Annex to ESF 8 of the State of Alabama Emergency Operations Plan

Criteria for Mechanical Ventilator Triage Following Proclamation of Mass-Casualty Respiratory Emergency

I. Introduction

A. Purpose

This document outlines a ventilator triage protocol intended for use only during a mass casualty event, proclaimed as a public health emergency by the Governor. It would be characterized by frequent, widespread cases of respiratory failure occurring in sufficient volume to quickly exhaust available mechanical ventilator resources. One example might include, not exclusively, a virulently aggressive form of pandemic influenza. Such pandemics have occurred in the past and could recur, stressing healthcare systems to their breaking points.

B. Scope

This appendix covers all areas within the State of Alabama.

II. Situation and Assumptions

A. Situation

Due diligence in disaster planning requires consideration of "measures of last resort." Some mass casualty disasters, such as a pandemic event, may necessitate that commonly accepted standards of medical care be altered to provide the maximum number of patients their best chance of survival. This would be done in support of the strategic goals of the Centers for Disease Control and Prevention to 1) stop, slow, or otherwise limit the spread of the pandemic to the United States; 2) limit the domestic spread of the pandemic and mitigate the disease, suffering and death; and 3) sustain infrastructure and mitigate impact to the economy and functioning of society. Assigning a proper priority for ventilator support during a national health crisis requires assessment of an affected individual's level of premorbid function, likelihood of response to ventilator support, and likelihood that survival will produce a functional recovery.

B. Assumptions

Disaster-related ventilator triage protocols must be evenly and fairly implemented if public trust is to be gained and maintained during a time of such extreme duress. Healthcare authorities representing the public and private sectors should be prepared to deliver messages that are uniform, realistic, and consistent. It is highly recommended that this document be

considered for endorsement by the various stakeholders in mass-casualty disaster planning.

Healthcare organizations incorporating this ventilator triage protocol into their disaster plans and attempting in good faith to follow it will be considered to be in compliance with the standard of care necessitated by the prevailing proclaimed respiratory disaster. In addition, it is highly recommended that hospital disaster plans/policies anticipate breakdowns in ventilator triage discipline, identify and confront the likely sources of such breakdowns, and incorporate language designed to lessen the probability of their occurrence.

III. Mission

Purpose:
Offered as a template for inclusion in hospital disaster plan/policy following declaration of statewide, regional, or national public health respiratory emergency. [Example: Pandemic Avian Influenza]

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A. Direction and Control

This document outlines a ventilator triage protocol intended for use only during a mass casualty event, proclaimed as a public health emergency by the Governor. It would be characterized by frequent, widespread cases of respiratory failure occurring in sufficient volume to quickly exhaust available mechanical ventilator resources. One example might include, not exclusively, a virulently aggressive form of pandemic influenza. Such pandemics have occurred in the past and could recur, stressing healthcare systems to their breaking points.

Should conditions become extremely grave due to widespread outbreaks with many people seriously affected, availability of ventilator care and Intensive Care Unit (ICU) care may become extremely limited in any locale. Under such circumstances, measures of last resort herein described may be employed by each hospital ***after thorough evaluation and consultation with available external sources to confirm that partner hospital resources, usual supplier resources, and resources obtainable through the collaborative efforts of the Department of Public Health through AIMS are all exhausted.*** All efforts should then be directed to provide aggressive treatment to those with the greatest chance of survival even if that requires removal of supportive care from others. This process is described in this document when patients are assessed and transitioned to Tier 2 or Tier 3 levels of care.

B. Concept of Operations

Tier 1 Trigger: Mass casualties resulting from respiratory failure illness of sufficient volume to quickly exhaust available mechanical ventilator resources. Proclamation of a state of public health emergency by the Governor is a *necessary* initial trigger. All hospitals will implement Tier 1 upon the Governor's Proclamation.

Additional supportive action: Activation of the Federal Pandemic Influenza Disaster Plan or other federal respiratory disaster plan.

Tier 2 and Tier 3 Triggers: These are hospital-specific choices based on the hospital's unique situation.

Tier 2: At the discretion of the hospital when it is operating under Tier 1 criteria and all available resources such as ventilators and staff are exhausted, hospital decides to selectively withdraw ventilator support per guidelines in Appendix 2.

Tier 3: At the discretion of the hospital when it is operating under Tier 2 criteria, persuasive outcome data compel further restriction of who qualifies for ventilator support. See Appendix 2.

Criteria should be implemented in a tiered or stepwise fashion, so that as resources are exhausted, another stricter tier of exclusion criteria is implemented in an attempt to provide the best care possible to those with the best chance of survival (Hick, J. & O'Laughlin, D., 2006).

C. Operations and missions required as a result of mass casualties resulting from respiratory failure illness of sufficient volume to quickly exhaust available mechanical ventilator resources will be carried out during the response and recovery phases.

1. The Response Phase – Refer to the following:

   a) **"Implementation Steps Following Emergency Statewide Proclamation by the Governor"** algorithm (page 5);

   b) **"Appendix 1 – Exclusion Criteria"** (page 6);

   c) **"Appendix 2 – Mechanical Ventilator Tier Criteria Following Declaration of Mass-Casualty Respiratory Emergency"** (pages 7-9);

   d) **"Appendix 3 – SOFA Triage Tool"** (pages 10-11);

e) **"Appendix 4 – "Initial Assessment Tool for Tier 1** and **Reassessment Tool for Tier 2 and Tier 3"** (page 12); and

f) **"Appendix 5 – Emergency EMS Protocol for Mass Casualty Respiratory Emergency"** (pages 13-16).

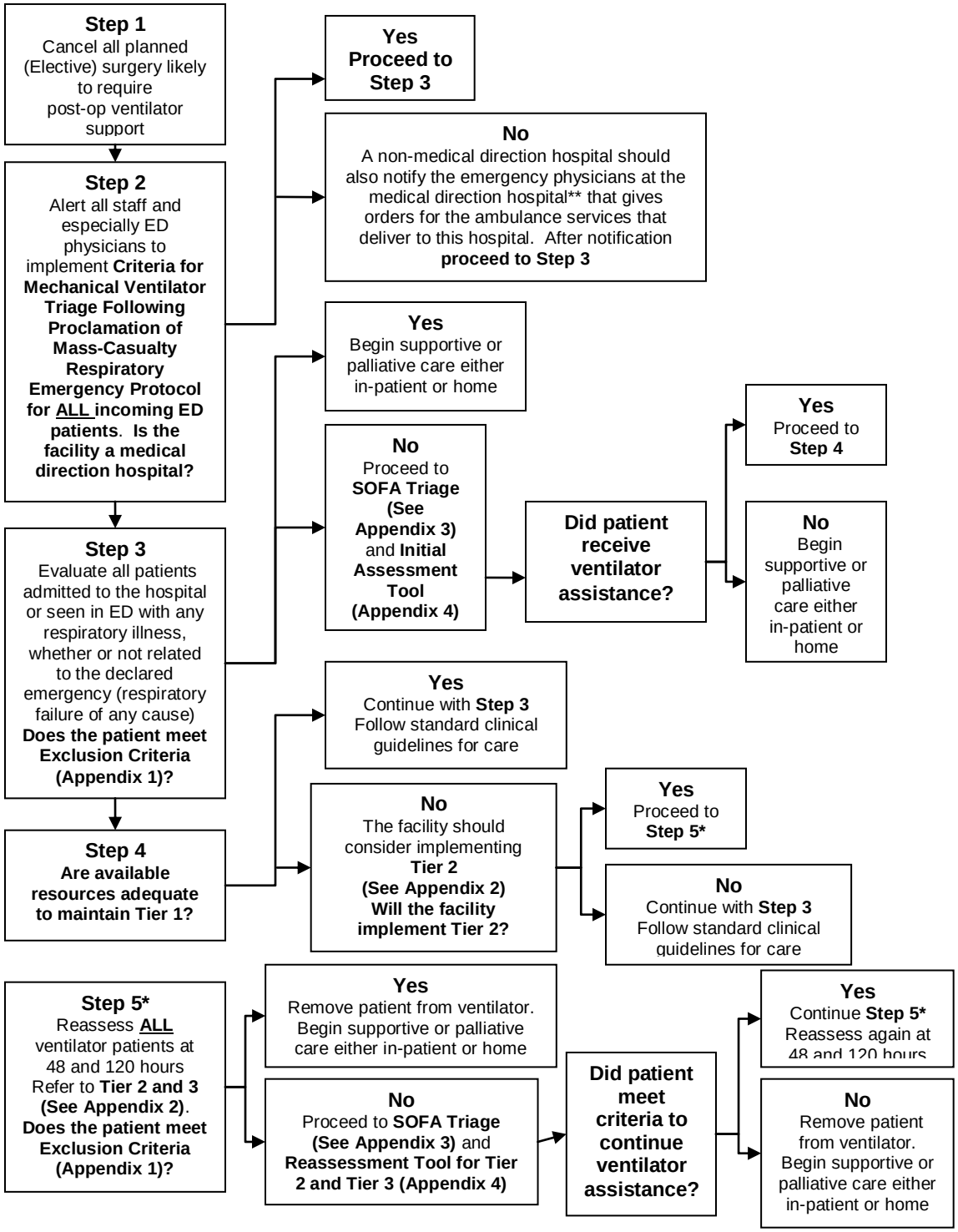
2. The Recovery Phase

There are usually no clear distinctions between when the Response Phase ends and the Recovery Phase begins. There is typically a time period as the respiratory epidemic gradually subsides and the incidence of newly infected people declines during which both phases are in effect simultaneously. The recovery phase begins when the statewide resource assessment of ventilator use and hospital admissions approaches pre-disaster levels. Functions during this phase under PL 93-288 include public and individual assistance, establishment of Disaster Assistance Centers, and Federal disaster plans and grants. During this phase the Federal Government provides relief and assistance in completion of final arrangements for the casualties.

IV. Administrative Support

Each healthcare facility should develop internal staffs and procedures for administrative support.

Implementation Steps Following Emergency Statewide Proclamation by the Governor



***Step 5** is a last resort measure to be employed by the healthcare facility only when all other resources are exhausted by re-evaluation of the following: suppliers, partner healthcare facilities, and public health through AIMS.

**A medical direction hospital is one whose emergency medicine physicians are certified to give orders to pre-hospital emergency medical service personnel.

Appendix 1

Exclusion Criteria

This is to guide Ventilator Access in Proclaimed Mass-Casualty Respiratory Emergency.

A. CARDIAC ARREST: Unwitnessed arrest, recurrent arrest, arrest unresponsive to standard treatment. **For detailed criteria refer to Cardiac under Tier 1 [See Appendix 2, (b)].**

B. SEVERE TRAUMA: Especially if associated with cardiac arrest.

C. DEMENTIA: For detailed criteria refer to Neurological under Tier 1 [See Appendix 2, (e)].

D. METASTATIC MALIGNANCY: For detailed criteria refer to Hematological and Cancer under Tier 1 [See Appendix 2, (f)].

E. SEVERE BURN: > 60% body surface affected.

F. END STAGE ORGAN FAILURE:

1. **Pulmonary –** COPD, restrictive lung disease, FEV1 (Forced Expiratory Volume in the first second) < 25%. **For detailed criteria refer to Pulmonary under Tier 1 [See Appendix 2, (a)].**

2. **Cardiac –** including severe angina, CHF (NYHA Class III or IV). **For detailed criteria refer to Cardiac under Tier 1 [See Appendix 2, (b)].**

3. **Renal –** Including anyone on or requiring dialysis. **For detailed criteria refer to Renal under Tier 1 [See Appendix 2, (c)].**

4. **Hepatic –** Acute or chronic, MELD score > 20. **For detailed criteria refer to Hepatic under Tier 1 [See Appendix 2, (d)].**

5. **Neurological –** Severe, irreversible neurologic event or condition with high expected mortality, advanced neuromuscular disease. **For detailed criteria refer to Neurological under Tier 1 [See Appendix 2, (e)].**

6. **Hematological and Cancer –** Clinical or laboratory evidence of disseminated intravascular coagulation (DIC), leukemia or cancer. **For detailed criteria refer to Hematological under Tier 1 [See Appendix 2, (f)].**

7. **Immunological –** Advanced and irreversible immunocompromise. **For detailed criteria refer to Immunological under Tier 1 [See Appendix 2, (g)].**

Appendix 2

Mechanical Ventilator Tier Criteria Following Declaration of Mass-Casualty Respiratory Emergency

Note: Nothing in this ventilator triage protocol shall preclude ventilation by hand provided the appropriate resources are available.

TIER 1
To be implemented by all hospitals following Governor's Proclamation of Mass-Casualty Respitory Emergency

Do not offer mechanical ventilator support for patients with end stage organ failure in any one of the following:

a) **Pulmonary:**
Respiratory failure: **Refer to SOFA Triage Tool (Appendix 3) and Initial Assessment Tool (Appendix 4).**
adult respiratory distress syndrome; ventilatory failure; refractory hypoxemia; severe chronic lung disease including pulmonary fibrosis, cystic fibrosis; obstructive or restrictive diseases requiring continuous home oxygen use before onset of acute illness.

b) **Cardiac:**
CHF (NYHA Class III or IV), left ventricular dysfunction, hypotension, new ischemia; known congestive heart failure with ejection fraction less than 25% or persistent ischemia/pulmonary edema unresponsive to therapy.
The Stages of Heart Failure – NYHA Classification
In order to determine the best course of therapy, physicians often assess the stage of heart failure according to the New York Heart Association (NYHA) functional classification system. This system relates symptoms to everyday activities and the patient's quality of life (Heart Failure Society of America, 2008).

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

c) **Renal:**
hyperkalemia, diminished urine output despite adequate fluid resuscitation, increasing creatinine level; acute renal failure (related to current ilness) requiring dialysis.

d) **Hepatic:**
transaminase greater than five (5) times normal upper limit, increasing bilirubin or ammonia levels; cirrhosis with ascites; history of variceal bleeding; fixed coagulopathy or encephalopathy; acute hepatic failure with hyperammonemia; ***MELD:*** *Model End Stage Liver Disease: a disease severity scoring system for adults with liver disease. The MELD score is based only on laboratory data in order to be as objective as possible. The laboratory values used are a patient's creatinine, bilirubin, and international normalized ratio, or INR (a measure of blood-clotting time (*MedicineNet.com, 2008). On-line scoring tool is available from the Mayo Clinic located at:
http://www.mayoclinic.org/meld/mayomodel5.html

e) **Neurological:**
altered mental status not related to volume status. Examples: metabolic or hypoxic source, stroke. Individuals may be excluded under Tier 1 with severe functional impairment produced by static or progressive neurological disorders and reduced likelihood for successful outcome from ventilator support. Functional domains include cognitive, neurological, and psychosocial. For example, persons with severe mental retardation, advanced dementia or severe traumatic brain injury may be poor candidates for ventilator support. The average life expectancy of persons with mental retardation now spans to the seventh decade and persons with significant neurological impairments can enjoy productive happy lives. Functional assessment for persons with intellectual disability, complex neurological problems, dementia, or mixtures of symptoms should focus on premorbid function in all domains of life including social, intellectual, professional, etc. Persons with severe or profound mental retardation, moderate to severe dementia, or catastrophic neurological complications such as persistent vegetative state are unlikely candidates for ventilator support. Individuals with complex neurological issues such as motor neuron disease, glioblastoma multiforme and others may not be appropriate candidates in a mass casualty situation. Children with severe neurological problems may not be appropriate candidates in the pediatric age group. **Decisions should be guided by premorbid function and expected level of recovery rather than by diagnosis.**

f) **Hematological and Cancer:**
clinical or laboratory evidence of disseminated intravascular coagulation (DIC), leukemia or cancer; active malignancy with poor survival potential (e.g., metastatic malignancy, pancreatic cancer).

g) **Immunological**:
Acquired Immune Deficiency Syndrome (AIDS) (presence of +HIV status without AIDS is not an automatic exclusion); other immunodeficiency syndromes at stage of disease rendering patient susceptible to opportunistic pathogens.

TIER 2

To be implemented by individual hospital decision that, despite operating under Tier 1 conditions, the hospital has exhausted all needed resources to maintain Tier 1.

1. Withdraw ventilator support and do not offer such support for patients with conditions listed in Tier 1.
2. Withdraw ventilator support from those who failed to respond to mechanical ventilation and other support measures (e.g., antibiotics, fluids, pressors). **Refer to SOFA Triage Tool (Appendix 3) and Reassessment Tool for Tier 2 and Tier 3 (Appendix 4)**. (Timeline may be modified based on organism-specific data.)

TIER 3

To be implemented by individual hospital decision that, despite operating under Tier 2 conditions, the hospital has exhausted all needed resources to maintain Tier 2.

The hospital's leaders within each facility, including members of the medical staff, participating in planning activities for the facility's Emergency Operations Plan should develop specific directions for the Tier 3 implementation within the facility. Possibilities include:

1. Restriction of treatment based on disease-specific epidemiology and survival data for patient subgroups (may include age-based criteria).
2. Expansion of pre-existing disease classes that will not be offered ventilatory support.

Appendix 3

SOFA Triage Tool:

Scoring criteria for the Sequential Organ-Failure Assessment (SOFA) score*					
	Score				
Variable	**0**	**1**	**2**	**3**	**4**
PaO2/FiO2, mm Hg	**> 400**	**≤ 400**	**≤ 300**	**≤ 200**	**≤ 100**
Platelet count, x 10^6 /L	**> 150**	**≤ 150**	**≤ 100**	**≤ 50**	**≤ 20**
Bilirubin level, mg/dL (µmol/L)	**< 1.2 (< 20)**	**1.2-1.9 (20-32)**	**2.0-5.9 (33-100)**	**6.0-11.9 (101-203)**	**>12 (> 203)**
Hypotension†	**None**	**MABP < 70**	**Dop ≤ 5**	**Dop > 5 Epi ≤ 0.1 Norepi ≤ 0.1**	**Dop > 15 Epi > 0.1 Norepi > 0.1**
Glasgow Coma score	**15**	**13-14**	**10-12**	**6-9**	**< 6**
Creatinine level, mg/dL (µmol/L)	**<1.2 (< 106)**	**1.2-1.9 (106-168)**	**2.0-3.4 (169-300)**	**3.5-4.9 (301-433)**	**> 5 (> 434)**

Note: PaO2 = partial pressure of arterial oxygen; FiO2 = fraction of inspired oxygen; MABP = mean arterial blood pressure, in mmHg;

***Adapted, from Ferriera FL, Bota DP, Bross A, et al. Serial evaluation of the SOFA score to predict outcome in critically ill patients. JAMA 2001; 286: 1754-8. Copyright © 2001, American Medical Association. All rights reserved.**

†Dop (dopamine), epi (epinephrine) and norepi (norepinephrine) doses in µg/kg per min.

Explanation of variables:

PaO2/FiO2 indicates the level of oxygen in the patient's blood.
Platelets are a critical component of blood clotting.
Bilirubin is measured by a blood test and indicates liver function.
Hypotension indicates low blood pressure; scores of 2, 3, and 4 indicated that blood pressure must be maintained by the powerful medications that require ICU monitoring, including dopamine, epinephrine, and norepinephrine.
Creatinine is measured by a blood test and indicates kidney function.

The **Glascow coma score** is a standardized measure that indicates neurologic function; low score indicates poorer function.

Glascow Coma Scale

Eye Opening Response

Spontaneous--open with blinking at baseline **4 points**

- To verbal stimuli, command, speech **3 points**
- To pain only (not applied to face) **2 points**
- No response **1 point**

Verbal Response

- Oriented **5 points**
- Confused conversation, but able to answer questions **4 points**
- Inappropriate words **3 points**
- Incomprehensible speech **2 points**
- No response **1 point**

Motor Response

- Obeys commands for movement **6 points**
- Purposeful movement to painful stimulus **5 points**
- Withdraws in response to pain **4 points**
- Flexion in response to pain (decorticate posturing) **3 points**
- Extension response in response to pain (decerebrate posturing) **2 points**
- No response **1 point**

Categorization:

Coma: No eye opening, no ability to follow commands, no word verbalizations **(3-8)**

Head Injury Classification:

Severe Head Injury----GCS score of 8 or less
Moderate Head Injury----GCS score of 9 to 12
Mild Head Injury----GCS score of 13 to 15

Adapted from: Advanced Trauma Life Support: Course for Physicians, American College of Surgeons, 1993. CDC, 2008.

Appendix 4

Initial Assessment Tool for Tier 1

Triage Code	Criteria	Action or Priority
GREEN	No respiratory failure No need for ventilator support	Begin standard treatment home or inpatient non-ICU
YELLOW	Single Organ (Lung) failure SOFA score $\leq$ 7	Intubate and admit to ICU for aggressive therapy
RED	SOFA score 8 - 11	If resources are available, intubate and admit to ICU for aggressive therapy. If resources are exhausted move to BLUE level.
BLUE	Exclusion Criteria met **OR** SOFA score > 11	Begin supportive or palliative care either in-patient or home

Reassessment Tool for Tier 2 and Tier 3 - use at 48 and 120 hours

Triage Code	Criteria	Action or Priority
GREEN	Able to wean off the ventilator	Discharge from ICU (Critical Care)
YELLOW	Single Organ (Lung) failure SOFA score $\leq$ 7	Continue aggressive ventilator support.
RED	SOFA score 8-11 (decreasing) and clinically improving – Continue aggressive therapy	If resources are available, continue ventilator care and support. If resources are exhausted move to BLUE level.
BLUE	Exclusion Criteria met **OR** SOFA score > 11	Extubate. Discharge from ICU (Critical Care) and begin palliative care.

Appendix 5

EMERGENCY EMS PROTOCOL FOR MASS CASUALTY RESPIRATORY EMERGENCY

This protocol is designed to be implemented only when there is a significant respiratory disease that has impacted the health care system to the extent that hospital beds are full, few or no ventilators are available for new patients with respiratory failure, the EMS/Dispatch work force is significantly depleted due to absenteeism, and the calls for EMS support overwhelm resources to manage all calls. When the Governor proclaims a state of emergency, the Alabama Public Health Department (ADPH) Office of EMS & Trauma (OEMS&T) will activate this protocol to provide authorization for the adjustment in the prehospital standard of care. Depending upon the Governor's proclamation, ADPH OEMS&T may activate this protocol on a regional or local basis.

ON-SCENE PROTOCOL
PATIENTS WITH ACUTE FEBRILE RESPIRATORY ILLNESS

1. Follow General Patient Care Protocol 4.1.
2. Be sure you are using appropriate standard precautions.
    a. If Dispatch advises you of the potential for acute febrile respiratory illness symptoms on scene, you should don PPE for suspected cases of influenza prior to entering scene (disposable N-95 mask [or surgical mask if N-95 masks are unobtainable], eye protection [shield or goggles], and disposable non-sterile gloves). Disposable non-sterile gown is optional depending on the situation (follow guidance of service medical director).
    b. If Dispatch has not identified individuals with symptoms of acute febrile respiratory illness on scene, you should stay more than six (6) feet away from patient and bystanders with symptoms and exercise appropriate routine respiratory droplet precautions while assessing all patients for suspected cases of influenza (4.c below). If patient has signs or symptoms of influenza or acute febrile respiratory illness, you should don the PPE described in a. above before coming into close contact with the patient.

3. **If patient has critical vital signs, immediately transport to Emergency Department**
    a. Critical Vital Signs: Adult
    If present, immediately transport to an Emergency Department
        i. Pulse: equal or greater than 130 beats per minute
        ii. Respiratory Rate: equal or greater than 30 breaths per minute
        iii. Systolic Blood Pressure: Less than 90 mm/Hg
        iv. Pulse Oximeter: Less than 92 on room air
        v. Temperature: Febrile
        vi. Level of Consciousness: Responds only to Pain or is Unresponsive
        vii. Lung sounds: Rales or Wheezing

    b. Critical Vital Signs: Pediatric:
    If present, immediately transport to Emergency Department

Vital Signs	Neonates	Infants	Children
Capillary refill:	> 2 seconds	> 2 seconds	> 2 seconds
Resp. rate:	<30 or >45 or increased work of breathing	<20 or >45 or increased work of breathing	<15 or >45 or increased work of breathing
Systolic Blood pressure	< 60 mmHg	< 70 mmHg	Under age 10 < 70 + (2 X age in years)
Pulse Oximeter	< 92 on room air	< 92 on room air	< 92 on room air
Temperature	Febrile	Febrile	Febrile
Level of Consciousness	responds only to pain or is unresponsive	responds only to pain or is unresponsive	responds only to pain or is unresponsive
Lung sounds	Rales or Wheezing	Rales or Wheezing	Rales or Wheezing

4. **If patient has normal vital signs, then evaluate for signs and symptoms of influenza.**
    a. Normal Vital Signs Adult
        i. Pulse: Less than 130 beats per minute
        ii. Respiratory Rate: Less than 30 breaths per minute
        iii. Systolic Blood Pressure: equal or greater than 91 mmHg
        iv. Pulse Oximeter equal or greater than 92
        v. Temperature: Afebrile
        vi. Level of Consciousness: Alert or responds to verbal stimuli
        vii. Lung sounds: Clear

b. Normal Vital Signs Pediatric

Vital Signs	Neonates	Infants	Children
Capillary refill:	≤ 2 seconds	≤ 2 seconds	≤ 2 seconds
Unlabored breathing or resp. rate:	30-45	20-45	15-45
Systolic Blood pressure	≥ 60 mmHg	≥ 70 mmHg	Under age 10 ≥ 70 + (2 X age in years)
Pulse Oximeter	≥ 92	≥ 92	≥ 92
Temperature	Afebrile	Afebrile	Afebrile
Level of Consciousness	Alert or responds to verbal stimuli	Alert or responds to verbal stimuli	Alert
Lung sounds	Clear	Clear	Clear

c. Signs and Symptoms of Influenza
   i. Rapid onset of symptoms
   ii. Difficulty breathing with exertion
   iii. Doctor has already diagnosed influenza
   iv. Cough
   v. Fever
   vi. Shaking Chills
   vii. Pleuritic chest pain
   viii. Sore throat (no difficulty breathing or swallowing)
   ix. Nasal congestion
   x. Runny nose
   xi. Muscle aches
   xii. Headache

5. If patient has three (3) or more signs or symptoms of influenza, transport patient to alternate care facility (if available).
6. If patient has two (2) or fewer signs or symptoms of influenza, call On-line Medical Direction (OLMD) to determine if patient may be left on-scene, self quarantine, and refer to nurse/public health hotline (insert phone number here) for further assistance.
7. Endotracheal intubation should not be performed on any patient except by direct order of the OLMD physician (Cat. B).
8. Because of the danger of EMS personnel becoming infected, aerosol-generating procedures such as advanced airway procedures, use of bag-mask, and nebulizer treatments should not be performed on patients with acute febrile respiratory illness except by direct order of the OLMD physician (Cat. B). CPAP with expiratory filter is still Category A.

9. If OLMD orders advanced airway procedures, use of bag-mask, or nebulizer treatments on a patient with acute febrile respiratory illness, EMS personnel must be in PPE as described in 2.a above.
10. All patients with acute febrile respiratory illness should wear a surgical mask, if tolerated by the patient.
11. Encourage good patient compartment vehicle airflow/ventilation (turn on exhaust fan) to reduce the concentration of aerosol accumulation when possible.

TRANSPORT OF PATIENTS TO HEALTHCARE FACILITIES

When transporting a patient with symptoms of acute febrile respiratory illness, you should notify the receiving healthcare facility so that appropriate infection control precautions may be taken prior to patient arrival. Patients with febrile respiratory illness should wear a surgical mask, if tolerated.

INTERFACILITY TRANSPORT

EMS personnel involved in the transfer of patients with confirmed influenza or suspected infectious respiratory illness should use standard droplet and contact precautions for all patient care activities. This should include wearing disposable N-95 mask, eye protection [shield or goggles], disposable non-sterile gloves and gown. If the transported patient can tolerate a surgical mask, its use can help to minimize the spread of infectious droplets in the patient care compartment. Encourage good patient compartment vehicle airflow/ventilation (turn on exhaust fan) to reduce the concentration of aerosol accumulation when possible. Any nonessential equipment that can be removed from the patient compartment of the ambulance before transport will hasten the time needed to disinfect and return to service.

CLEANING EMS TRANSPORT VEHICLES AFTER TRANSPORTING A SUSPECTED OR CONFIRMED INFLUENZA PATIENT

After the patient has been removed and prior to cleaning, the air within the vehicle may be exhausted by opening the doors and windows of the vehicle while the ventilation system is running. This should be done outdoors and away from pedestrian traffic. Routine cleaning methods should be employed throughout the vehicle and on non-disposable equipment.

Routine cleaning with soap or detergent and water to remove soil and organic matter, followed by the proper use of disinfectants, are the basic components of effective environmental management of influenza. Reducing the number of influenza virus particles on a surface through these steps can reduce the chance of hand transfer of virus particles. Influenza viruses are susceptible to inactivation by a number of chemical disinfectants readily available from consumer and commercial sources.

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