

Utah Pandemic Influenza Hospital and ICU Triage Guidelines

DRAFT 12/07/07

Purpose:

These guidelines were developed by the Utah Hospitals and Health Systems Association (UHSA) Triage Guidelines Workgroup. The purpose is to direct the allocation of patient care during an influenza pandemic or other public health emergency, when demand for services dramatically exceeds supply.

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 would most likely be lifesaving** and whose functional outcome would most likely 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.

Scope:

- These triage guidelines apply to all healthcare professionals, clinics, and facilities in the state of Utah.
- The Guidelines apply to all patients ages 2 and over. Until guidelines are developed for infants, physician judgment determines treatment of pediatric patients.

When activated:

Guidelines should be activated in the event of pandemic influenza or other public health emergency declared by the governor of the state of Utah.

Hospital and medical staff planning:

- **Each hospital should:**
 - **Establish a peer-based structure** for the review of hospital admission, admission to ICU, and termination of care. Consider a team of at least 3 individuals, including an Intensivist and 2 or more of the following: hospital Medical Director, nursing supervisor, board member, ethicist, pastoral care representative, and independent physician(s).
 - **Institute an action team** to provide counseling and care coordination and to work with the families of loved ones who have been denied care.
- **Facility medical staff** should establish a method of providing peer support and expert consultation to physicians making these decisions.

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Malpractice Liability: In the 2007 legislative session, SB 153 (Malpractice Liability During Pandemic Event) was passed and incorporated into law (53-13-2.6, Utah code annotated 1953). This bill protects healthcare providers, including facilities, from malpractice liability when they respond to a natural disaster, pandemic event, or bioterrorism. Activities that are protected include:

- Implementing measures to control the causes of epidemic, pandemic, communicable diseases, or other conditions significantly affecting public health as necessary to protect the public health;
- Investigating, controlling, and treating suspected bioterrorism or disease in accordance with Title 26, Chapter 23b; or
- Responding to the following: a national, state or local emergency; a public health emergency as defined in Title 26, Chapter 23b, 102; or a declaration of the President of the United States or other federal official requesting public health related activities.

EMTALA: EMTALA provisions may be waived by the Secretary of Health Human Services during a declared public emergency and under the Stafford act. The Secretary can issue the Section 1135 Waiver to waive sanctions for the "transfer of an individual who has not stabilized for both transfers and redirection for a medical screening examination. Waivers are generally limited to a 72-hour period beginning upon implementation of a hospital disaster protocol, unless the Waiver arises out of a public health emergency involving a pandemic. If related to a pandemic, the Waiver terminates upon the first to occur of either the termination of the underlying declaration of a public health emergency or 60 days after being first published. If the waiver terminates because of the latter, the Secretary may extend it for subsequent 60-day periods.

OVERVIEW OF TRIAGE LEVELS

Triage Level 1 Early in the pandemic

- Hospitals recognize the need to surge bed capacities.
- Emergency departments (EDs) are experiencing increased numbers.
- Note: Skip this level in the event of a severe and rapidly progressing pandemic.

Triage Level 2 Worsening pandemic

- Emergency departments (EDs) are overwhelmed and hospitals have surged to maximum bed capacity.
- There are not enough beds to accommodate all patients needing hospital admission, and not enough ventilators to accommodate all patients with respiratory failure.
- Hospital absenteeism is 20-30%.

Triage Level 3 Worst-case scenario

- Hospitals have already implemented altered standards of care regarding nurse/patient ratios and have already expanded capacity by adding patients to already occupied hospital rooms.
- Hospital absenteeism is 30-40%.

PRE-HOSPITAL SETTINGS

Telephone Triage

Applies to: Patients who appear for care in doctors office, clinics, or pre-evaluation space for emergency departments;
Implemented by: Physicians, clinic staff, pre-screening staff

All Triage Levels: Use TELEPHONE TRIAGE TOOL (not yet developed) to provide initial triage screening, patient instructions and directions for those who need additional care or medical screening

Physician's Offices and Clinics

Applies to: Patients who 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 PRE-HOSPITAL TRIAGE TOOL (not yet developed) to evaluate patients before sending to hospital ED.

Triage Levels 2 and 3:

- Continue to use PRE-HOSPITAL TRIAGE TOOL (not yet developed).
- Initiate EXCLUSION CRITERIA (page 5) for hospital admission to evaluate patients. Do not send patients meeting EXCLUSION CRITERIA to the hospital for treatment. Send home with instructions for care.

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

Applies to: Patients in institutional facilities; **Implemented by:** Institutional facility staff

Triage Level 1:

- Ensure that all liquid oxygen tanks are at full capacity.
- 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

Hospital Administrative Roles - General

Triage Level 1:

1) Preserve bed capacity by:

- Canceling all category 2 and 3 elective surgeries, and advising all category 1 elective surgery patients of the risk of infection
- Canceling any elective surgery that would require post-operative hospitalization

Note: Use standard operation and triage decision for admission to ICU since there are still adequate resources to accommodate the most critically ill patients

2) Preserve oxygen capacity by:

- Phasing out all hyperbaric medicine treatments
- Ensuring that all liquid oxygen tanks are at full capacity.

3) Improve patient care capacity

by transitioning space in ICUs to accommodate more patients with respiratory failure.

4) Control infection by limiting visitation (follow hospital infection control plan)

Triage Level 2:

1) Preserve bed capacity by:

- Canceling all elective surgeries unless necessary to facilitate hospital discharge
- Evaluating hospitalized category 1 elective surgery patients for discharge using same criteria as medical patients.

2) Preserve oxygen capacity by stopping all hyperbaric treatments.

3) Improve patient care capacity by implementing altered standards of care regarding nurse/patient ratios and expanding capacity by adding patients to already occupied hospital rooms.

4) Provide emotional support by initiating pre-established ACTION TEAM to provide counseling and care coordination and to work with the families of loved ones who have been denied care.

Triage Level 3:

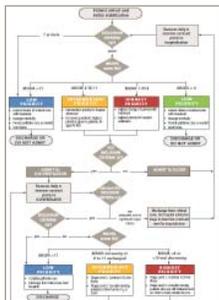
1) Preserve bed capacity by limiting surgeries to patients whose clinical conditions are a serious threat to life or limb, or to patients for whom surgery may be needed to facilitate discharge from the hospital.

Emergency Department, Hospital, and ICU - Clinical Triage

Use HOSPITAL AND ICU/VENTILATOR ADMISSION TRIAGE TOOLS (pages 4 and 5) to determine who to send home for palliative care or medical management and who to admit or keep in hospital or ICU. Note that the LOWEST priority for admission is given to patients with the lowest chance of survival with or without treatment, and to patients with the highest chance of survival *without* treatment.

Physician judgment should be used in applying these guidelines. Other factors to consider when apply triage guidelines include:

- Whether the patient is homeless and/or has someone to care for them at home
- Whether the patient is in the 2nd or 3rd trimester of a pregnancy



See pages 4 and 5 for triage algorithm and supporting tools.

Triage Level 2:

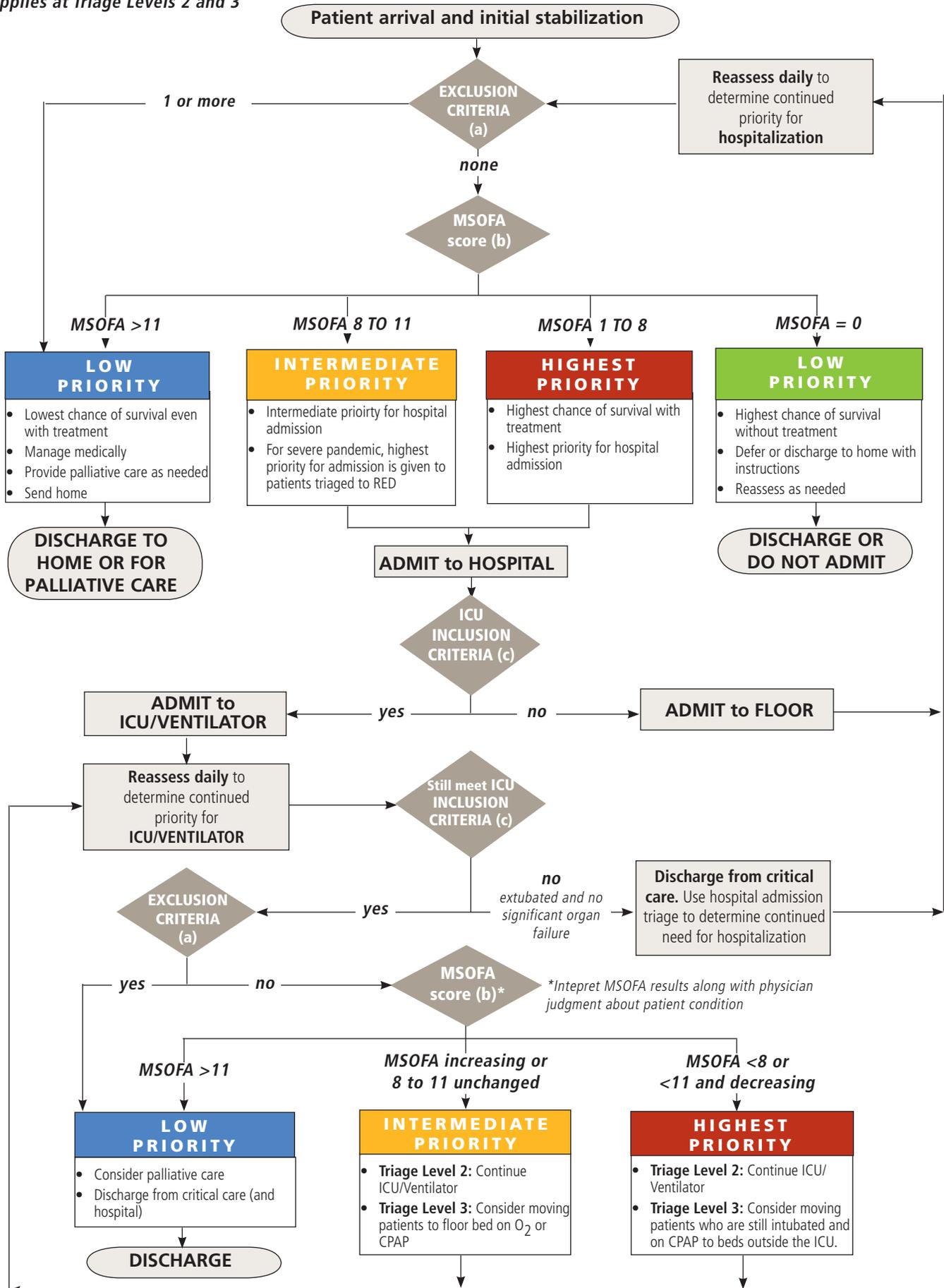
- Initiate HOSPITAL AND ICU/VENTILATOR TRIAGE MODEL (pages 4 and 5) to determine priority for ICU admission, intubation, and/or mechanical ventilation.
- Reassess need for ICU/Ventilator treatment daily.

Triage Level 3:

- Continue to use HOSPITAL AND ICU/ VENTILATOR TRIAGE MODEL (pages 4 and 5) to determine priority for ICU, intubation, and/or mechanical ventilation.
- Triage more YELLOW patients to floor on oxygen or CPAP.
- Triage more RED patients who are intubated and on CPAP to floor

ALGORITHM: HOSPITAL AND ICU/VENTILATOR ADMISSION TRIAGE MODEL

Applies at 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 Resuscitate" (DNR) status
- (2) Severe trauma with a Revised Trauma Score <2 (d).
- (3) Severe and irreversible neurologic event or condition with persistent coma and Glasgow Coma Score (GCS) <6 (e). Includes traumatic brain injury, severe hemorrhagic stroke, hypoxic ischemic brain injury, and intracranial hemorrhage).
- (4) Severe burns with <50% anticipated survival (patients identified as "Low" or worse on the Triage Decision Table for Burn Victims (f). Burns not requiring critical care resources may be cared for at the local facility (e.g., burns that might have been transferred to the UUMC Burn Center under normal circumstances
- (5) Cardiac arrest
 - Unwitnessed cardiac arrest or
 - Witnessed cardiac arrest, not responsive to electrical therapy (defibrillation or pacing)
- (6) Known severe dementia medically treated and requiring assistance with activities of daily living
- (7) Advanced untreatable neuromuscular disease (such as ALS, end stage MS, or SMA) requiring assistance with activities of daily living or requiring chronic ventilatory support
- (8) Known chromosomal or untreatable disorders that are uniformly fatal in the 1st 2 years of life.
- (9) Incurable metastatic malignant disease
- (10) End-stage organ failure meeting the following criteria:
 - Heart: NYHA class III or IV heart failure (g)
 - Lung (any of the following):
 - 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, right atrial pressure > 10 mm Hg, or mean pulmonary arterial pressure > 50 mm Hg
 - Liver: Pugh score >7 (h), when available.
- (11) Age:
 - Triage Level 1: >95 years
 - Triage Level 2: >90 years
 - Triage Level 3: >85 years

(b) Modified Sequential Organ Failure Assessment (MSOFA)

The MSOFA requires only one lab value that can be obtained using bedside point-of-care testing (creatinine obtained through ISTAT).

MSOFA scoring guidelines						
Variable	Score 0	Score 1	Score 2	Score 3	Score 4	Score for each row
SpO ₂ /FIO ₂ ratio* or Nasal cannula or mask O ₂ required to keep SpO ₂ >90%	SpO ₂ /FIO ₂ >400 or Room air SpO ₂ >90%	SpO ₂ /FIO ₂ 316-400 or SpO ₂ >90% at 1-3 L/min	SpO ₂ /FIO ₂ 231-315 or SpO ₂ >90% at 4-6 L/min	SpO ₂ /FIO ₂ 151-230 or SpO ₂ >90% at 7-10 L/min	SpO ₂ /FIO ₂ ≤150 or SpO ₂ >90% at >10 L/min	_____
Bilirubin (mg/dL)	<1.2 or no scleral icterus	1.2 - 1.9	2.0 - 5.0 or scleral icterus	6.0 - 11.9 or clinical jaundice	≥12	_____
Hypotension†	None	MABP <70	DOP <5	DOP 5-15 or EPI ≤0.1 or NOR-EPI ≤0.1	DOP >15 or EPI >0.1 or NOR-EPI >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 or urine output <500 mL in 24 hours	>5 or 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
NOR-EPI = norepinephrine in micrograms/kg/min

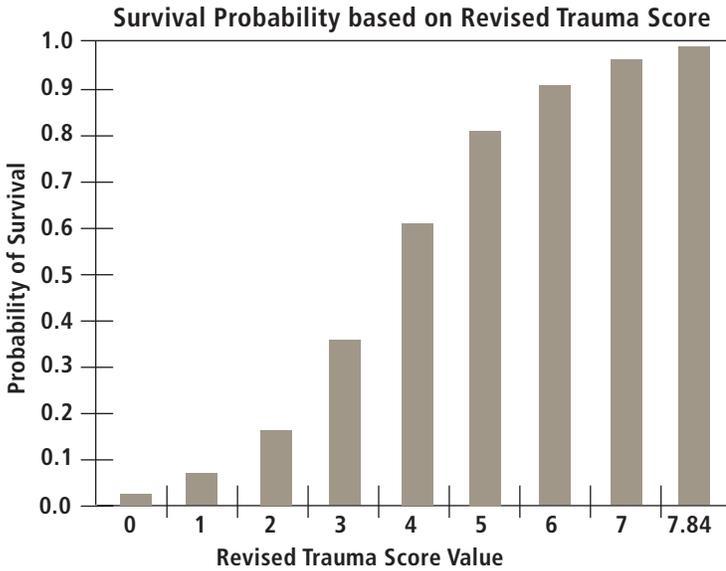
(c) ICU/Ventilator INCLUSION CRITERIA

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 for patients age >10 years old, or <70 + (2 x age in years) for patients ages 1-10, or relative hypotension; **Clinical evidence of shock** = altered level of consciousness, decreased urine output, or other evidence of end-organ failure

(d) Revised Trauma Score (RTS)

Values for the Revised Trauma Score (RTS) range from 0 to 7.8408. The RTS is heavily weighted towards 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 CRITERIA for hospital admission during a pandemic flu at triage levels 2 and 3.



Revised Trauma Score Calculation				
Criteria	Score	Coded value	Weighting	Adjusted Score
Glasgow Coma Score	3	0	x 0.9368	_____
	4 to 5	1		
	6 to 8	2		
	9 to 12	3		
	13 to 16	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):				_____

(e) Glasgow Coma Score

A Glasgow Coma Score (GCS) of <6 is an EXCLUSION CRITERIA for hospital admission in the case of pandemic flu at triage levels 2 and 3.

Glasgow Coma Scoring Criteria				
Criteria	Adults and Children	Infants and Young Toddlers	Score	Criteria Score
Best Eye Response (4 possible points)	No eye opening	No eye opening	1	_____
	Eye opens to pain	Eye opens to pain	2	
	Eye opens to verbal command	Eye opens to speech	3	
	Eyes open spontaneously	Eyes open spontaneously	4	
Best Verbal Response (5 possible points)	No verbal response	No verbal response	1	_____
	Incomprehensible sounds	Infant moans to pain	2	
	Inappropriate words	Infant cries to pain	3	
	Confused	Infant is irritable and continually cries	4	
	Oriented	Infant coos or babbles (normal activity)	5	
Best Motor Response (6 possible points)	No motor response	No motor response	1	_____
	Extension to pain	Extension to pain	2	
	Flexion to pain	Abnormal flexion to pain	3	
	Withdraws from pain	Withdraws from pain	4	
	Localizes to pain	Withdraws from touch	5	
	Obeys commands	Moves spontaneously or purposefully	6	
Total Score (add 3 subscores; range 3 to 15):				_____

(f) Triage Decision for Burn Victims

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

Age (yrs)	Burn Size (%TBSA)									
	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	Hlgh	Medium	Medium	Medium	Low	Low	Low/expectant
2.0-4.9	Outpatient	Very high	Very high	Hlgh	Hlgh	High	Medium	Medium	Low	Low
5.0-19.9	Outpatient	Very high	Very high	Hlgh	Hlgh	Hlgh	Medium	Medium	Medium	Low
20.0-29.9	Outpatient	Very high	Very high	Hlgh	High	Medium	Medium	Medium	Low	Low
30.0-30.9	Outpatient	Very high	Very high	Hlgh	Medium	Medium	Medium	Medium	Low	Low
40.0-40.9	Outpatient	Very high	Very high	Medium	Medium	Medium	Medium	Low	Low	Low
50.0-50.9	Outpatient	Very high	Very high	Medium	Medium	Medium	Low	Low	Low/expectant	Low/expectant
60.0-60.9	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%) and 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 (NYSA) Stages of Heart Failure

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.

NYSA 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 CRITERIA 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		
5-6	A	Life expectancy 15-20 years Abdominal surgery peri-operative mortality 10%	
7 to 9	B	Liver transplant evaluation indicated Abdominal surgery peri-operative mortality 30%	
10 to 15	C	Life expectancy 1-3 years Abdominal surgery peri-operative mortality 82%	

DEFINITIONS

- **Emergency Patients:** Those patients whose clinical conditions indicate that they require admission to the hospital and/or surgery within 24 hours.
- **Elective Surgery:**
 - **Category One:** Urgent patients who require surgery within 30 days.
 - **Category Two:** Semi-urgent patients who require surgery within 90 days.
 - **Category Three:** Non-urgent patients who need surgery at some time in the future.
- **Long Term Care Facilities:** 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:** To make a patient comfortable by treating symptoms from an illness and by addressing issues causing physical or emotional pain or suffering.

REFERENCES AND RESOURCES

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

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