ADPH Alabama Department of Public Health

OEMST Office of EMS and Trauma

PATIENT CARE PROTOCOLS
EMT-INTERMEDIATE

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TABLE OF CONTENTS

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CARDIAC ARREST 4.8

SPECIFIC INFORMATION:

A. History: Preceding symptoms, onset, and downtime without CPR.
B. Past History: Diseases, medications, and allergies.
C. Surrounding evidence of drug ingestion, penetrating or blunt injury.
D. Appropriateness of resuscitative efforts: In unexpected or unwitnessed cardiovascular collapse, proceed with the protocol, unless obvious signs of death are present (rigor, etc.). In all others, begin treatment, and then request further information from family members. OLMD may also be of assistance (See Administrative Protocol 2.1: Death in the Field).
E. Once resuscitative efforts have been initiated, they should be continued until arrival at the receiving hospital, or until a joint decision has been made with Medical Direction or the attending physician, that resuscitation should cease (See Administrative Protocol 2.1: Death in the Field).

PHYSICAL ASSESSMENT:

A. Determine presence of arrest:
   - Unresponsive.
   - Absent or terminal respiration.
   - Absent pulses over major arteries.
   - Cardiac monitor for initial rhythm.
     REMEMBER TO TREAT THE PATIENT AND NOT THE MONITOR!

B. If signs of penetrating torso injury are present with cardiopulmonary arrest, the patient's only chance for survival is immediate transport.
   - Administer fluids per shock protocol while en route.
   - Ventilate and transport rapidly to appropriate facility.
   - CHEST COMPRESSIONS ARE NOT INDICATED BEFORE TRANSPORT IN THESE CIRCUMSTANCES IF THIS MEANS A DELAY IN IMMEDIATE TRANSPORT.
   - Once en route, contact OLMD to determine whether to continue resuscitative efforts (See Administrative Protocol 8.1: Death in the Field).

TREATMENT: ADULT VFIB/PULSELESS VTACH

This sequence was developed to treat a broad range of patients with ventricular fibrillation or pulseless ventricular tachycardia. Some patients may require care not specified herein. This algorithm should not be construed as prohibiting such flexibility. Flow of algorithm presumes that VF/VT is continuing. If for any reason this protocol cannot be followed in treatment order or medication amounts, OLMD must be contacted.

A. ABCs

B. Perform CPR until monitor/defibrillator is attached or until quick-look paddles are applied.

C. Confirm VF/VT present on monitor.

D. Defibrillate once at 360J.
(If Biphasic Defibrillator – use the manufacturer's recommended setting)

E. Immediately resume CPR without checking pulse or rhythm.

F. Reassess rhythm after five cycles of CPR.

G. Continue CPR if still in VF/Pulseless VT.

H. Transport immediately

I. Intubate as soon as possible – ventilate at 10 breaths per minute with 100% oxygen (do not pause compressions for ventilations).

J. Start a large bore IV, with normal saline at a TKO rate.

TREATMENT: ADULT ASYSTOLE & PULSELESS ELECTRICAL ACTIVITY

This sequence was developed to assist treating a broad range of patients in asystole. Some patients may require care not specified herein. This algorithm should not be construed to prohibit such flexibility. The flow of the algorithm presumes asystole is continuing.

A. Continue CPR
B. Intubate As Soon As Possible – ventilate with 100% oxygen
C. Start a large bore IV with normal saline at a TKO rate.
D. Confirm asystole in more than one lead.
   (If rhythm remains unchanged - TREAT AS ASYSTOLE—DO NOT DEFIBRILLATE).
E. Consider possible causes:

Possible Cause	Treatment
Hypovolemia	Fluid challenge, consider IO
Hypoxia	Airway, Oxygen, Stop bleeding
Hydrogen ion (acidosis)	Airway
Hypokalemia	Transport
Hyperkalemia (dialysis pt.)	Transport
Hypoglycemia	Glucose
Hypothermia	Warm cover/fluids/environment, transport
Toxins	See Poisoning & Overdose Protocol
Tamponade	Airway, Oxygen, transport
Tension Pneumothorax	Oxygen, Transport
Thrombosis	Airway, Oxygen, Transport
Trauma	Airway, Oxygen, SMR, Transport

TREATMENT: PEDIATRIC VFIB/PULSELESS VTACH

This sequence was developed to treat a broad range of pediatric patients with ventricular fibrillation or pulseless ventricular tachycardia. Some patients may require care not specified herein. This algorithm should not be construed as prohibiting such flexibility. Flow of algorithm presumes that VF/VT is continuing. If for any reason this protocol cannot be followed in treatment order or medication amounts, OLMD must be contacted.

A. ABCs.

B. Perform CPR for until monitor/defibrillator is attached, or until quick-look paddles are applied.

C. Confirm VF/VT present on monitor.

D. Defibrillate once at 2J/kg.
(If Biphasic Defibrillator – use the manufacturer's recommended setting).

E. Immediately resume CPR for five cycles without checking pulse or rhythm.

F. Reassess rhythm - if no change in rhythm, immediately continue CPR.

G. Transport immediately.

H. Ventilate at appropriate rate with bag-mask. Intubation is rarely needed.

I. Start a large bore IV with normal saline at a TKO rate. Consider IO if an IV cannot be obtained.

TREATMENT: PEDIATRIC VENTRICULAR ASYSTOLE & PEA

This sequence was developed to assist treating a broad range of patients in asystole and PEA. Some patients may require care not specified herein. This algorithm should not be construed to prohibit such flexibility. The flow of the algorithm presumes asystole is continuing.

A. Continue CPR.

B. Ventilate at an appropriate rate with bag-mask. Intubation is rarely needed.

C. Start a large bore IV with normal saline at a TKO rate. Consider IO if IV cannot be obtained.

D. Confirm asystole in more than one lead (If rhythm remains unchanged - TREAT AS ASYSTOLE—DO NOT DEFIBRILLATE).

E. Consider and treat other possible causes:

Possible Cause	Treatment
Hypovolemia	Fluid challenge, consider IO
Hypoxia	Airway, Oxygen, Stop bleeding
Hydrogen ion (acidosis)	Airway
Hypo/hyperkalemia	Transport
Hypoglycemia	Glucose
Hypothermia	Warm cover/fluids/environment, transport
Toxins	See Poisoning & Overdose Protocol
Tamponade	Airway, Oxygen, transport
Tension Pneumothorax	Needle Decompression, Oxygen, Transport
Thrombosis	Airway, Oxygen, Transport
Trauma	Airway, Oxygen, SMR, Transport

CARDIAC SYMPTOMS/ACUTE CORONARY SYNDROME 4.9

NOTE: This protocol is for adults. Contact OLMD for suspected cardiac symptoms or chest pain in pediatric patients (age 15 years or less).

SPECIFIC INFORMATION:

A. "Discomfort," pressure, pain: Place, Quality, Radiation, Severity, Time began (PQRST).
B. Associated symptoms: Nausea, vomiting, diaphoresis, and shortness of breath, usually not pleuritic.
C. Past History: Cardiac or pulmonary events, medications, medication allergies, or syncopal episodes.
D. Risk Factors: Determine family history, smoking, obesity, age, and related diseases.

PHYSICAL ASSESSMENT:

A. General appearance.
B. Vital signs should be obtained and recorded not less than every 10 minutes. Symmetry of pulses should be recorded at least once.
C. Observe for neck vein distention and peripheral edema and if present, suspect Congestive Heart Failure.
D. Breath and chest sounds: rales (crackles), rhonchi, wheezes and, if present, suspect Congestive Heart Failure
E. Chest wall tenderness, does not rule out cardiac ischemia.
F. Abdominal exam.

TREATMENT:

A. Reassure, and place patient at rest in a position of comfort.
B. Airway - maintain patency.
C. Breathing - Oxygen to maintain oxygen saturation (pulse oximeter) of >95%.
D. Circulation - attach monitoring equipment, including the obtaining of a 12-lead ECG if capable. A 12-lead ECG must be performed on the patient unless the ALS unit has no 12-lead device. The 12-lead ECG must be transmitted to the receiving hospital in advance of patient arrival unless transmission is not possible, in which case the 12-lead ECG should be delivered with the patient.
E. If vital signs are stable, consider Saline lock IV.
F. If vital signs are unstable, start an IV, Saline lock or large bore, with normal saline at a TKO rate.
G. Consider drawing appropriate tube of blood for hospital or prehospital analysis.
H. The EMT may assist patient in administration of his/her own nitroglycerin.
I. Provide four chewable baby aspirin if the patient can swallow.
   Contraindications to administration of Aspirin:
   - An Allergy to aspirin
   - Current G.I. Bleeding
   - Already received 324 mg or more of aspirin (not just 81 mg) in last 24 hours
J. If cardiogenic shock syndrome presents in patients with chest pain—go to Shock Protocol.
K. Continue monitoring cardiac, vitals, etc., and record during transport.
L. Complete the thrombolytic check list (Form 10.1) during transport.

SPECIFIC PRECAUTIONS:

A. This protocol is fir adults; contact OLMD for suspected cardiac symptoms or chest pain in pediatric patients.

B. Suspicion of cardiac disease causing chest pain or discomfort is based on history obtained. Read monitor rhythm strip for rhythm only; the ST segment changes are not reliable.

C. You should have a high index of suspicion for women, diabetics, and all adult medical patients over the age of 50 years who have any symptoms that might be from coronary artery disease.

D. You should perform an ECG on all adults who complain of epigastric discomfort.

E. Since time to thrombolytics is critical, minimize scene times when possible. Most interventions and treatments should be performed en route except the ECG should be done on-scene.

F. Minimize needle sticks if thrombolytic therapy is possible.

G. Nitroglycerin may cause hypotension in patients taking medication for erectile dysfunction.

NOTE:

By June 2013 all ALS services must have the ability to obtain 12-lead ECGs.

RESPIRATORY ILLNESS/INFLUENZA 4.25

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, 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. 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. Signs and Symptoms of Influenza
    a. Rapid onset of symptoms
    b. Difficulty breathing with exertion
    c. Doctor has already diagnosed influenza
    d. Cough
    e. Fever
    f. Shaking Chills
    g. Pleuritic chest pain
    h. Sore throat (no difficulty breathing or swallowing)
    i. Nasal congestion
    j. Runny nose
    k. Muscle aches
    l. Headache
4. All EMS personnel engaged in aerosol generating activities (e.g. endotracheal intubation, bag-mask ventilation, or CPAP [use expiratory filter]) should wear the PPE described in 2.a.
5. All patients with acute febrile respiratory illness should wear a surgical mask, if tolerated by the patient.
6. 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.

RESPIRATORY ILLNESS/INFLUENZA MASS CASUALTY EMERGENCY 4.26

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 statewide or on a regional or local basis.

ON-SCENE PROTOCOL
PATIENTS WITH ACUTE FEBRILE RESPIRATORY ILLNESS

7. Follow General Patient Care Protocol 4.1.
8. 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 (3 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.
9. Signs and Symptoms of Influenza
    a. Rapid onset of symptoms
    b. Difficulty breathing with exertion
    c. Doctor has already diagnosed influenza
    d. Cough
    e. Fever
    f. Shaking Chills
    g. Pleuritic chest pain
    h. Sore throat (no difficulty breathing or swallowing)
    i. Nasal congestion
    j. Runny nose
    k. Muscle aches
    l. Headache

10. 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

11. If patient has "normal" vital signs, then evaluate for signs and symptoms of influenza.

a. "Normal" Vital Signs Adult with respiratory illness

a. Pulse: Less than 130 beats per minute
b. Respiratory Rate: Less than 30 breaths per minute
c. Systolic Blood Pressure: equal or greater than 91 mmHg
d. Pulse Oximeter equal or greater than 92
e. Temperature: Afebrile
f. Level of Consciousness: Alert or responds to verbal stimuli
g. Lung sounds: Clear

b. "Normal" Vital Signs Pediatric Patient with Respiratory Illness

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

12. If patient has three (3) or more signs or symptoms of influenza, transport patient to alternate care facility (if available).
13. 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.
14. Endotracheal intubation should not be performed on any patient except by direct order of the OLMD physician (Cat. B).
15. Because of the danger of EMS personnel becoming infected, aerosol-generating procedures such as advanced airway procedures, or use of bag-mask 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.
16. If OLMD orders advanced airway procedures or use of bag-mask on a patient with acute febrile respiratory illness, EMS personnel must be in PPE as described in 2.a above.
17. All patients with acute febrile respiratory illness should wear a surgical mask, if tolerated by the patient.
18. 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.

STROKE 4.29

This protocol is for patients who have an ACUTE episode of neurological deficit without any evidence of trauma. If patient has altered mental status, consider other causes such as hypoxia, hypoperfusion, hypoglycemia, trauma, or overdose.

SPECIFIC INFORMATION NEEDED

A. Last (clock) time patient was seen normal. Determination of time of symptom onset is critical as treatment for stroke can be time dependent.
B. Did the patient have a previous neurologic deficit?
C. Does the patient have stroke risk factors (i.e., hypertension, diabetes, heart disease, smoking, dysrhythmias, coumadin or heparin use, or previous stroke)?
D. Has the patient had any recent similar events?
E. Medic Alert tags?

PHYSICAL ASSESSMENT

A. Vital signs: Glasgow Coma Scale Score.
B. Rapid physical exam

Perform FAST stroke scale (Face, Arm, Speech, Time):

1. **Face:** Assess for facial droop: have the patient show teeth or smile
   - Normal – both sides of face move equally
   - Abnormal – one side of face does not move as well as the other side
2. **Arm**: Assess for arm drift: have the patient close eyes and hold both arms straight out; with palms up, for 10 seconds
   - Normal – both arms move the same *or* both arms do not move at all
   - Abnormal – one arm does not move or one arm drifts down compared to the other
3. **Speech**: Assess for abnormal speech: have the patient say "you can't teach an old dog new tricks"
   - Normal – patient uses correct words with no slurring
   - Abnormal – patient slurs words, uses the wrong words, or is unable to speak
4. **Time**: If any of above are positive, attempt to determine the time of symptom onset (clock time).

NOTE: THERE IS NO SCORE, if 1, 2, or 3 are abnormal, the probability of a stroke is 72%.

TREATMENT:

A. Airway - ensure patency, consider intubation if unconscious patient with no gag reflex.
B. Breathing - Oxygen 12-15 L/M, by non-rebreather mask. Assist ventilations with bag-valve-mask if necessary. Pulse oximeter to maintain oxygen saturation >95%.
C. Circulation - attach cardiac monitor, perform 12 lead ECG if available.
D. Keep patient NPO
E. Glucometer: Adult: <70 administer 25GM D50W IVP (CAT A)
(Give thiamine, 100mg IVP [CAT A] before the D50W if there is any evidence of malnutrition or alcohol abuse).
A. IV or Saline lock with large bore, with normal saline at TKO rate.
B. If patient has no signs of congestive heart failure, give a bolus of 500cc of Normal Saline IV.

C. Place patient supine.
D. If possible, bring a knowledgeable friend or family member with the patient.
E. Transport with frequent monitoring of neurological function.
F. Complete the stroke checklist (Form10.3) on the patient.
G. Contact receiving hospital with patient report as soon as possible during transport.

SPECIAL PRECAUTIONS

A. High blood pressure during an acute stroke may be compensatory, do not attempt to lower it without consulting OLMD.
B. Intravenous glucose may aggravate the effects of ischemia upon brain tissue. Do not administer glucose unless hypoglycemia is documented. Do not fail to treat hypoglycemia.
C. Many patients with stroke are taking diuretics and are volume depleted. Administer one bolus of IV fluid as noted above, unless there are obvious signs of acute heart failure. This may improve cerebral circulation.
D. If in a region with a stroke system, call the ATCC and transport the patient to the appropriate ready stroke center. The ATCC will notify the hospital to activate their stroke team.
E. If in a region without a stroke system, notify the receiving facility that you are bringing a possible stroke patient.

Treatment Protocol

VOMITING AND NAUSEA 4.33

SPECIFIC INFORMATION NEEDED:

A. When did symptoms begin?
B. Is the patient nauseated
C. If vomiting, is the cause known?
D. Has the patient ingested any potential poison or spoiled food?
E. Has there been blood or material like coffee grounds in the vomitus?
F. Has the patient also had diarrhea?
G. If female of child-bearing age, is the patient pregnant?
H. Are there any associated symptoms (such as abdominal pain)?
I. Does the patient have a head injury or severe headache?
J. If headache, is there a history of migraine headaches?

PHYSICAL ASSESSMENT:

A. Vital signs. Signs of shock?
B. Skin: Are there signs of dehydration (poor skin turgor, and/or dry mucous membranes)?
C. Is jaundice present?
D. Head: any sign of head trauma?
E. Abdomen: Tenderness, rebound tenderness, guarding, rigidity, bowel sounds, and distention
F. Neurologic exam: LOC, pupils, and focal findings?

TREATMENT

Apply wet towel (water or saline) to forehead

ENDOTRACHEAL INTUBATION 6.4

Use of a bag-valve-mask and oropharyngeal airway is not considered sufficient to provide and maintain a protected airway, except for limited time periods prior to intubation, or during medication administration in the altered mental status protocol. Patients who are unconscious, do not have a gag reflex, and need positive pressure ventilation should be intubated by the endotracheal route as soon as indicated.

INDICATION:

- Cardiac arrest with ongoing chest compressions.
- Inability of a conscious patient to ventilate adequately.
- Inability of the patient to protect the airway (coma, loss of gag reflex, or cardiac arrest).
- Inability of the EMT to ventilate the unconscious patients with conventional methods.

CONTRAINDICATIONS:

- Responsive patients with an intact gag reflex.

PRECAUTIONS:

- Adequate ventilation and oxygenation must be provided between attempts.
- Pay careful attention. Improper use or lack of tube placement verification can lead to catastrophic results.
- If the patient regains consciousness, you must remove the ET tube, as it will cause retching and vomiting.
- When the patient's position is altered after intubation, it is essential to verify that the tube position remains correct in the new patient position.

PROCEDURE (ORAL-CAT A for Adults, **CAT B for pediatric patients,** NASAL- CAT B for Adults, **Contraindicated for children**):

1. Ventilation by bag-valve-mask should always precede any attempt at intubation.
2. The maximum interruption of ventilation for endotracheal intubation should be 30 seconds.
3. Insert the endotracheal tube using the correct technique and special precautions for that device.
4. For difficult orotracheal intubations (Adults only) where you cannot see the cords or where the angle is such that it is very difficult to get the tube through the cords, a bougie can be very helpful. Insert the bougie through the cords and then slip the tube over the bougie and slide it down through the cords. Then remove and bougie and verify tube placement.
5. Verification of proper tube placement must be confirmed with Esophageal Detection Device (EDD- suction bulb or syringe) immediately after placing tube (MANDATORY).
6. Following the EDD, the abdomen should be auscultated first and then chest checked for equal bilateral breath sounds and rise.
7. Monitor tube placement with qualitative CO_2 detector or preferably a quantitative waveform CO_2 detector (Use of one or the other is MANDATORY). After June 2013 the waveform Capnography will be required.
8. Monitor oxygenation saturation with pulse oximeter. Maintain reading >95%

9. Ventilation at the appropriate rate as indicated by current AHA guidelines.

NASOTRACHEAL INTUBATION (ADULTS ONLY)

This is a very difficult procedure because it must be done without viewing the pharynx and vocal cords. To be successful you must be able to appreciate the intensity of the breath sounds of spontaneously breathing patients.

INDICATIONS
The nasotracheal route of endotracheal intubation may be indicated when ventilatory assistance is needed but you cannot ventilate successfully with a bag-mask and you cannot open the adult patient's mouth because of clenched jaws.

CONTRAINDICATIONS:
- Apnea
- Suspected epiglottitis
- Age less than 12 years
- Major facial trauma to or instability of the nose or maxilla
- Patients taking warfarin or other anticoagulants
- Patients with known clotting disorders
- Suspected anterior basilar skull fracture (Raccoon Eyes)
- Foreign bodies or polyps in the nares.
- Recent nasal surgery.
- Epistaxis or history of frequent epistaxis.

PRECAUTIONS:
- Adequate ventilation and oxygenation must be provided between attempts.
- Pay careful attention. Improper use or lack of tube placement verification can lead to catastrophic results.
- When the patient's position is altered after intubation, it is essential to verify that the tube position remains correct in the new patient position.
- Quantitative capnography is the best method to monitor placement of the tube.

PROCEDURE (NASOTRACHEAL-CAT B):
1. Ventilation by Bag Valve Mask should always precede any attempt at intubation.
2. The maximum interruption of ventilation for nasotracheal intubation should be 30 seconds.
3. Insert the device using the correct technique and special precautions for that device. Some prefer the Endotrol endotracheal tube for this procedure.
4. Verification of proper tube placement must be confirmed with Esophageal Detection Device (EDD- suction bulb or syringe) immediately after placing tube. (MANDATORY)

5. Following the EDD, the abdomen should be auscultated first, and then the chest checked for equal bilateral breath sounds and rise.
6. Monitor tube placement with the qualitative CO_2 detector or preferably a quantitative waveform CO_2 monitor. (Use of one or the other is MANDATORY). After June 2013 all ALS services must have the ability to monitor patients with waveform capnography
7. Monitor oxygenation with pulse oximeter. Maintain oxygen saturation reading >95%.
8. Ventilation at the appropriate rate as indicated by current AHA guidelines.

NOTES:

1. Remember to deflate cuff prior to repositioning the tube. Movement of the tube with the cuff inflated could result in patient injury or damage to the cuff, requiring a tube change.
2. Once the endotracheal tube is in place, ventilation with the BVM need not be synchronized with chest compressions.
3. Transportation should not be delayed for multiple attempted intubations.
4. **Children are almost always best ventilated with a bag-mask. It is very rare to need to intubate a child.**
5. **Use of the bougie to facilitate intubation is contraindicated in children.**
6. By June 2013 all ALS services must have the ability to monitor patients with waveform capnography.

Blind Insertion Airway Devices 9.1

1. Combitube
2. Air-Q Intubating Laryngeal Airway
3. Laryngeal Mask Airway
4. Pharyngotracheal Lumen Airway
5. Rusch EasyTube

Note: The King airway may be used if the service medical director approves.