

North Texas Mass Critical Care Guidelines Document Hospital and ICU Triage Guidelines for ADULTS

Prepared by NORTH TEXAS MASS CRITICAL CARE TASK FORCE

VERSION 1.0 — JANUARY 2014

Purpose:

To provide a triage protocol to allocate scarce healthcare resources (intensive care services, including ventilators) to those who are most likely to benefit medically during a **pandemic respiratory crisis or other emergency situation** that has the potential to overwhelm available intensive care resources. Application of these guidelines will require physician judgment at the point of patient care.

Basic premises:

- ☞ **Graded guidelines** should be used to control resources more tightly as the severity of a pandemic increases.
- ☞ **Priority should be given to patients for whom treatment most likely would be lifesaving** and whose functional outcome most likely would improve with treatment. Such patients should be given priority over those who would likely die even with treatment and those who would likely survive without treatment.
- ☞ Under a declared state of emergency, the governor maintains the authority to supersede healthcare regulations or statutes that may come into conflict with these guidelines.

Scope:

- ☞ **These triage guidelines apply to all healthcare professionals, clinics, and facilities in North Texas.**
- ☞ **The guidelines apply to all patients 14 years and older.** Please see *Hospital and ICU Triage Guidelines for Pediatrics* for patients 13 years and younger.

When activated:

Guidelines should be activated in the event the governor declares a pandemic respiratory crisis or other public health emergency that has the potential to overwhelm available intensive care resources.

Hospital and medical staff planning:

- ☞ **Each hospital should:**
 - **Establish a triage committee** for the review and support of compliance with this policy when implemented. Consider a team of at least 3 individuals, including an intensivist and 2 or more of the following: the hospital medical director, a nursing supervisor, a board member, a member of the hospital ethics committee, a pastoral care representative, a social worker, and 1 or more independent physicians.
 - **Institute a supportive and/or palliative care team** to provide symptom management, counseling, and care coordination for patients, and support for families of patients who do not receive intensive care unit services.
- ☞ **Medical staff** should establish a method of providing peer support and expert consultation to physicians making these decisions.

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OVERVIEW OF PANDEMIC TRIAGE LEVELS

Triage Level 1 Early in the pandemic	Triage Level 2 Worsening pandemic	Triage Level 3 Worst-case scenario
- As the threat of the activation of the triage protocol increases, each hospital will cancel outpatient procedures, including elective surgeries that require a back-up option of hospital admission and ventilator support if complications arise. - Note: In the event of a severe and rapidly progressing pandemic, start with Triage Level 2.	- Hospitals have surged to maximum bed capacity, and emergency departments are overwhelmed. - There are not enough beds to accommodate all patients needing hospital admission and not enough ventilators to accommodate all patients with respiratory failure. - Hospital staff absenteeism is 20% to 30%.	- Hospitals have implemented altered standards of care regarding nurse/patient ratios and have expanded capacity by adding patients to occupied hospital rooms. - Hospital staff absenteeism is 30% to 40%.

PRE-HOSPITAL SETTINGS

Initial Triage

Applies to: Patients who appear for care in physician offices or clinics, or in pre-evaluation spaces for emergency departments

Implemented by: Physicians, clinic staff, pre-screening staff

Other uses: Publish in newspapers, place on Web sites for self-use by public

ALL Triage Levels: Use **INITIAL TRIAGE TOOL** (*Appendix A*) to provide initial triage screening, as well as instructions and directions for patients who need additional care or medical screening.

EMS, Physician Offices and Clinics

Applies to: Patients who present for care or call for guidance for where to go or how to care for ill family members

Implemented by: Primary care staff, hospital help lines, community help lines, and health department help lines

Triage Level 1:

- Use **INITIAL TRIAGE TOOL** (*Appendix A*) to evaluate patients before sending to hospital ED or treating in an outpatient facility.

Triage Levels 2 and 3:

- Continue to use **INITIAL TRIAGE TOOL** (*Appendix A*).
- Initiate **EXCLUSION CRITERIA for Hospital Admission** (page 5) to evaluate patients. Do not send patients meeting **EXCLUSION CRITERIA** to the hospital for treatment. Send home with care instructions (*Appendices pending*).

Home Care, Long-term Care Facilities, and Other Institutional Facilities (e.g., mental health, correctional, handicapped)

Applies to: Patients in institutional facilities

Implemented by: Institutional facility staff

ALL Triage Levels:

- Ensure that all liquid oxygen tanks are full.
- Limit visitation to control infection.

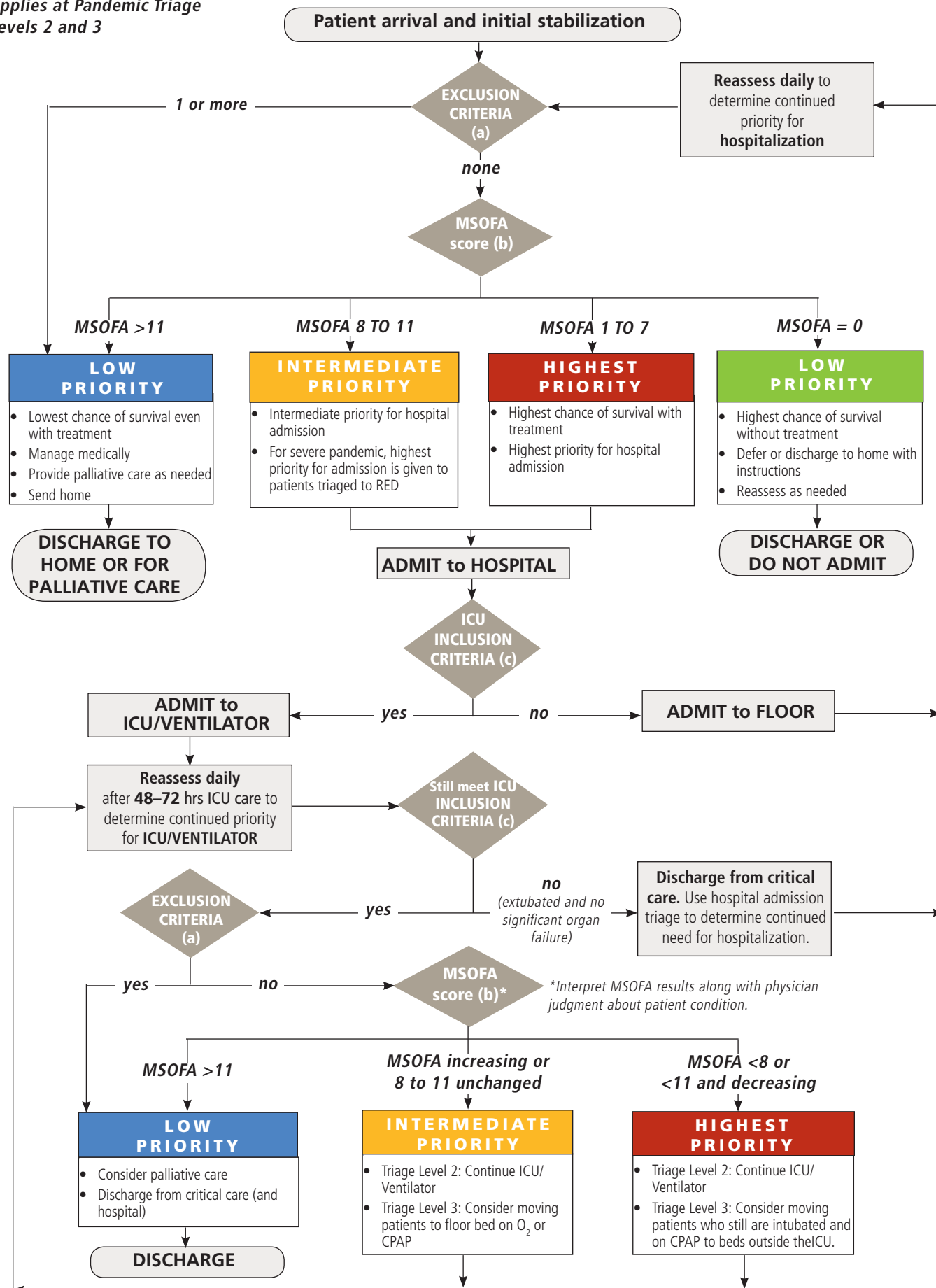
Triage Levels 2 and 3:

- Use **EXCLUSION CRITERIA for Hospital Admission** (page 5) to evaluate patients. Do not transfer patients meeting exclusion criteria to the hospital for treatment.
- Give palliative and supportive care in place.

HOSPITAL SETTINGS

ALGORITHM: HOSPITAL AND ICU/VENTILATOR ADMISSION TRIAGE

Applies at Pandemic Triage
Levels 2 and 3



TRIAGE TOOLS AND TABLES

(a) EXCLUSION CRITERIA for

Hospital Admission:

The patient is excluded from hospital admission or transfer to critical care if ANY of the following is present:

- ☐ (1) **Known Do Not Attempt Resuscitation (DNAR) or Out of Hospital-DNR (OOH-DNR) status.**
- ☐ (2) **Severe and irreversible chronic neurologic condition** with persistent coma or vegetative state.
- ☐ (3) **Acute severe neurologic event with minimal chance of functional neurologic recovery (physician judgment).** Includes traumatic brain injury, severe hemorrhagic stroke and intracranial hemorrhage.
- ☐ (4) **Traumatic injury:** Severe traumatic brain injury, hemodynamically unstable traumatic injuries requiring more than 10 units of blood transfusion, or more than one pressor, ARDS requiring high peep >15 or HFOV; Revised Trauma Score <2 [see (e)]. Revised Trauma Score: _____
- ☐ (5) **Severe burns with anticipated survival "Low," "Low/Expectant" or "Expectant"** as indicated by age and burn size on the Triage Decision Table For Burn Victims (f). Burns not requiring critical care resources may be cared for at the local facility. Score _____
- ☐ (6) **Cardiac arrest not responsive to ACLS interventions within 20–30 minutes.**
- ☐ (7) **Known severe dementia** medically treated and requiring assistance with activities of daily living.
- ☐ (8) **Advanced untreatable neuromuscular disease** (such as ALS or end-stage MS) requiring assistance with activities of daily living or chronic ventilatory support.
- ☐ (9) **Incurable metastatic malignant disease.**
- ☐ (10) **End-stage organ failure** meeting the following criteria:
 - ☐ **Heart: NEW YORK HEART ASSOCIATION (NYHA) FUNCTIONAL CLASSIFICATION SYSTEM Class III or IV (g). Class:** _____
 - ☐ **Lung** (any of the following):
 - ☐ Chronic Obstructive Pulmonary Disease (COPD) with Forced Expiratory Volume in one second (FEV₁) <25% predicted baseline, PaO₂ <55 mm Hg, or severe secondary pulmonary hypertension.
 - ☐ Cystic fibrosis with post-bronchodilator FEV₁ <30% or baseline PaO₂ <55 mm Hg.
 - ☐ Pulmonary fibrosis with VC or TLC <60% predicted, baseline PaO₂ <55 mm Hg, or severe secondary pulmonary hypertension.
 - ☐ Primary pulmonary hypertension with NYHA class III or IV heart failure (g), right atrial pressure >10 mm Hg, or mean pulmonary arterial pressure >50 mm Hg.
 - ☐ **Liver: MELD SCORE >20 or Pugh Score > 7 (h),** when available. Includes bili, albumin, INR, ascites, encephalopathy. MELD score calculators available online. PUGH Score table on page 7. MELD: _____ PUGH: _____

(b) Modified Sequential Organ Failure Assessment (MSOFA) Score

MSOFA scoring guidelines						
Variable	Score 0	Score 1	Score 2	Score 3	Score 4	Score for each row
SpO₂/FIO₂ ratio* <i>or</i> nasal cannula or mask O ₂ required to keep SpO ₂ >90%	SpO ₂ /FIO ₂ >400 <i>or</i> room air SpO ₂ >90%	SpO ₂ /FIO ₂ 316-400 <i>or</i> SpO ₂ >90% at 1–3 L/min	SpO ₂ /FIO ₂ 231-315 <i>or</i> SpO ₂ >90% at 4–6 L/min	SpO ₂ /FIO ₂ 151-230 <i>or</i> SpO ₂ >90% at 7–10 L/min	SpO ₂ /FIO ₂ ≤150 <i>or</i> SpO ₂ >90% at >10 L/min	
Jaundice	no scleral icterus			clinical jaundice/scleral icterus		
Hypotension†	None	MABP <70	dop <5	dop 5–15 <i>or</i> epi ≤0.1 <i>or</i> norepi ≤0.1	dop >15 <i>or</i> epi >0.1 <i>or</i> norepi >0.1	
Glasgow Coma Score	15	13–14	10–12	6–9	<6	
Creatinine level, mg/dL (use ISTAT)	<1.2	1.2–1.9	2.0–3.4	3.5–4.9 <i>or</i> urine output <500 mL in 24 hours	>5 <i>or</i> urine output <200 mL in 24 hours	
MSOFA score = total scores from all rows:						

* SpO₂/FIO₂ ratio:

SpO₂ = Percent saturation of hemoglobin with oxygen as measured by a pulse oximeter and expressed as % (e.g., 95%); FIO₂ = Fraction of inspired oxygen; e.g., ambient air is 0.21

Example: if SpO₂ = 95% and FIO₂ = 0.21, the SpO₂/FIO₂ ratio is calculated as 95/0.21 = 452

† Hypotension:

MABP = mean arterial blood pressure in mm Hg [diastolic + 1/3(systolic - diastolic)]

dop = dopamine in micrograms/kg/min

epi = epinephrine in micrograms/kg/min

norepi = norepinephrine in micrograms/kg/min

(c) ICU/Ventilator INCLUSION CRITERIA

Patient must have **NO EXCLUSION CRITERIA (a)** *and* at least one of the following **INCLUSION CRITERIA:**

- ☐ (1) **Requirement for invasive ventilatory support**
 - ☐ Refractory hypoxemia (SpO₂ <90% on non-rebreather mask or FIO₂ >0.85)
 - ☐ Respiratory acidosis (pH <7.2)
 - ☐ Clinical evidence of impending respiratory failure
 - ☐ Inability to protect or maintain airway
- ☐ (2) **Hypotension* with clinical evidence of shock** refractory to volume resuscitation, and requiring vasopressor or inotrope support that cannot be managed in a ward setting.**
 - *Hypotension = Systolic BP <90 mm Hg or relative hypotension
 - **Clinical evidence of shock = altered level of consciousness, decreased urine output or other evidence of end-stage organ failure

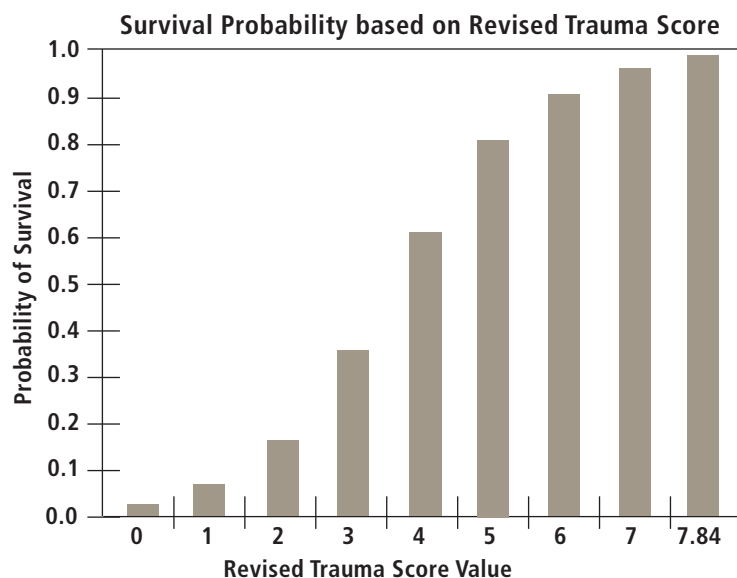
(d) GLASGOW COMA SCORE (GCS)

The GCS is used as part of the REVISED TRAUMA SCORE (RTS) in determining exclusion criteria for hospital admission in the case of pandemic flu at triage levels 2 and 3.

Glasgow Coma Scoring Criteria			
Criteria		Score	Criteria Score
Best Eye Response (4 possible points)	No eye opening	1	_____
	Eye opens to pain	2	
	Eye opens to verbal command	3	
	Eyes open spontaneously	4	
Best Verbal Response (5 possible points)	No verbal response	1	_____
	Incomprehensible sounds	2	
	Inappropriate words	3	
	Confused	4	
	Oriented	5	
Best Motor Response (6 possible points)	No motor response	1	_____
	Extension to pain	2	
	Flexion to pain	3	
	Withdraws from pain	4	
	Localizes to pain	5	
	Obeys commands	6	
Total Score (add 3 subscores; range 3 to 15):			_____

(e) REVISED TRAUMA SCORE (RTS)

Values for the REVISED TRAUMA SCORE (RTS) range from 0 to 7.8408. The RTS is heavily weighted toward the GLASGOW COMA SCORE (GCS) to compensate for major head injury without multisystem injury or major physiological changes. The RTS correlates well with the probability of survival. A Revised Trauma Score of <2 is an exclusion criterion for hospital admission during a pandemic flu at triage levels 2 and 3.



Revised Trauma Score Calculation			
Criteria	Score	Coded value	Adjusted Score
Glasgow Coma Score	3	0	x 0.9368
	4 to 5	1	
	6 to 8	2	
	9 to 12	3	
	13 to 15	4	
Systolic Blood Pressure (SBP)	0	0	x 0.7326
	1 to 49	1	
	50 to 75	2	
	76 to 89	3	
	>89	4	
Respiratory Rate (RR) in breaths per minute (BPM)	0	0	x 0.2908
	1 to 5	1	
	6 to 9	2	
	>29	3	
	10 to 29	4	
Revised Trauma Score (add 3 adjusted scores):			_____

(f) TRIAGE DECISION TABLE FOR BURN VICTIMS

A burn score of "Low" or worse on this table is an exclusion criterion for hospital admission in the case of pandemic flu at triage levels 2 and 3.

Age (yrs)	Burn Size (% total body surface area)									
	0–10%	11–20%	21–30%	31–40%	41–50%	51–60%	61–70%	71–80%	81–90%	91%+
0 – 1.9	Very high	Very high	Very high	High	Medium	Medium	Medium	Low	Low	Low/expectant
2.0 – 4.9	Outpatient	Very high	Very high	High	High	High	Medium	Medium	Low	Low
5.0 – 19.9	Outpatient	Very high	Very high	High	High	High	Medium	Medium	Medium	Low
20.0 – 29.9	Outpatient	Very high	Very high	High	High	Medium	Medium	Medium	Low	Low
30.0 – 39.9	Outpatient	Very high	Very high	High	Medium	Medium	Medium	Medium	Low	Low
40.0 – 49.9	Outpatient	Very high	Very high	Medium	Medium	Medium	Medium	Low	Low	Low
50.0 – 59.9	Outpatient	Very high	Very high	Medium	Medium	Medium	Low	Low	Low/expectant	Low/expectant
60.0 – 69.9	Very high	Very high	Medium	Medium	Low	Low	Low	Low/expectant	Low/expectant	Low/expectant
70.0+	Very high	Medium	Medium	Low	Low	Low/expectant	Expectant	Expectant	Expectant	Expectant

Outpatient: Survival and good outcome expected, without requiring initial admission; **Very high:** Survival and good outcome expected with limited/short-term initial admission and resource allocation (straightforward resuscitation, LOS <14–21 days, 1–2 surgical procedures); **High:** Survival and good outcome expected (survival ≥90%) with aggressive and comprehensive resource allocation, including aggressive fluid resuscitation, admission ≥14–21 days, multiple surgeries, prolonged rehabilitation; **Medium:** Survival 50–90% and/or aggressive care and comprehensive resource allocation required, including aggressive resuscitation, initial admission ≥14–21 days, multiple surgeries and prolonged rehabilitation; **Low:** Survival <50% even with long-term aggressive treatment and resource allocation; **Expectant:** Predicted survival ≤10% even with unlimited aggressive treatment.

(g) NEW YORK HEART ASSOCIATION (NYHA) FUNCTIONAL CLASSIFICATION SYSTEM

The NYHA functional classification system relates symptoms to everyday activities and the patient's quality of life. NYHA Class III or IV heart failure are exclusion criteria for hospital admission in the case of pandemic flu at triage levels 2 and 3.

NYHA Classes	
Class	Patient Symptoms
Class I (Mild)	No limitation of physical activity. Ordinary physical activity does not cause undue fatigue, palpitations or dyspnea.
Class II (Mild)	Slight limitation of physical activity. Comfortable at rest, but ordinary physical activity results in fatigue, palpitations or dyspnea.
Class III (Moderate)	Marked limitation of physical activity. Comfortable at rest, but less than ordinary activity causes fatigue, palpitations or dyspnea.
Class IV (Severe)	Unable to carry out physical activity without discomfort. Symptoms of cardiac insufficiency at rest. If any physical activity is undertaken, discomfort is increased.

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(h) PUGH SCORE

A total PUGH SCORE ≥7 is an exclusion criterion for hospital admission in the case of pandemic flu at triage levels 2 and 3.

Scoring Criteria			
Criteria	Value	Points	Total for criteria
Total Serum Bilirubin	<2 mg/dL	1	_____
	2–3 mg/dL	2	
	>3 mg/dL	3	
Serum Albumin	>3.5 g/dL	1	_____
	2.8–3.5 g/dL	2	
	<2.8 g/dL	3	
INR	<1.70	1	_____
	1.71–2.20	2	
	>2.20	3	
Ascites	None	1	_____
	Controlled medically	2	
	Poorly controlled	3	
Encephalopathy	None	1	_____
	Controlled medically	2	
	Poorly controlled	3	
Total Pugh Score			_____
Score interpretation			
Total PUGH SCORE	Class		
5 to 6	A	Life expectancy 15–20 years Abdominal surgery perioperative mortality 10%	
7 to 9	B	Liver transplant evaluation indicated Abdominal surgery perioperative mortality 30%	
10 to 15	C	Life expectancy 1–3 years Abdominal surgery perioperative mortality 82%	

DEFINITIONS USED IN THIS DOCUMENT

- ☞ **Emergency patients:** Those patients whose clinical conditions indicate that they require admission to the hospital and/or surgery within 24 hours.
- ☞ **Elective surgery:**
 - **Category 1:** Urgent patients who require surgery within 30 days.
 - **Category 2:** Semi-urgent patients who require surgery within 90 days.
 - **Category 3:** Non-urgent patients who need surgery at some time in the future.
- ☞ **Long-term care facility:** A residential program providing 24-hour care, to include: Nursing Homes, Skilled Nursing Facilities, Assisted Living 1 and 2, Residential Care Facilities, and Intermediate Care for the Mentally Retarded (ICFMR) facilities.
- ☞ **Palliative care:** In the setting of an overwhelming medical crisis, palliative care helps improve patient symptoms such as shortness of breath, pain and anxiety. Palliative care teams also support patient and family spiritual and/or emotional pain.

REFERENCES

This document was developed following review and partial adaptation of the following articles:

- ☞ Christian MD, Hawryluck L, Wax RS, et al. Development of a triage protocol for critical care during an influenza pandemic. *CMAJ*. 2006;175(11):1377–1381.
 - *Commentary:* Melnychuk RM, Kenny NP. Pandemic triage: the ethical challenge. *CMAJ*. 2006;175(11):1393.
- ☞ Devereaux, A. V., and J. R. Dichter. "Definitive Care for the Critically Ill During a Disaster: A Framework for Allocation of Scarce Resources in Mass Critical Care: From a Task Force for Mass Critical Care Summit Meeting, January 26–27, 2007, Chicago, IL." *Chest* 133.5 Suppl (2008): 515–66S. Print.
- ☞ Hick JL, O'Laughlin DT. Concept of operations for triage of mechanical ventilation in an epidemic. *Acad Emerg Med*. 2006;13(2):223–229.
- ☞ Grissom CK, Orme JF, Jensen RL, Jephson AR. A modified sequential organ failure assessment (SOFA) score to predict mortality in critically-ill patients (abstract). *Crit Care Med* 2007;35(12):A9.
- ☞ Champion HR, Sacco WJ, Carnazzo AJ, Copes W, Fouty WJ. Trauma score. *Crit Care Med*. 1981;9(9):672–676.
- ☞ Champion HR, Sacco WJ, Copes WS, Gann DS, Gennarelli TA, Flanagan ME. A revision of the Trauma Score. *J Trauma*. 1989;29(5):623–629.
- ☞ Teasdale G, Jennett B. Assessment of coma and impaired consciousness. A practical scale. *Lancet*. 1974;2(7872):81–84.
- ☞ "Interim Pre-Pandemic Planning Guidance: Community Strategy for Pandemic Influenza Mitigation in the United States — Early, Targeted, Layered Use of Nonpharmaceutical Interventions." Flu.gov. Web. 11 Feb. 2007. <<http://www.pandemicflu.gov/>>
- ☞ Kinlaw, Kathy, and Robert Levine, comps. United States. Ethics Subcommittee of the Advisory Committee to the Director, Centers for Disease Control and Prevention. Cong. Rept. Print.
- ☞ New York Heart Association. The stages of heart failure – NYHA classification. Heart Failure Society of America Web site. http://www.abouthf.org/questions_stages.htm. Published 2002. Updated September 28, 2006. Accessed December 5, 2007.
- ☞ Pugh RNH, Murray-Lyon M, Dawson JL, Pietroni MC, Williams R. Transection of the oesophagus for bleeding oesophageal varices. *Br J Surg*. 1973;60(8):646–649.