72 hours (performed by Triage Team)

- Consider palliative care if the patient develops 2 additional organ failures
- Discharge from ICU: No significant organ failure

Red - Highest priority patient - Mostly likely to benefit from ICU admission
Yellow - Intermediate priority patient - May benefit from ICU care
Green - Patient does not require ICU care - Too well
Blue - Palliative care only - Likely poor prognosis

ECLS may provide effective treatment for refractory cases but it requires extensive resources. Each request for ECLS will be reviewed by at least 2 ECLS experts, in addition to the Triage Team. These ECLS experts will be designated by the Area Leads of the Department of Critical Care (Regina and Saskatoon). The number of patients that can be placed on ECLS is small and should be decided on a case-by-case basis.

Definite exclusion criteria include: Age > 60, mechanical ventilation > 7 days, irreversible neurological, multiorgan failure, malignancy, cardiac arrest, severe end stage liver lung kidney heart disease, advanced neurocognitive disease, pregnant, BMI > 45, inability to receive anticoagulation or blood products, or ECLS resources not available in city.

5. Triage Team

5.1 Roles

The Triage Team will receive referrals for patients who could potentially benefit from ICU care, review the cases, and determine which patients will be provided with ICU care. The Most Responsible Physician (MRP) is responsible for consulting ICU when needed, advocating for the patient, and continuity of care.

5.2 Structure & Composition

At a minimum, the Triage Team should consist of at least two peer physicians that are not directly involved in the patient's care, to minimize conflicts of interest (4,15). Suggested triage team members include ICU and/or acute care physicians. Additionally, a representative from Ethics should be included as a system of checks and balances.

5.3 Referral Process

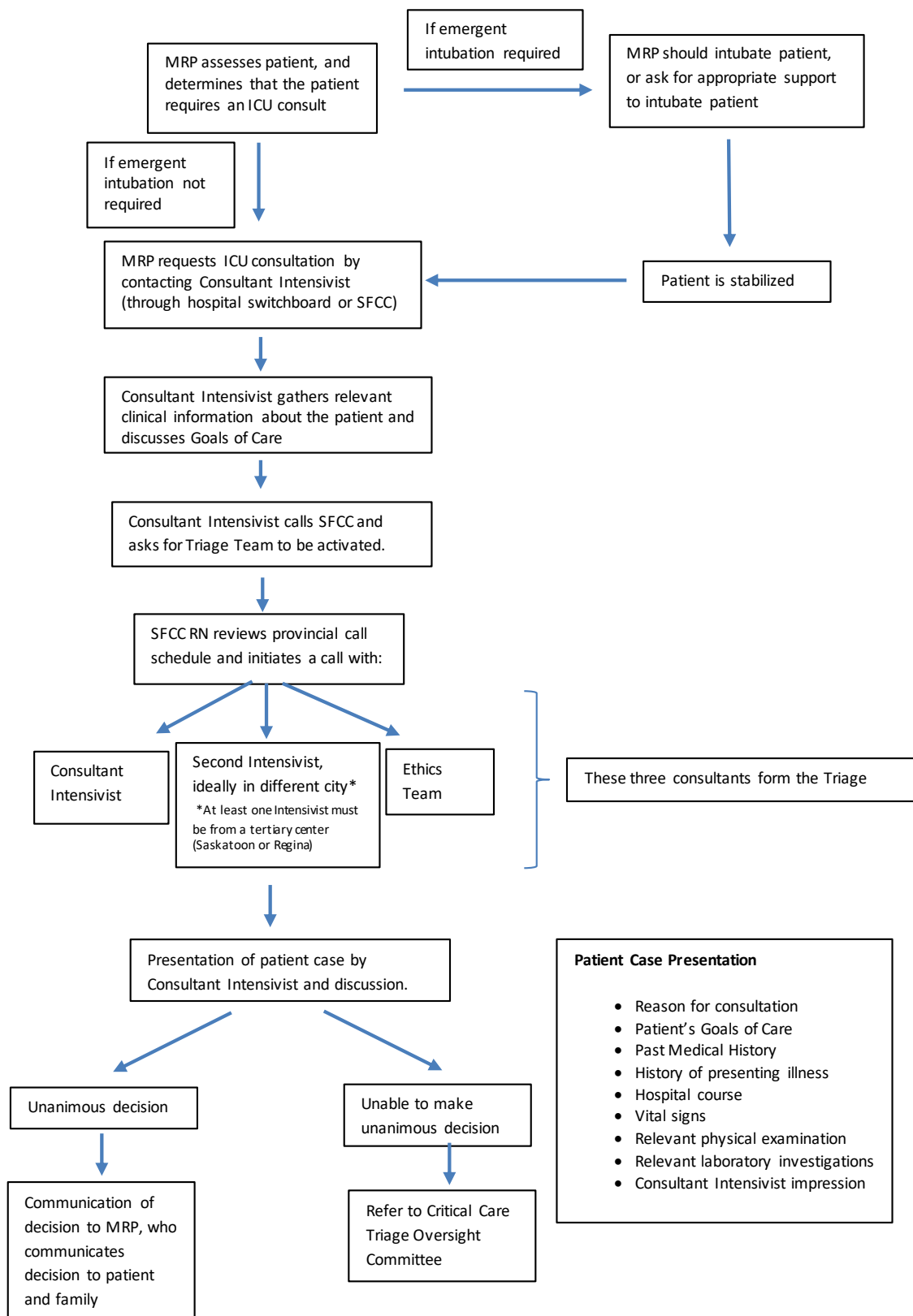
Please refer to Figure 2 below for a flow chart of the referral process. The patient's MRP should consult ICU in the usual fashion (through hospital switchboard if ICU services are available on-site, or through SYSTEM FLOW COORDINATION CENTRE (SFCC) for patients who need to be transferred to another center for ICU care. The Consultant Intensivist will see the patient in consultation or gather information verbally in the case of a remote consultation. Once information has been gathered, the Consultant ICU physician will ask for the Triage Team to be accessed through SFCC. **The triage team should be activated through SFCC at Critical Care Triage Stage 2 and beyond, regardless of local bed capacity, and regardless of whether the patient is thought to be a candidate for the ICU or not.** The Consultant Intensivist will be connected with another Intensivist or acute care physician, ideally at a different site, and an Ethics team member to review the triage protocol and determine whether the patient is a candidate for ICU care. These three consultants will form an *ad hoc* Triage Team. At least one of the Intensivists must represent a tertiary site. The goal is to have a decision in approximately 10 minutes from the time of Triage Team activation.

If the patient is deemed to be an ICU candidate, the Consultant ICU physician will arrange for the patient to be admitted to the ICU by the appropriate local process. The SFCC should aid in directing patients to the center in which their care needs will be met, if transfer is required.

If the patient is not deemed to be an ICU candidate, the Consultant ICU physician will communicate this decision to the MRP, who may utilize the scripts in Appendix 6 to communicate this decision to the patient and their family. Palliative care must then be provided by the MRP or a consultant palliative care physician. **Note that if a patient improves clinically after being offered palliative care only, the MRP may ask for a review to determine if the patient has become a candidate for ICU care** (see 5.7 Reviews).

In the event that the patient is found to be *in extremis* and requires intubation before an ICU consultation and Triage Team discussion can take place, the patient should be intubated and bagged. This respects the Rule of Rescue, which places a duty on clinicians to save an endangered life when possible. However, following intubation, the above outlined process should be followed to determine whether the patient is an ICU candidate. If the patient is not an ICU candidate, the endotracheal tube should be withdrawn and the patient should be provided with appropriate palliative care.

Figure 2. Critical Care Triage Team Referral Process



5.4 Documentation

Each referral to the Triage Team will be documented in the attached Triage Documentation Record by the Ethics team member (Appendix 5).

5.5 Oversight

Oversight of the Critical Care Resource Allocation Framework will be the responsibility of the Critical Care Triage Oversight Committee. This committee will be chaired by the ED Provincial Programs - Tertiary Care and an ICU physician. The Chair is responsible for inviting members to join the Critical Care Triage Oversight.

The Critical Care Triage Oversight Committee should be formed, and Terms of Reference defined by its Chair, prior to the implementation of this Triage Plan. The Critical Care Triage Oversight Committee will have the following major functions:

- Update the Critical Care Resource Allocation Framework and Protocol
 - This will be necessary in the case of:
 - New clinical data that can inform prognostic models (informed by COVID-19 Evidence Review Team)
 - Rapid escalation in ICU capacity utilization, which may necessitate an expansion of exclusion criteria.
 - Extreme scarcity, which may necessitate an expansion of criteria for palliation.
 - Feedback from frontline clinicians that indicates the Critical Care Resource Allocation Framework is ineffective (not meeting stated goals of saving the most lives) or has unintended consequences.
- Recommend the Critical Care Triage Stage to the Chief Medical Officer and communicate this stage to all relevant stakeholders in collaboration with the System Flow Coordination Centre
- Review triage decisions for fidelity to triage policy.
- Mediate disagreements that arise within the Triage Team(s)
- Make recommendations for termination of the Triage Plan when appropriate (see 6. Termination, below)
- Perform a retrospective quality improvement analysis.

The Committee will consist of a minimum of:

At least two (2) physicians:

- one (1) tertiary critical care physician; and
- one (1) tertiary acute care physician.

At least two (2) acute care nurses:

- one (1) from a tertiary center; and
- one (1) from a rural centre.

One (1) physician with expertise in transplant allocation decisions and one (1) pediatrician;

One (1) legal advisor;

One (1) patient-family advisor registered with the SHA;

One (1) representative of First Nations and Metis Health registered with the SHA;

One (1) rural acute care physician; and

Ethics Director of the SHA.

Saskatchewan Critical Care Resource Allocation Framework – COVID-19 Pandemic

Any meeting of the Critical Care Triage Oversight Committee must achieve a quorum of $\geq 70\%$ (7/10 members). Decisions are made by majority, with the Chair generally abstaining to vote, unless needed to break a tie.

5.6 Communication with Families

Messaging regarding triage decisions should be concise and clear. The circumstances of the pandemic, as well as the goal of saving as many lives as possible, should be emphasized. Additionally, families of patients admitted to the ICU should be counselled that ICU care is a “trial of therapy”, and if the patient does not meet criteria for continued care (due to deterioration or lack of improvement), ICU care may be re-allocated. See Appendix 6 for a communication guide for families and patients.

5.7 Reviews

5.7.1 Immediate Reviews

Reviews should be processed in an efficient manner. Given the nature of mass critical care incidents, only fact-based reviews from 1) the Most Responsible Physicians or 2) any Triage Team member will be accepted. These reviews could be on the basis of an initial evaluation that is incorrect, a change (improvement or deterioration) in clinical state, new clinical information, or evidence of deviation from the approved triage process.

Reviews from the patient’s MRP are accessed through SYSTEM FLOW COORDINATION CENTRE. The MRP should ask to be directed to the Triage Team for a review of a prior decision. The review should be conducted by a different Triage Team than the one that made the first triage decision. If the second Triage Team decision is thought to be incorrect for the reasons outlined above, the MRP may ask for a review by the Critical Care Triage Oversight Committee. In contrast, requests for a review from any member of the Triage Team must be directed to the Critical Care Triage Oversight Committee directly.

5.7.2 Retrospective Reviews

The Critical Care Triage Oversight Committee will conduct a retrospective quality improvement review. This will identify areas of process improvement, inform future triage protocols, and contribute to the literature on performance of triage protocols.

Following the pandemic, families may request further information regarding Triage Team decisions through the Client Concerns Coordinators, or through the usual complaints process in their local centre. These requests for further information will be reviewed by the Critical Care Triage Oversight Committee. Open and honest communication regarding the reasons for the Triage Team decision and Triage Team process should be provided to families.

6. Termination

The *Critical Care Resource Allocation Framework* will be terminated by the CMO upon the recommendation of the Critical Care Triage Oversight Committee. The termination of this framework should be recommended based on consultation with public health experts and hospital administrators. Triggers that should alert the Oversight Committee to the potential need for termination of the Triage plan include 1) return to a pre-defined level of capacity utilization and/or 2) a sustained reduction in the incidence of COVID-19 cases.

7. Psychological Support

The decisions and actions that the Triage Team, Critical Care Triage Oversight Committee, patient family advisors and frontline healthcare workers must undertake in the face of the COVID-19 pandemic are, and will continue to be, a significant source of moral and psychological distress. Saskatchewan Health Authority will provide access to psychological support for all healthcare workers and volunteer members of the Oversight Committee involved in this process.

8. Limitations

The Critical Care Resource Allocation Framework describes a plan for the just allocation of ICU beds and ventilators in the event of scarcity. It does not address specifically the provision of other life-supportive therapies such as dialysis, medications and blood transfusions. If necessary, these should be allocated on a case-by-case basis by the Triage Team using best clinical judgement, prioritization schemes described above, expert consultation, and other frameworks that may be available (for example, the National Advisory Committee on Blood and Blood Products).

The *Critical Care Resource Allocation Framework* represents a **minimum** criterion on which clinical decisions can be made. Should ICU bed and ventilator shortages become more severe than anticipated, consideration should be given to broadening exclusion criteria for ICU care and developing a formalized system of prioritization of patients for intubation. This *Critical Care Resource Allocation Framework* should therefore be continually revised by the Critical Care Triage Oversight Committee as more information about the disease process, and the extent of the strain on healthcare resources becomes clearer.

9. Resource Allocation Framework Development

This document was developed by physicians, nurses, ethicists, healthcare system administrators, and a patient-family advisor. This team represented expertise in Critical Care, Anesthesia, Internal Medicine, Emergency Medicine, Trauma, Transfusion Medicine, Cardiology, and General Surgery. Physicians from Northern and Rural Integrated Health reviewed a draft version and provided feedback to the Triage Committee process. Consultants representing Neurology, Neurosurgery and Geriatrics were also involved where necessary.

10. Appendices

10.1 Appendix 1 Funded ICU Beds in Saskatchewan

Site	Beds
Battlefords Union Hospital (North Battleford)	3
Victoria Hospital (Prince Albert)	8
Royal University Hospital (Saskatoon)	15
St. Paul's Hospital (Saskatoon)	12
Regina General Hospital Surgical ICU (Regina)	10
Regina General Hospital Medical ICU (Regina)	10
Pasqua Hospital (Regina)	7
Cypress Regional Hospital (Swift Current)	4
Five Hills Health Region (Moose Jaw)	4
Yorkton Regional Health Centre (Yorkton)	6
Total	79

10.2 Appendix 2 Literature Review

10.2.1 Ontario Health Plan for an Influenza Pandemic

The Critical Care Stage 4 protocol is largely based on the Ontario Health Plan for an Influenza Pandemic (OH-PIP), published in CMAJ (6). The OH-PIP protocol uses four main components:

- Inclusion criteria attempt to identify patients who may benefit from admission to critical care (respiratory failure or hypotension).
- Exclusion criteria attempt to identify patients who will have a poor prognosis despite ICU care (advanced underlying medical illness or severe presentation of critical illness, see 4a). A patient meeting any **one** of the exclusion criteria would not be considered an ICU candidate.
- Minimum qualifications for survival dictates criteria for palliation at 48 and 120 hours post ICU admission, with the goal of identifying patients who are not improving, or those who are likely to have a poor outcome. These minimum qualifications for survival are based on SOFA scores. The OH-PIP protocol suggests palliation for any patient with a SOFA score > 11, if the patient meets any exclusion criteria, or if the patient's SOFA score is 8-11 with no improvement since admission.
- Prioritization of patients for admission to the ICU based on SOFA scores. As discussed, the goal is to identify patients with single organ failure, who are likely to survive. Therefore, patients with a SOFA score < 7 are given highest priority for ICU care, while those with a SOFA score of 8-11 are given a lower priority.

10.2.2 Pandemic-specific literature

The SOFA score, developed for sepsis, was found in the H1N1 pandemic to be far less predictive of mortality for viral pneumonias than presumed (4). Retrospective data from the H1N1 pandemic supports this hypothesis, and shows that the use of the SOFA score at the reassessment time period of 48 hours may result in the palliation of patients who would likely survive (18). Initial reports of COVID-19 suggest that lung injury progresses in the second week of illness, and severe cases may require potentially prolonged mechanical ventilation. Therefore, failure to improve in the first few days should not be thought to portend a poor prognosis (4).

- *Modification for Critical Care Triage Stage 4 Protocol: The patient should be reassessed, and withdrawal of life-sustaining therapy could be considered at any time only if patients are clearly worsening (defined as the development of 2 additional organ failures).*

10.2.3 SOFA score cut-offs

The CHEST guidelines suggest that if a physiologic prediction score can be reliably demonstrated to predict mortality, patients with a predicted mortality rate >90% should be excluded and/or palliated. In a retrospective cohort study of three multi-system ICUs, all-comers with a SOFA score of >11 had a 59% mortality, while those with H1N1 and a SOFA score of >11 had a 31% mortality. Patients with a SOFA score > 20 had a >90% mortality (19).

- *Modification for Critical Care Triage Stage 4 Protocol: The SOFA score of > 11 has been removed as a criterion for palliation at reassessment periods.*
- *Modification for Critical Care Triage Stage 4 Protocol: A SOFA score > 20 has been included as an indication to consider withdrawal of life-sustaining therapy for any ICU patient (in consultation with the Triage Team).*

10.2.4 Age and Clinical Frailty Scale

Although the OH-PIP triage protocol included an age cut-off, this was only added after extensive feedback and consultation (6). Newer evidence suggests that risk for poor ICU outcomes is not defined exclusively by age (20). Instead, frailty (defined as Clinical Frailty Scale [CFS] of 5 or greater) is associated with higher in-hospital and long-term mortality (21). In octogenarians, frailty has been found to be predictive of short-term ICU mortality (22,23). Frailty may portend a poorer outcome in younger critically ill patients as well (24). However, the scale was developed for use in geriatric populations, and the validity of applying it more broadly are still being investigated.

- *Modification Critical Care Triage Stage 3 & 4 Protocol: The combination of age (>80) and frailty are used as exclusion criteria.*

10.2.5 COVID-19 Specific Literature

Chinese literature suggests that approximately 5% of COVID-19 positive patients will require ICU care. The case fatality rate is estimated to be approximately 1-2% (25,26). ICU mortality is believed to be high, with retrospective cohort studies estimating a mortality of 50-60% or higher (27,28).

Risk factors for severe disease and mortality, as well as predictors of mortality are still emerging. Age has been identified as a risk factor for severe disease and mortality (25,28,29). The case fatality rate for patients aged 80 years and older appears to range from 14.8-20.2% (30). SOFA score, age, underlying comorbidity (COPD, coronary artery disease, diabetes and hypertension) were also found to increase the risk of in-hospital death (31).

Patients presenting with COVID-19 also have a protracted course in the ICU, based on the Italian experience (personal communication, Dr. Tommaso Togni, Mar 23, 2020). Zhou et al. compared the clinical course of survivors and non-survivors from hospital admission to ICU discharge or death (31). Compared to survivors, acute cardiac and kidney injury developed in significantly more non-survivors prior to death in the ICU. The development of further organ dysfunction, therefore, may signal a poor prognosis.

- *Modification for Critical Care Triage Stage 4 Protocol: The reassessment criterion has changed from the CMAJ recommendations for reassessment at 48 and 120 hours to an ongoing reassessment every 72 hours.*
- *Modification for Critical Care Triage Stage 4 Protocol: A withdrawal of life-sustaining therapies should be considered in conjunction with the Triage Team if the patient develops two additional organ failures.*

Saskatchewan Critical Care Resource Allocation Framework – COVID-19 Pandemic

10.3 Appendix 3 Detailed Exclusion Criteria for Critical Care Triage Stages 1-4

	Critical Care Triage Stage 1	Critical Triage Stage 2	Critical Care Triage Stage 3 & 4
<u>Patient Preference</u>	As documented by Goals of Care and Advance Care Planning discussions	As documented by Goals of Care and Advance Care Planning discussions.	As documented by Goals of Care and Advance Care Planning discussions.
<u>Past Medical History</u>	Clinician judgement. Must be mutually agreed upon by patient and clinician.	<ul style="list-style-type: none"> • End stage organ failure* <ul style="list-style-type: none"> ○ Heart failure NYHA Class IV ○ Lung disease <ul style="list-style-type: none"> ▪ COPD with FEV1 < 30% predicted or baseline PaO2 < 55mmHg, or secondary pulmonary hypertension ▪ Cystic fibrosis with postbronchodilator FEV1 < 30% predicted or baseline PaO2 < 55mmHg ▪ Pulmonary fibrosis with VC or TLC < 60% predicted, baseline PaO2 < 55mmHg, or secondary pulmonary hypertension ▪ Primary pulmonary hypertension with NYHA Class IV symptoms ○ Cirrhosis with MELD > 20 	<ul style="list-style-type: none"> • Metastatic malignant disease with survival expected < 6 months • Advanced and irreversible immunocompromise • Severe, irreversible, and terminal neurologic event or condition (end-stage dementia) • Advanced untreatable neurodegenerative disease (Parkinson’s disease, ALS) • End stage organ failure* <ul style="list-style-type: none"> • Heart NYHA Class III or IV • Lung disease <ul style="list-style-type: none"> ○ COPD with FEV1 < 30% predicted or baseline PaO2 < 55mmHg, or secondary pulmonary hypertension ○ Cystic fibrosis with postbronchodilator FEV1 < 30% predicted or baseline PaO2 < 55mmHg ○ Pulmonary fibrosis with VC or TLC < 60% predicted, baseline PaO2 < 55mmHg, or secondary pulmonary hypertension ○ Primary pulmonary hypertension with NYHA Class IV symptoms • Cirrhosis with MELD > 20
<u>Severity of Presenting Illness</u>	Clinician judgement. Must be mutually agreed upon by patient and clinician.	<ul style="list-style-type: none"> • Age > 80 AND cardiac arrest with one of the following poor prognostic factors** <ul style="list-style-type: none"> ○ Unwitnessed cardiac arrest ○ Any PEA arrest ○ Recurrent cardiac arrest 	<ul style="list-style-type: none"> • Cardiac arrest, regardless of age, with one of the following poor prognostic factors: <ul style="list-style-type: none"> ○ Unwitnessed cardiac arrest ○ Any PEA arrest ○ Recurrent cardiac arrest • Severe trauma or burns <ul style="list-style-type: none"> ○ Trauma with ISS > 16, unless determined to be acutely reversible ○ Burns with two of the following: <ul style="list-style-type: none"> ▪ Age > 60, >40% BSA, inhalational injury • Severe neurologic injury <ul style="list-style-type: none"> ○ TBI meeting all of the following criteria: <ul style="list-style-type: none"> ▪ Age > 60, GCS < 8, and one or both unreactive pupils ○ SAH with WFNS Grade V ○ CVA <ul style="list-style-type: none"> ▪ Age > 70 with large MCA territory CVA, significant deficits, not amenable to reperfusion ○ Posterior circulation stroke with GCS < 8
<u>Age and Frailty Score</u>	Clinician judgement. Must be mutually agreed upon by patient and clinician.	Clinician judgement. Must be mutually agreed upon by patient and clinician.	<ul style="list-style-type: none"> • Age > 80 AND • Clinical Frailty Score of 5 or greater

*If the patient is currently on a waiting list for organ transplant, and admission to ICU would place them at the top of the waiting list, an exception should be made and the patient should be admitted to the ICU. However, if organ donation programs are put on hold due to the pandemic, this exception is no longer valid.

**If the patient’s MRP determines the cause of the cardiac arrest to be acutely reversible, the patient is not excluded from ICU care.

Saskatchewan Critical Care Resource Allocation Framework – COVID-19 Pandemic

10.4 Appendix 4 Scoring Systems

SOFA Score	0	1	2	3	4
PF Ratio	>400	≤ 400	≤ 300	≤ 200 and MV	≤ 100 and MV
Platelet Count	>150	≤ 150	≤ 100	≤ 50	≤ 20
Bilirubin (umol/L)	< 20	20-32	33-101	102-204	>204
Hypotension (ug/kg/min)	None	MAP<70	Dopamine ≤ 5 or dobutamine (any)	Dopamine ≤ 5 or Epinephrine ≤ 0.1 or Norepinephrine ≤ 0.1	Dopamine > 15 or Epinephrine > 0.1 or Norepinephrine > 0.1
GCS	15	13-14	10-12	6-9	<6
Creatinine (umol/L)	<110	110-170	171-299	300-440 or < 500mL/day	>440 or < 200mL/day

World Federation of Neurological Surgeons (WFNS Grade)	Grade	GCS	Motor Deficit
	I	15	Absent
	II	14-13	Absent
	III	14-13	Present
	IV	12-7	Present or Absent
	V	6-3	Present or Absent

NYHA Classification	Class	Description
	I	No symptoms or limitation in ordinary physical activity (i.e. walking, climbing stairs, etc.)
	II	Mild symptoms (i.e. shortness of breath or angina) and slight limitation of ordinary activity
	III	Marked limitation in activity due to symptoms, able to perform even less-than ordinary activity (i.e. walking only short distances 20-100m)
	IV	Severe limitations with symptoms at rest. Mostly bedbound.

Saskatchewan Critical Care Resource Allocation Framework – COVID-19 Pandemic

MELD Score	Scoring Criteria
	Dialysis in the last week? (Yes or No)
	Creatinine
	Bilirubin
	INR
	Serum sodium
Calculator: https://www.mdcalc.com/meld-score-model-end-stage-liver-disease-12-older#evidence	

Clinical Frailty Scale	Score	Description
	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 have 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 or 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.

ISS Score (Trauma)	Available at https://www.mdcalc.com/injury-severity-score-iss
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10.5 Appendix 5 Triage Documentation

Triage Tracking Log

Tracking Number	PHN	DOB	Location	Time of Call to Triage Team	Triage Decision	RA Time*	RA Decision*
1							
2							
3							
4							
5							
6							
7							
8							
9							
10							

Triage Decision = Not meeting inclusion criteria, meets exclusion criteria

RA Time* = Reassessment Time, if applicable

RA Decision* = Reassessment Decision, if applicable

Saskatchewan Critical Care Resource Allocation Framework – COVID-19 Pandemic

Sample Patient Triage Decision – COVID-19 Critical Care Triage Stage 4

First Triage Decision (Stage 4)			
Patient Information	Patient PHN	Patient DOB	Location
Comorbidities (List)			
Inclusion Criteria (check)	<u>Refractory Hypoxemia</u> <input type="checkbox"/> SpO2 <90% with FiO2 >0.85 <input type="checkbox"/> Respiratory acidosis (pH <7.2) <input type="checkbox"/> Inability to protect or maintain airway <input type="checkbox"/> Other clinical evidence of impending respiratory failure (Specify: _____) _____)		<u>Shock nonresponsive to fluids</u> <input type="checkbox"/> SBP <90mmHg or relative hypotension PLUS one of: <input type="checkbox"/> Altered LOC <input type="checkbox"/> Decreased UOP <input type="checkbox"/> Elevated lactate (Level: _____) <input type="checkbox"/> Other end-organ failure (Specify: _____)
Exclusion Criteria	<u>Past Medical History</u>	<input type="checkbox"/> Metastatic malignant disease with survival expected < 6 months <input type="checkbox"/> Advanced and irreversible immunocompromise <input type="checkbox"/> Severe, irreversible, and terminal neurologic event or condition (end-stage dementia) <input type="checkbox"/> Advanced, irreversible neurodegenerative disease (Parkinson’s disease, ALS) <ul style="list-style-type: none"> • End stage organ failure <ul style="list-style-type: none"> • Heart <ul style="list-style-type: none"> <input type="checkbox"/> NYHA Class III or IV • Lungs <ul style="list-style-type: none"> <input type="checkbox"/> COPD with FEV1 < 30% predicted, baseline PaO2 < 55mmHg, or secondary pulmonary hypertension <input type="checkbox"/> Cystic fibrosis with postbronchodilator FEV1 < 30% predicted or baseline PaO2 < 55mmHg <input type="checkbox"/> Pulmonary fibrosis with VC or TLC < 60% predicted, PaO2 < 55mmHg, or secondary pulmonary hypertension <input type="checkbox"/> Primary pulmonary hypertension with NYHA Class IV • Liver <ul style="list-style-type: none"> <input type="checkbox"/> MELD Score > 20 	
	<u>Severity of Presenting Illness</u>	<ul style="list-style-type: none"> • Cardiac arrest <ul style="list-style-type: none"> <input type="checkbox"/> Unwitnessed cardiac arrest <input type="checkbox"/> Any PEA arrest <input type="checkbox"/> Recurrent cardiac arrest • Severe trauma or burns <ul style="list-style-type: none"> <input type="checkbox"/> Severe trauma with ISS > 16 (unless thought to be acutely reversible) <input type="checkbox"/> Severe burns with two of <ul style="list-style-type: none"> ▪ Age > 60 ▪ >40% BSA ▪ Inhalational injury • Severe neurologic injury <ul style="list-style-type: none"> <input type="checkbox"/> TBI meeting <u>all</u> of the following: Age > 60, GCS < 8 and one or both unreactive pupils. <input type="checkbox"/> SAH with WFNS Grade V <input type="checkbox"/> CVA with either <ul style="list-style-type: none"> ▪ Age > 70, and large MCA territory CVA with significant deficits, not amenable to reperfusion ▪ Posterior circulation stroke with GCS < 8 	
	<u>Age and Clinical Frailty Scale</u>	Both of: <input type="checkbox"/> Age > 80 <input type="checkbox"/> Clinical Frailty Scale 5 or greater	
If the patient has at least ONE inclusion criteria, and NO exclusion criteria, continue to prioritization according to SOFA Score. Otherwise, document reason for not continuing: _____ (i.e. patient meets exclusion criteria of _____)			

Saskatchewan Critical Care Resource Allocation Framework – COVID-19 Pandemic

Prioritization (Stage 4)						
SOFA Score (Circle)		0	1	2	3	4
	PF Ratio	>400	≤ 400	≤ 300	≤ 200 and MV	≤ 100 and MV
	Platelet Count	>150	≤ 150	≤ 100	≤ 50	≤ 20
	Bilirubin (umol/L)	< 20	20-32	33-101	102-204	>204
	Hypotension (ug/kg/min)	None	MAP<70	Dopamine ≤ 5 or dobutamine (any)	Dopamine ≤ 5 or Epinephrine ≤ 0.1 or Norepinephrine ≤ 0.1	Dopamine > 15 or Epinephrine >0.1 or Norepinephrine >0.1
	GCS	15	13-14	10-12	6-9	<6
Creatinine (umol/L)	<110	110-170	171-299	300-440 or < 500mL/day	>440 or < 200mL/day	
Calculated SOFA Score						
Prioritization	SOFA <7 Highest Priority (Red)			SOFA ≥ 8 Intermediate Priority (Yellow)		
Reassessment Required At	Date: _____		Time: _____			
Reassessment Decision (Stage 4)						
Reassessment	Confirm Patient PHN _____		Confirm Patient DOB _____			
Reassessment SOFA Score (Circle)		0	1	2	3	4
	PF Ratio	>400	≤ 400	≤ 300	≤ 200 and MV	≤ 100 and MV
	Platelet Count	>150	≤ 150	≤ 100	≤ 50	≤ 20
	Bilirubin (umol/L)	< 20	20-32	33-101	102-204	>204
	Hypotension (ug/kg/min)	None	MAP<70	Dopamine ≤ 5 or dobutamine (any)	Dopamine ≤ 5 or Epinephrine ≤ 0.1 or Norepinephrine ≤ 0.1	Dopamine > 15 or Epinephrine >0.1 or Norepinephrine >0.1
	GCS	15	13-14	10-12	6-9	<6
Reassessment SOFA Score						
<p>Compare Reassessment SOFA score with admission SOFA Score.</p> <p>If two additional organ failures have developed, consider palliative care only.</p> <p>Reassessment decision and reason: _____</p> <p>_____</p>						

10.6 Appendix 6 Family Communication

Note that all of the situations below assume that Critical Care Triage Stage 2, 3 or 4 have been activated. The phone call should be performed by the Most Responsible Physician (MRP) and documented in the Interdisciplinary Progress Notes. The MRP should speak with the patient if a mature minor, or if the patient is not a mature minor or lacks capacity, the MRP should ensure that s(he) is speaking with the patient’s appropriate substitute decision maker. Pediatric patients who are mature minors should be encouraged to include their parents or legal guardians in the discussion. If the patient does have the capacity to understand the situation, the MRP must speak to the patient directly. If not, the MRP should ensure that s(he) is speaking with the patient’s appropriate substitute decision maker.

Situation	Script
<p>Patient is admitted to the ICU</p>	<p>Hello, my name is _____. I am the doctor looking after [<u>Patient’s name</u>]. Unfortunately, [<u>Patient’s name</u>]’s condition has gotten worse, and we have to take <u>him/her</u> to the ICU. In the ICU, [<u>Patient’s name</u>] will be placed on a breathing machine or ventilator and will be given medications to increase <u>his/her</u> blood pressure if needed. In other words, <u>he/she</u> is needing life support right now. That is a lot of information for me to have given you. Do you have any questions? [<u>Answer questions with as much information as is known</u>].</p> <p>[Only read the following paragraph if the patient is COVID-19 positive. If the patient has other reasons for requiring critical care, provide a focused discussion of prognosis here]. The other important thing for you to know is, that with the COVID-19 virus, people who need life support are very, very sick. This is especially true if they have underlying medical conditions, like [<u>insert medical conditions that patient has, if any</u>]. It may be possible that we will not be able to keep [<u>Patient’s name</u>] alive, and I am worried that he may die in the ICU. I wanted you to know that we are going to do everything that we can in the next 72 hours to try to get [<u>Patient’s name</u>] stabilized. If we see that <u>he/she</u> is clearly getting worse earlier than that, and that <u>he/she</u> will not survive, we will be completely honest and tell you this. If [<u>Patient’s name</u>] gets worse suddenly, we will not be able to provide CPR to <u>him/her</u> to try to restart his/her heart. I’m sorry to have to tell you all of this information all together, but I want you to know how serious the situation is. Do you have any other questions for me? [<u>Answer questions with as much information as is known</u>].</p> <p>In 72 hours, our Triage Team will re-evaluate how [<u>Patient’s name</u>] is doing. If <u>he/she</u> is getting worse, we may be in a situation where we would be directed by the Triage Team provide comfort treatment only to [<u>Patient’s name</u>]. This decision will be based on very specific criteria developed by the Health Authority. Again, this is a really hard conversation for us to have over the phone, but do you</p>

Saskatchewan Critical Care Resource Allocation Framework – COVID-19 Pandemic

	<p>have any questions for me? <u>[Answer questions with as much information as is known]</u>.</p>
<p>Patient is refused admission by the Triage Team and is at the end-of-life</p>	<p>Hello, my name is _____. I am the doctor looking after <u>[Patient’s name]</u>. Unfortunately, <u>[Patient’s name]’s</u> condition has gotten worse. Right now, he/she <u>[insert description of clinical status here, i.e. his/her lungs are so sick that, despite providing maximum oxygen, we can’t keep his/her oxygen levels in the normal range]</u>. I have discussed the situation with our Triage Team about whether we should take (Patient’s name) to the ICU. Unfortunately, we are not in a normal situation in Saskatchewan. Because of the COVID-19 crisis, we don’t have enough breathing machines or ICU beds. Therefore, the Health Authority has stated that we must provide our resources to patients who meet very specific criteria developed by the Health Authority.</p> <p>When we look at <u>[Patient’s name]’s</u> case, because of <u>[insert exclusion criteria here]</u>, we know that even if we were to put him/her on life support, he/she would still have an extremely poor chance of making it out of the ICU alive. I have advocated for <u>[Patient’s name]</u> to be taken to the ICU, but our Triage Team has made a decision that we cannot provide a <u>breathing machine/ICU bed</u> for him/her based on their very specific criteria <u>[give details]</u>.</p> <p>Even though we cannot provide a <u>[breathing machine/ICU bed]</u> for <u>[Patient’s name]</u>, we are going to do everything that we can to make sure that <u>he/she</u> is comfortable during the final stage of his illness in the hospital. We will provide medications for pain and breathing problems, and make sure that <u>he/she</u> is attended to by our nurses and doctors. I am so sorry to have to tell you this.</p> <p><u>[Make arrangements for the family to “be” with the patient as much as possible. If visitor restrictions do not allow family to be at the bedside of the dying patient, then provide the opportunity for a video conference, or offer to tell the patient a message from the family.]</u></p> <p>Do you have any other questions for me? Is there anything else I can do for you?</p> <p><u>[Arrange for Social Work Follow-up]</u></p>
<p>A decision is made to re-allocate ventilator (i.e. at 72 hour or later reassessment).</p>	<p>Hello, my name is _____. I am the doctor looking after <u>[Patient’s name]</u>. We have been taking care of <u>[Patient’s name]</u> for <u>[72hours/120 hours]</u> in the ICU, and watching <u>[his/her]</u> progress. We have seen him/her <u>[not get better/get slowly worse]</u>. At this point we are supporting <u>his/her</u> <u>[provide clinical information here i.e. lungs, heart, kidneys etc]</u>.</p> <p>As you know, we are in a situation in Saskatchewan that, because of the COVID-19 crisis, we don’t have enough breathing machines or ICU beds. Therefore, the</p>

	<p>Health Authority has stated that we must provide our resources to patients who continue to meet very specific criteria. At this time, our Triage Team has looked at [Patient’s name]’s situation, and because he is <u>[not getting better/getting worse]</u> we cannot provide the <u>breathing machine/ICU bed</u> to <u>him/her</u> anymore. This was not a decision that was taken lightly, and it was based on very specific criteria developed by the Health Authority.</p> <p>Even though we cannot provide a <u>[breathing machine/ICU bed]</u> for <u>[Patient’s name]</u>, we are going to do everything that we can to make sure that <u>he/she</u> is comfortable during the final stage of his illness in the hospital. We will provide medications for pain and breathing problems, and make sure that <u>he/she</u> is attended to by our nurses and doctors. I am so sorry to have to tell you this.</p> <p><u>[Make arrangements for the family to “be” with the patient as much as possible. If visitor restrictions do not allow family to be at the bedside of the dying patient, then provide the opportunity for a video conference, or offer to tell the patient a message from the family.]</u></p> <p>Do you have any other questions for me? Is there anything else I can do for you?</p> <p><u>[Arrange for Social Work Follow-up]</u></p>
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10.7. Appendix 7 Abbreviations

ICU: Intensive Care Unit
OH-PIP: Ontario Health Pandemic Influenza Plan
CFS: Clinical Frailty Scale
CMAJ: Canadian Medical Association Journal
SOFA score: Sequential Organ Failure Assessment Score
VF/VT arrest: Ventricular fibrillation/Ventricular tachycardia arrest
MRP: Most responsible physician
NYHA Class IV: New York Heart Association Class IV
COPD: Chronic Obstructive Pulmonary Disease
FEV1: Forced of Expiratory Volume in 1 second
PaO2: Partial pressure of oxygen in the blood
VC: Vital Capacity
TLC: Total lung capacity
MELD: Model for end-stage liver disease
PEA arrest: Pulseless Electrical Activity
CVA: Cerebrovascular Accident
MCA territory: Middle Cerebral Artery territory
GCS: Glasgow Coma Scale
SYSTEM FLOW COORDINATION CENTRE: Acute Care Access Line
TBI: Traumatic Brain Injury
SAH: Subarachnoid hemorrhage
WFNS: World Federation of Neurologic Surgeons
PHN: Personal Health Number
DOB: Date of Birth

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Saskatchewan Critical Care Resource Allocation Framework – COVID-19 Pandemic

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Saskatchewan Critical Care Resource Allocation Framework – COVID-19 Pandemic

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