**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 would most likely be lifesaving. 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 13 years and younger. Please see **Hospital and ICU Triage Guidelines for Adults** for patients 14 years and older.

**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.
OVERVIEW OF PANDEMIC TRIAGE LEVELS

Triage Level 1  
Early in the pandemic

- 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.

Triage Level 2  
Worsening pandemic

- 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%.

Triage Level 3  
Worst-case scenario

- 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

Hospital Administrative Roles — General
(Refer to page 8 for definitions of elective surgery categories.)

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 postoperative 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 non-acute hyperbaric medicine treatments.
   • Ensuring that all liquid oxygen tanks are full.

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

3) 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.

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.

Use HOSPITAL AND ICU/VENTILATOR ADMISSION TRIAGE algorithm and tools (pages 4 and 5) to determine which patients to send home for palliative care or medical management and which patients 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.

See pages 4 and 5 for triage algorithm and supporting tools.
ALGORITHM: HOSPITAL AND ICU/VENTILATOR ADMISSION TRIAGE
Applies at Pandemic Triage Levels 2 and 3

Patient arrival and initial stabilization

**DISCHARGE to HOME** or for PALLIATIVE CARE

**EXCLUSION CRITERIA?**

- **none**

**ADMIT to HOSPITAL**

**ICU INCLUSION CRITERIA?**

- **no**

**ADMIT to FLOOR**

**ICU BED available?**

- **yes**

**ADMIT to ICU/VENTILATOR**

- Reassess every 48–72 hours
to determine continued priority for ICU/VENTILATOR

- Interpret Pediatric Index of Mortality Score (PIM2), if available,along with physician judgment

- **NOTE:** If patient’s mortality is estimated to be >80%, consult with triage officer about withdrawal

**Still meet ICU INCLUSION CRITERIA?**

- **no**

**Discharge from critical care. Use hospital admission triage to determine continued need for hospitalization.**

- **yes**

**ADMIT to ICU/VENTILATOR**

- Reassess every 48–72 hours
to determine continued priority for ICU/VENTILATOR

- Interpret Pediatric Index of Mortality Score (PIM2), if available,along with physician judgment

- **NOTE:** If patient’s mortality is estimated to be >80%, consult with triage officer about withdrawal

**ADMIT to FLOOR**

- Add patient to priority list (prioritized by ICU notification time)

- Manage medically on-site if resources allow

- Admit to ICU/Ventilator if highest on priority list when ICU bed becomes available, and if ICU inclusion criteria still met
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) Persistent coma or vegetative state.

☐ (2) Severe acute trauma with a REVISED TRAUMA SCORE <2 [see (d) and (e) on following pages].
   GCS: _____ SBP: _____ RR: _____
   Revised trauma score: _____

☐ (3) 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.

☐ (4) Cardiac arrest not responsive to PALS interventions within 20–30 minutes.

☐ (5) Short anticipated duration of benefit, e.g., underlying condition with >80% mortality rate at 18–24 months:
   a) Known chromosomal abnormalities such as Trisomy 13 or 18
   b) Known metabolic diseases such as Zellweger syndrome
   c) Spinal muscular atrophy (SMA) type 1
   d) Progressive neuromuscular disorder, e.g., muscular dystrophy and myopathy, with inability to sit unaided or ambulate when such abilities would be developmentally appropriate based on age
   e) Cystic fibrosis with post-bronchodilator FEV₁ <30% or baseline PaO₂ <55 mm Hg
   f) Severe end-stage pulmonary hypertension

OTHER CONSIDERATIONS:

• Resuscitation of extremely premature infants with anticipated mortality rates greater than 80% should not be offered. See http://www.nichd.nih.gov/about/org/cdbpm/pp/prog_epbo/

• The use of ECMO will be decided on an individual basis by the Chief Medical Officer (with input from attending physician, nursing supervisor and ECMO representative) based on prognosis, suspected duration of ECMO run, and availability of personnel and other resources. Patients should have an estimated survival of >70% with an estimated ECMO run of <7–10 days.

(b) ICU/Ventilator INCLUSION CRITERIA

• Applies to all patients except those infants not yet discharged from the NICU

• Patients 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, < 70 + (2 x age in years) for patients ages 1 to 10, < 60 for infants < 1 year old, or relative hypotension

** Clinical evidence of shock = altered level of consciousness, decreased urine output or other evidence of end-stage organ failure
(c) 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

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Adults and Children</th>
<th>Infants and Young Toddlers</th>
<th>Score</th>
<th>Criteria Score</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Best Eye Response</strong> (4 possible points)</td>
<td>No eye opening</td>
<td>No eye opening</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Eye opens to pain</td>
<td>Eye opens to pain</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Eye opens to verbal command</td>
<td>Eye opens to speech</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Eyes open spontaneously</td>
<td>Eyes open spontaneously</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td><strong>Best Verbal Response</strong> (5 possible points)</td>
<td>No verbal response</td>
<td>No verbal response</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Incomprehensible sounds</td>
<td>Infant moans to pain</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Inappropriate words</td>
<td>Infant cries to pain</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Confused</td>
<td>Infant is irritable and continually cries</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Oriented</td>
<td>Infant coos or babbles (normal activity)</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td><strong>Best Motor Response</strong> (6 possible points)</td>
<td>No motor response</td>
<td>No motor response</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Extension to pain</td>
<td>Extension to pain</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Flexion to pain</td>
<td>Abnormal flexion to pain</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Withdraws from pain</td>
<td>Withdraws from pain</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Localizes to pain</td>
<td>Withdraws from touch</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Obeys commands</td>
<td>Moves spontaneously or purposefully</td>
<td>6</td>
<td></td>
</tr>
</tbody>
</table>

**Total Score** (add 3 subscores; range 3 to 15):

(d) 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

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Score</th>
<th>Coded value</th>
<th>Weighting</th>
<th>Adjusted Score</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Glasgow Coma Score</strong></td>
<td>3</td>
<td>0</td>
<td>x 0.9368</td>
<td></td>
</tr>
<tr>
<td></td>
<td>4 to 5</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>6 to 8</td>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>9 to 12</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>13 to 15</td>
<td>4</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Systolic Blood Pressure (SBP)</strong></td>
<td>0</td>
<td>0</td>
<td>x 0.7326</td>
<td></td>
</tr>
<tr>
<td></td>
<td>1 to 49</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>50 to 75</td>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>76 to 89</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>&gt;89</td>
<td>4</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Respiratory Rate (RR) in breaths per minute (BPM)</strong></td>
<td>0</td>
<td>0</td>
<td>x 0.2908</td>
<td></td>
</tr>
<tr>
<td></td>
<td>1 to 5</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>6 to 9</td>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>&gt;29</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>10 to 29</td>
<td>4</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Revised Trauma Score (add 3 adjusted scores):**
(e) 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.

<table>
<thead>
<tr>
<th>Age (yrs)</th>
<th>0–10%</th>
<th>11–20%</th>
<th>21–30%</th>
<th>31–40%</th>
<th>41–50%</th>
<th>51–60%</th>
<th>61–70%</th>
<th>71–80%</th>
<th>81–90%</th>
<th>91%+</th>
</tr>
</thead>
<tbody>
<tr>
<td>0–1.9</td>
<td>Very h.</td>
<td>Very h.</td>
<td>Very h.</td>
<td>High</td>
<td>Medium</td>
<td>Medium</td>
<td>Medium</td>
<td>Low</td>
<td>Low</td>
<td>Low/ expectant</td>
</tr>
<tr>
<td>2.0–4.9</td>
<td>Outpatient</td>
<td>Very high</td>
<td>Very high</td>
<td>High</td>
<td>High</td>
<td>High</td>
<td>Medium</td>
<td>Medium</td>
<td>Low</td>
<td>Low</td>
</tr>
<tr>
<td>5.0–19.9</td>
<td>Outpatient</td>
<td>Very high</td>
<td>Very high</td>
<td>High</td>
<td>High</td>
<td>High</td>
<td>Medium</td>
<td>Medium</td>
<td>Medium</td>
<td>Low</td>
</tr>
<tr>
<td>20.0–29.9</td>
<td>Outpatient</td>
<td>Very high</td>
<td>Very high</td>
<td>High</td>
<td>High</td>
<td>High</td>
<td>Medium</td>
<td>Medium</td>
<td>Low</td>
<td>Low</td>
</tr>
<tr>
<td>30.0–39.9</td>
<td>Outpatient</td>
<td>Very high</td>
<td>Very high</td>
<td>High</td>
<td>Medium</td>
<td>Medium</td>
<td>Medium</td>
<td>Medium</td>
<td>Low</td>
<td>Low</td>
</tr>
<tr>
<td>40.0–49.9</td>
<td>Outpatient</td>
<td>Very high</td>
<td>Very high</td>
<td>Medium</td>
<td>Medium</td>
<td>Medium</td>
<td>Medium</td>
<td>Medium</td>
<td>Low</td>
<td>Low</td>
</tr>
<tr>
<td>50.0–59.9</td>
<td>Outpatient</td>
<td>Very high</td>
<td>Very high</td>
<td>Medium</td>
<td>Medium</td>
<td>Medium</td>
<td>Medium</td>
<td>Medium</td>
<td>Low/ expectant</td>
<td>Low/ expectant</td>
</tr>
<tr>
<td>60.0–69.9</td>
<td>Very high</td>
<td>Very high</td>
<td>Medium</td>
<td>Medium</td>
<td>Low</td>
<td>Low</td>
<td>Low</td>
<td>Low/ expectant</td>
<td>Low/ expectant</td>
<td>Low/ expectant</td>
</tr>
<tr>
<td>70.0+</td>
<td>Very high</td>
<td>Medium</td>
<td>Medium</td>
<td>Low</td>
<td>Low</td>
<td>Low/ expectant</td>
<td>Expectant</td>
<td>Expectant</td>
<td>Expectant</td>
<td>Expectant</td>
</tr>
</tbody>
</table>

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.
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:


