

12 Lead ECG

This 12-Lead Supplement is to offer additional education and procedural information to NRMCA Providers. BLS Providers that complete a Medical Control approved 12 Lead Acquisition/ education class, are authorized to obtain 12 lead ECG's. BLS agencies may capture and transmit 12 lead ECG's to the Regional PCI hospital for interpretation. BLS Agencies choosing to obtain 12 lead capture, must utilize a device approved by the Medical Control Authority Physician & the agency must verify that the device will transmit to the Regional PCI Hospital.

Pre-Medical Control

EMT/SPECIALIST/PARAMEDIC

I. EKG Performance Procedure

- A. Follow **General Pre-hospital Care Protocol.**
- B. Administer oxygen
- C. Perform 12-lead ECG per manufacturer guidelines (within 10 minutes of patient contact). If able, send a 12-lead to the receiving PCI hospital. (The goal is to contact the PCI center within 5 minutes of STEMI recognition).
- D. If able dress patient in hospital gown.
- E. For the purposes of this procedure, a patient is considered to be hemodynamically stable if they are alert, have a systolic blood pressure of at least 90 mmHg and the cardiac rhythm does not pose an immediate life threat.
- F. If the patient is hemodynamically stable:
 - a. Conduct the 12 lead EKG prior to administration of medication. The EKG performance should not exceed 3 minutes.
 - b. If at any time during the application or performance of the EKG, should the patient's condition deteriorate, immediately administer appropriate treatment and then proceed to the performance of the 12 lead once the patient's condition stabilizes or time permits.
- G. If the patient is not hemodynamically stable:
 - a. Immediately provide appropriate treatment and perform the 12 lead once the patient's condition stabilizes or time permits.
 - b. In certain patients time limits and patient condition may not allow for the performance of a 12 lead.

II. Lead placement

- A. Limb leads (at least 10cm from the heart)
 - a. Black – left shoulder or arm
 - b. White – right shoulder or arm
 - c. Red – left leg
 - d. Green - right leg

- B. Chest leads
 - a. V1: Right 4th intercostal space (adjacent to sternum)
 - b. V2: Left 4th intercostal space (adjacent to sternum)
 - c. V3: Halfway between V2 and V4

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- d. V4: Left 5th intercostal space, midclavicular line
- e. V5: Horizontal to V4, anterior axillary line
- f. V6: Horizontal to V5, mid-axillary line

Note: To find the 4th intercostal space, first locate the Angle of Louis. This is a hump near the top third of the sternum. Start feeling down the sternum from the top and you will feel it. It is located next to the second rib. The space directly beneath it is the 2nd intercostal space. Count down 2 additional intercostal spaces and place V1 on the right and V2 on the left immediately adjacent to the sternum.

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Areas of heart tissue	ECG Leads	Possible Coronary Artery Involved
Lateral wall	Leads I, AVL, V5, V6	Circumflex
Inferior wall	Leads II, III, AVF	RCA-right coronary artery
Septal wall	Leads VI, V2	
Anterior wall	Leads V3, V4	LAD-left anterior descending

12 Lead ECG for Acute Coronary Syndrome

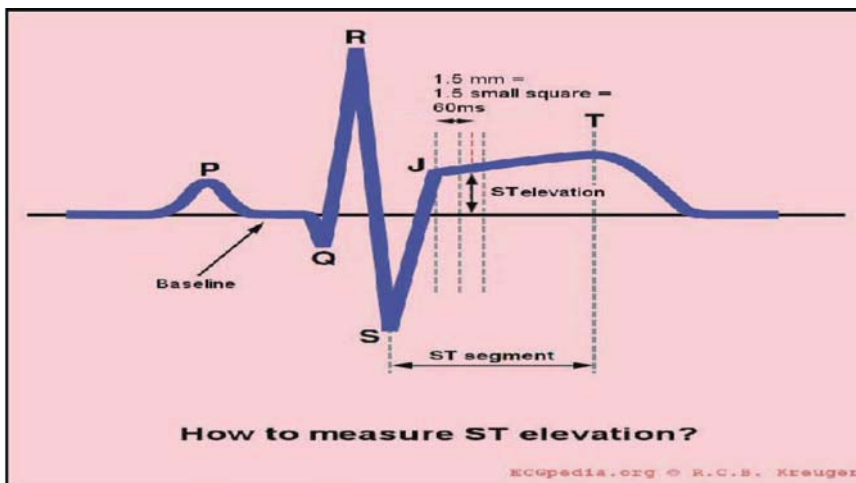
Check List:

- . Patient supine or Fowlers
- . Skin Prep done
- . Placement correct -(must use limb leads on limbs)
- . Validated (in V leads R waves increase in size until between V3 & V4, QRS goes from negative to positive)

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STEMI - ST Elevation Myocardial Infarction = ST Segment Elevation >1mm in 2 or more Related Leads		
Areas of heart tissue	ECG Leads	Possible Coronary Artery Involved
Lateral wall	Leads I, AVL, V5, V6	Circumflex
Inferior wall	Leads II, III, AVF	RCA - right coronary artery
Septal wall	Leads VI, V2	LAD - left anterior descending
Anterior wall	Leads V2, V3, V4	LAD - left anterior descending
Posterior wall	Leads V6, V9	RCA or Circumflex

I Lateral	aVR	V1 Septal	V4 Anterior
II Inferior	aVL Lateral	V2 Septal	V5 Lateral
III Inferior	aVF Inferior	V3 Anterior	V6 Lateral

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Rapid Axis and Hemiblock Chart				
Axis	Lead I	Lead II	Lead III	Comments
Normal Axis 0 - 90				
Physiologic Left Axis 0 to -40				
Pathological Left Axis -40 to -90				Anterior Hemiblock
Right Axis 90 - 180				Posterior Hemiblock
Extreme Right Axis no man's land				Ventricular in origin

III. ACS “STEMI” Pre-Alert Policy to Nearest PCI Facility:

- A. Following the completion of the 12 lead EKG, the paramedic must review the EKG looking for indications of a STEMI.
 - a. ST elevation \geq 1mm in two or more contiguous leads (or new LBBB)
 - b. Signs of ischemia with ST depression in two or more contiguous leads. (not a indication alone – can be a indicator with ST elevation as above.)
 - c. Patient presents with ACS symptoms (chest pain/discomfort, palpitations, dysrhythmias, shortness of breath, syncope, dizziness, nausea, vomiting, diaphoresis, and weakness, (Be aware of atypical presentations with the absence of chest pain in women, diabetics and the geriatric patients.)
- B. The monitor’s interpretation, on the printed EKG, should be considered along with an inspection of the EKG and consideration of the patient’s presentation.
- C. If there is an indication of an Acute Coronary Syndrome “STEMI”:
 - a. Contact the appropriate hospital to which the patient will be transported according to the Transportation Guidelines Policy and provide a brief report that begins with the phrase “STEMI Alert”. The patient’s age, gender, duration of symptoms, pertinent presentation symptoms, EKG findings and ETA to the hospital should be reported.

SPECIALIST/PARAMEDIC

- b. Establish IV access
- c. Consider establishing a second IV during transport if time permits
- D. If the EKG does not show signs of infarct or ischemia, treat the patient based on their presenting signs/symptoms according to protocol. A STEMI alert is not necessary.
 - a. Do not withhold treatment of chest pain if the EKG does not indicate infarct or ischemia.
 - b. Lack of EKG changes does not rule out the possibility of infarct.
- E. If a “STEMI Alert” report was called to the PCI hospital, an update should be called while enroute to the hospital.

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IV. Documentation

A copy of the 12 lead EKG must be attached to the EMS run form for company records, a copy given to the hospital ED for inclusion in the patient chart and a copy attached to the medical control copy of the EMS form.

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General Procedures
ABUSE AND NEGLECT (SUSPECTED)

Date: May 31, 2012

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Abuse & Neglect (Suspected)

Purpose: To provide the process for assessment and management for patients of suspected child abuse and elder abuse.

When emergency personnel suspect that a patient has been abused (physically and/or sexually), neglected, or exploited, a report must be made to the emergency physician on arrival at the hospital and to the Protective Services Agency (child or adult). The primary purpose is protection of the patient from further harm. Do not confront the patient or family members with such suspicions at the scene.

Michigan law (MCL 722.623) requires that licensed EMS providers who have “reasonable cause to suspect child abuse or neglect” shall report “immediately, by telephone or otherwise” their suspicions to the Protective Services Agency for the County involved. In cases of suspected child abuse, this oral report shall also be followed with a written report on the Department of Human Services forms available in every hospital emergency department.

Michigan law (MCL 400.11a) also requires this same oral report for suspected cases of abuse or neglect of an adult.

1. Definitions

“Child Abuse” means harm or threatened harm to a child’s health or welfare by a parent, legal guardian, or any other person responsible for the child’s health or welfare...that occurs through non-accidental physical or mental injury; sexual abuse; sexual exploitation, or maltreatment.

“Child Neglect” means harm or threatened harm to a child’s health or welfare by a parent, legal guardian, or any other person responsible for the child health or welfare that occurs through either of the following: 1) Negligent treatment, including the failure to provide adequate food, shelter, or medical care; 2) Placing a child at an unreasonable risk to the child’s health or welfare by failure of the parent, legal guardian, or any other person responsible for the child’s health or welfare to intervene to eliminate that risk when that person is able to do so and has, or should have, knowledge of the risk.

“Abuse” means harm or threatened harm to an adult’s health or welfare caused by another person. Abuse includes, but is not limited to, non-accidental physical or mental injury, sexual abuse, or maltreatment.

“Exploitation” means an action that involves the misuse of an adult’s funds, property, or personal dignity by another person.

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ABUSE AND NEGLECT (SUSPECTED)

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“Neglect” means harm to an adult’s health or welfare caused by the inability of the adult to respond to a harmful situation or by the conduct of a person who assumes responsibility for a significant aspect of the adult’s health or welfare. Neglect includes the failure to provide adequate food, clothing, shelter, or medical care.

2. Indicators of Possible Abuse

- Unsolicited history provided by the patient
- Delay in seeking care for injury
- Injury inconsistent with history provided
- Conflicting reports of injury from patient and care-giver
- Patient unable, or unwilling, to describe mechanism of injury
- Lacerations, bruises, ecchymosis in various stages of healing
- Multiple fractures in various stages of healing
- Scald burns with demarcated immersion lines without splash marks
- Scald burns involving anterior or posterior half of extremity
- Scald burns involving buttocks or genitalia
- Cigarette burns
- Rope burns or marks
- Patient confined to restricted space or position
- Pregnancy or presence of venereal disease in a child less than 12 years

3. Physical Assessment

- A. Treat and document physical injury per the appropriate medical treatment protocol.
- B. Observe for:
 - Potential over-sedation
 - Inappropriate fear
 - Avoidance behavior
 - Poor parent-child bonding
 - Inappropriate interaction with care giver

4. Evaluation and Documentation

- Focus the interview on the patient’s physical injury. Do not address the specifics of abuse or neglect at this point.
- Obtain and record pertinent history related to the presenting problems.
- Determine and chart past medical history, and any cognitive or physical impairment.
- Note signs of inadequate housing or lack of facilities such as heat or water.
- Carefully and specifically document the patient’s statement of instances of rough handling, sexual abuse, alcohol or drug abuse by family members,

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verbal or emotional abuse, isolation or confinement, misuse of property or theft, threats, gross neglect such as restriction of fluids, food or hygiene.

- Attempt to record, verbatim (word for word), any excited utterances (spontaneous comments).
- If necessary, ask the care-giver for information regarding the patient's medical condition. Observe mental health of care-giver.
- Request police assistance if there is any history of threatening, abusive, or violent acts. Protect yourself while obtaining a safe environment for the patient.

5. Special Considerations

- If the patient is not transported, the suspected abuse must still be reported. Law enforcement may also be contacted, at the discretion of EMS providers.
- Careful and specific documentation is vital because the “story” often changes as the investigation proceeds.
- Contact the Department of Human Services Hotline at 1-855-444-3911.

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General Procedures
ADRENAL CRISIS

Date: May 31, 2012

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Adrenal Crisis

Purpose: This protocol is intended for the management of patients with a known history of adrenal insufficiency, experiencing signs of crisis, and where the medication is readily available.

Indications:

1. Patient has a known history of adrenal insufficiency or Addison's disease.
2. Presents with signs and symptoms of adrenal crisis including:
 - a. Pallor, headache, weakness, dizziness, nausea and vomiting, hypotension, hypoglycemia, heart failure, decreased mental status, or abdominal pain.
3. Medication is available.

Pre-Medical Control

PARAMEDIC

1. Follow **General Pre-hospital Care Protocol**.

Post-Medical Control

2. Administer fluid bolus NS.
3. Assist with administration of patient's own hydrocortisone sodium succinate (Solu-Cortef)
 - a. Adult: 100 mg IVP
 - b. Pediatric: <5 ft. tall (<35kg/75lbs) 1-2 mg/kg IVP
4. Transport
5. Notify Medical Control of patient's medical history.
6. Refer to **Hypoglycemia Protocol**.

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MDCH Approval Date 05-30-2014
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ASSAULT and SEXUAL ASSAULT

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Assault and Sexual Assault

Pre-Medical Control

MFR/EMT/SPECIALIST/PARAMEDIC

1. Follow **General Pre-hospital Care Protocol**
2. Preserve evidence whenever possible.
 - A. Consider wearing gloves for all patient care and other activities with the crime scene.
 - B. Never cut through holes in clothing created by bullets or knives.
 - C. Retain all clothing, place in a paper bag.
 - D. When transporting a patient who may be dying, ascertain name and/or description of assailant if possible.
 - E. At an outdoor crime scene do not disturb shoe prints, tire marks, shell casings, etc.
 - F. Limit movement at the crime scene.
 - G. Attempt to keep others out of the area.
3. Advise patient to not shower, change clothes, or dispose of pertinent objects.
4. Assess patient for injury and treat according to protocol.
5. Use sensitivity in asking victim for historical information.
6. Thoroughly document all injuries and voluntary statements of patient.
7. Assure appropriate law enforcement agency has been notified.
 - A. Notify the investigating law enforcement officer of any alteration of the crime scene by EMS personnel including:
 - a. Any movement of furniture, tables, etc.
 - b. The original position of the items
 - c. If you turned on lights
 - d. What you touched, moved, etc.

EMT/SPECIALIST/PARAMEDIC

8. Transport

Post-Medical Control

If transport is refused refer patient to support agency and/or hospital whenever possible.

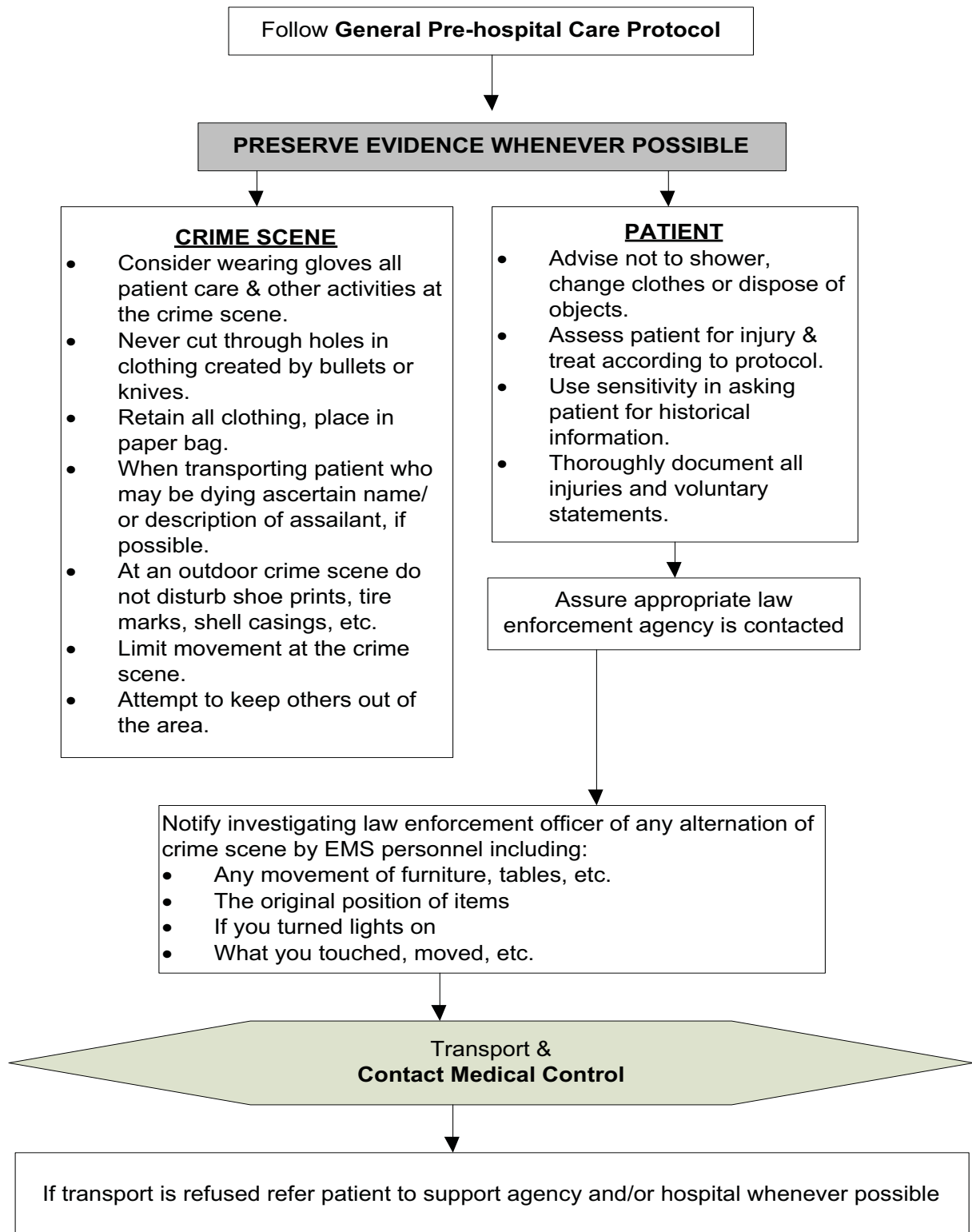
NOTES:

1. Your first duty is to provide emergency medical care at the scene of an illness/injury.
2. Certain measures can be taken to assist law enforcement personnel in preserving a crime without jeopardy to the patient.
3. The investigation of the circumstances surrounding the incident is the responsibility of the law enforcement agency.
4. Red marks may disappear and your documentation may be the only witness that the victim was choked or struck, even though he/she stated it.
5. Be alert for torn clothing, fragments of cloth, blood, or body fluids, etc. for they need to be preserved as evidence. Law enforcement is responsible for the disposition of this evidence.
6. Do not move firearms (loaded or unloaded) unless it poses a potential immediate threat. Secure any weapon that can be used against you or the crew out of the reach of the patient and bystanders.

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MDCH Approval Date 05-30-2014
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Automated External Defibrillator (AED)

The Automated External Defibrillator (AED) shall be applied only to patients found in cardiopulmonary arrest. Interruptions to CPR should be kept to a minimum. The AED should not be used on patients found lying on conductive surfaces or patients in moving vehicles. There are no age or weight limits for AED use. In pediatric patients, attenuated pads should be used, if available. If adult pads are used in pediatric patients, place in an anterior/posterior configuration.

Pre-Medical Control

MFR/EMT/SPECIALIST/PARAMEDIC

1. Follow the **Cardiac Arrest - General Protocol**.
2. Stop CPR to analyze patient and shock once, if indicated.
3. Continue CPR immediately after the shock, or immediately if no shock is indicated and continue for 2 minutes (5 cycles) or when AED initiates analysis.
4. If no pulse, analyze the patient and repeat one shock, if indicated.
5. If patient converts to a non-shockable rhythm at any time, continue CPR until AED prompts to check the patient.
6. Should a patient who is successfully defibrillated arrest again, analyze the patient.
7. If ALS arrives and the AED allows for manual shocks, it may remain in place. If not, complete any shock you are administering, consider disconnecting the AED. ALS should attach their ECG monitor and continue treating the patient per protocol. ALS does not need to repeat any of the AED shocks.

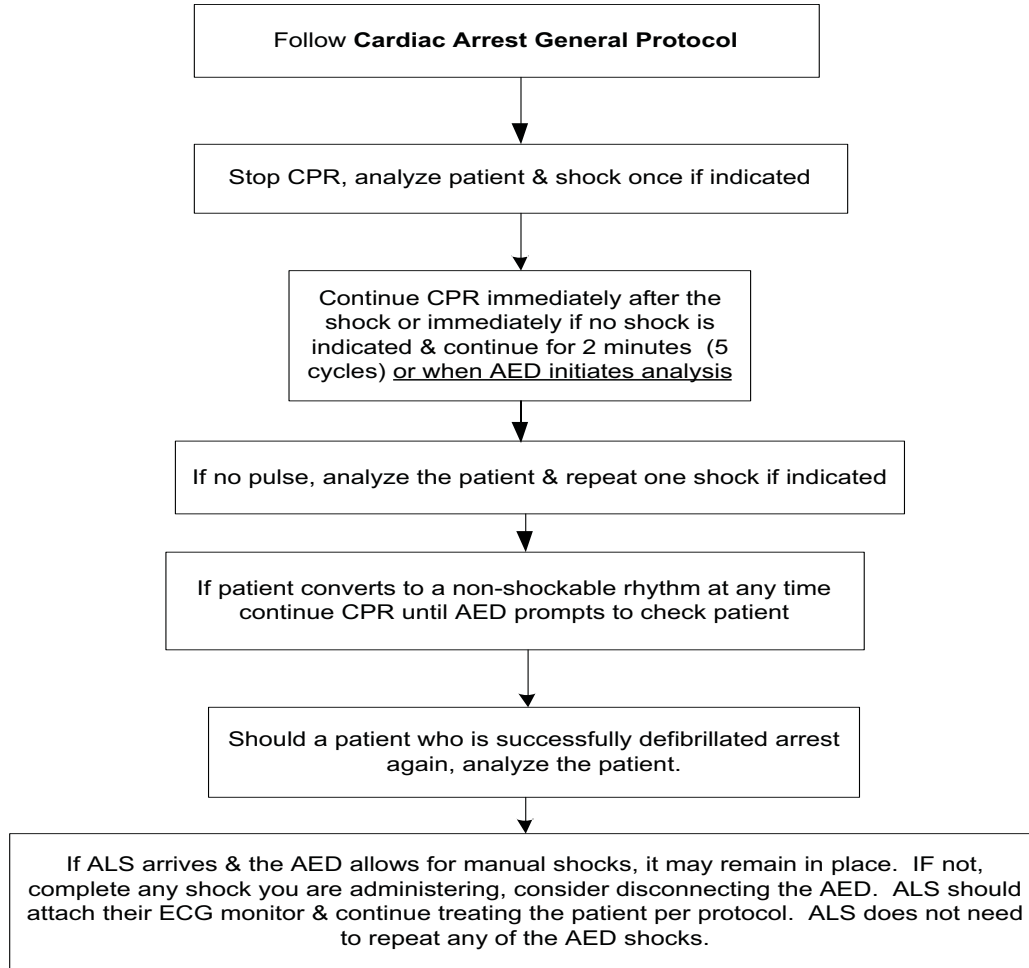
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AUTOMATED EXTERNAL DEFIBRILLATOR (AED)

Date: May 31, 2012

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Michigan
General Procedures
CONTAMINATED PATIENT

Date: May 31, 2012

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Contaminated Patient

Purpose: This protocol is intended to protect responding EMS providers, hospital personnel and the community from the possibility of contamination.

1. Identification of the Contaminated Patient

- A. Use all your senses. Suspect hazardous material situation if you:
- a. **See** containers, labels or placards, or a location suggesting a hazardous substance
 - b. **Hear** explosions, or reports of possible contamination, pre-arrival or on scene
 - c. **Smell** unusual odors – be suspicious

Pre-Medical Control

MFR/EMT/SPECIALIST/PARAMEDIC

1. If contamination of a patient is suspected, the local fire or public safety department must be informed of the hazardous material situation.
2. The responding EMS agencies must prevent further contamination to themselves or others. Determine if any contaminated patients have already left the scene and promptly notify the hospital(s).
3. The responding EMS agency must not spread any contamination outside the response area until the responding fire or public safety department incident commander, or appropriate designee, has confirmed that decontamination is complete. Contaminated patients will not be transported out of the decontamination area until field decontamination is complete.
4. EMS responders will not enter a known contaminated area without proper personal protective equipment, training, and direction by incident command.
5. Invasive patient care procedures (IV, OPA, NPA, ET, Combitube, King Airway) should not begin until decontamination of the patient is confirmed or until personal protective equipment is in place.
6. Prior to transport of a decontaminated patient, on-line medical control will be contacted to assure the patient is transported to a facility equipped to handle the specific needs of the patient.
7. Once the scene Incident Commander, or the appropriate designee, has confirmed that the patient is decontaminated, the responding EMS agency may transport the patient to the designated facility.

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CPAP/BiPAP ADMINISTRATION (OPTIONAL)

Date: November 15, 2012

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CPAP/BiPAP Administration

- Medical Control Authorities choosing to adopt this optional protocol may do so by selecting this check box.
- BLS
 - LALS
 - ALS

Purpose: The CPAP portion of the protocol may be utilized by BLS/LALS/ALS agencies that have completed CPAP training, approved by the MCA, and are equipped with CPAP Equipment including pulse oximetry. **BiPAP use is limited to ALS** agencies that have completed BiPAP training, approved by the MCA, and are equipped with BiPAP Equipment. For use of this protocol, patients must meet the Inclusion Criteria. Contraindicated patients and those that do not meet the inclusion criteria will be treated according to existing protocols without the application of CPAP/BiPAP.

Indications:

Severe respiratory distress not responding to initial treatment with any of the following:

1. CHF/Pulmonary edema/near drowning
2. Hypoxia, i.e., SaO₂ less than 92% on supplemental oxygen.
3. Acute exacerbation of asthma/COPD.

Contraindications:

1. Respiratory/cardiac arrest.
2. B/P less than 90mmHg.
3. Unresponsive to speech.
4. Inability to maintain patent airway.
5. Major trauma, pneumothorax, penetrating chest trauma.
6. Vomiting or active GI bleeding with emesis.
7. Unstable facial fractures.
8. Patient with aspiration risk/history.

Pre-Medical Control

EMT/SPECIALIST/PARAMEDIC

Procedure

1. EXPLAIN THE PROCEDURE TO THE PATIENT.
2. Apply CPAP/BiPAP per manufacturer's recommendations.
3. Place the patient on continuous pulse oximetry.
4. Secure the mask with provided straps and tighten to obtain a good seal, check for air leaks
5. Continue to coach the patient to keep the mask in place, readjust as needed.
6. Advise medical control of CPAP/BiPAP use during radio report.

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7. If respiratory status deteriorates, remove the device and assist ventilations with a BVM/supplemental O₂; place an appropriate airway control device.

PARAMEDIC

8. Place the patient on cardiac monitor and record rhythm and vital signs.
9. Administer medications, per respiratory distress protocol, as indicated.

Post-Medical Control

1. Consider sedation to reduce anxiety per **Patient Sedation Procedure**.

Removal Procedure

1. CPAP/BiPAP therapy needs to be continuous and should not be removed unless the patient cannot tolerate the mask or has marked deterioration including respiratory arrest, decreasing LOC or patient may vomit.
2. Assist ventilations as necessary

Special Notes:

1. Do not remove CPAP/BiPAP until hospital therapy is ready to be placed on the patient.
2. Watch the patient for gastric distention.
3. CPAP/BiPAP may be used on DNR patients not in arrest.
4. Due to changes in cardiac preload and afterload during CPAP/BiPAP therapy, a complete set of VS must be obtained every 10 minutes (5 minutes in short transport situations).

Michigan
Adult Treatment
GENERAL CRUSH INJURY

Date: October 1, 2014

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General Crush Injury

This protocol should be considered when the patient has been entrapped at the scene for more than one hour, one or more full extremities trapped by an object capable of causing a crush injury, including machinery, dirt, rock, and rubble or there is entrapment of patient with history of previous cardiac or renal disease or dialysis treatment.

Crush Syndrome should be suspected in patients with entrapment/compression of greater than one hour, especially when a large muscle mass/group is involved. Treatment of the patient at risk for Crush Syndrome ***should begin before the patient is removed when practical.***

Pre-Medical Control

MFR/EMT/SPECIALIST/PARAMEDIC

1. Follow General Trauma Protocol, identify and treat life threats.
2. Assess for signs of Compartment Syndrome or Crush Syndrome.
3. Use tourniquet as indicated (see **Tourniquet Application** procedure).

PARAMEDIC

4. Establish large bore IV(s) and infuse one (1) to two (2) liters of Normal Saline ***just prior to removal of patient when practical.***
5. Treat patient pain per the pain management protocol. Fentanyl is preferred to morphine.
6. Initiate cardiac monitoring and assess for hyperkalemia, i.e. wide QRS or peaked T waves. Perform and transmit a 12-Lead ECG if conditions allow.
7. Administer oxygen to patient if environment allows.
8. Administer Sodium Bicarbonate 100 mEq IVP prior to extrication and 50 mEq/hr IVBP or slow IVP if extrication is prolonged and hyperkalemia is suspected.
9. Consider Albuterol 2.5 mg via NMT (nebulized mist treatment) during extrication process.
10. Administer Calcium Chloride 1 gram slow IVP over 5 minutes after extrication if hyperkalemia is suspected – T waves become peaked, if QRS widens, or if hypotension develops.

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General Procedures
DEAD ON SCENE

Date: May 31, 2012

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Dead on Scene

Purpose: The procedure to follow when a patient appears to be dead on scene.

1. CPR IS TO BE INITIATED ON ALL PATIENTS IN CARDIAC ARREST UNLESS one or more of the following conditions exists:

- A. Gross dismemberment of the body.
- B. Decapitation.
- C. Completely charred body without any detectable signs of life.
- D. Obvious mortal wounds/conditions (injuries inconsistent with life – i.e., crushing injuries of the head and/or chest)
- E. At least one hour of submersion documented by the licensed health care professional after arrival on the scene.
- F. Putrefied, decayed, or frozen bodies and/or lividity with rigor mortis
- G. Blunt or penetrating traumatic arrest found pulseless and apneic (without agonal respirations) without organized electrical activity (must be asystolic or other rhythm with rate less than 40/min). Patients with ventricular fibrillation, ventricular tachycardia or organized rhythms greater than 40/min should have resuscitation initiated. Patients not meeting these criteria should have full resuscitation and prompt transport initiated. Special attention should be taken so mechanism of injury is consistent with condition of the patient.
- H. Patient has a valid “Do Not Resuscitate” identification bracelet or order.

2. Specific Exceptions

- A. Patients who are struck by lightning, are hypothermic or victims of cold water drowning (unless submersion time is over 1 hour) do not qualify for use of this policy.
- B. The licensed health care professional may initiate resuscitation efforts at any time.

3. Procedure

- A. When resuscitation is begun by another individual before the licensed health care professional arrives on the scene, resuscitation activity will be continued by the health care professional unless an above-mentioned condition is found. Once resuscitation is initiated by it may be terminated only at the discretion of Medical Control in conjunction with the ALS unit on scene.
- B. The public safety representative shall defer to the licensed health care professional for the above final recommendations. When the licensed health care professional arrives on the scene, he/she will make the final determination of potential viability and may consult Medical Control.

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DEAD ON SCENE

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- C. Agonal respirations will be considered signs of a recent arrest and resuscitation will be initiated unless H above applies.
- D. As stipulated by Part 209 of Public Act 368 of 1978 as amended,
"Authority for management of a patient in an emergency is vested in the licensed health care professional at the scene who has the most training specific to the provision of emergency medical care."
- E. Assure notification of law enforcement and medical examiner of death on scene.
- F. Preserve the scene. Do not remove clothing, valuables, or any objects in, on or around the deceased.

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MDCH Approval Date 05-30-2014
MCA Implementation Date 11-17-2014



Section 5-8

Michigan
General Procedures
DO-NOT-RESUSCITATE

Date: revised March 25, 2014

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Do-Not-Resuscitate

The purpose of this policy is to provide a guideline to prehospital providers, who under certain circumstances may accommodate patients who do not wish to receive and/or may not benefit from cardiopulmonary resuscitation. This policy is drafted in accordance with Public Act 368 of 1978, as amended, as well as Act 192 and 193 of the Public Acts of 1996 and amended, effective February 4, 2014. This policy is intended to facilitate kind, humane, and compassionate service for patients who have executed a valid “Do-not-resuscitate order” under the aforementioned Acts.

1. Definitions

- A. Attending Physician – means the physician who has primary responsibility for the treatment and care of a declarant.
- B. Declarant – means a person who has executed a do-not-resuscitate order, or on whose behalf a do-not-resuscitate order has been executed pursuant to applicable laws.
- C. Do-not-resuscitate order – means a document executed under Public Act 193 of 1996, as amended, directing that if an individual suffers cessation of both spontaneous respiration and circulation in a setting outside of a hospital, resuscitation will NOT be initiated.
- D. Do-not-resuscitate Identification Bracelet or Identification Bracelet – means a wrist bracelet that meets the requirements of Act 193 and worn by a declarant while a do-not-resuscitate order is in effect. *The identification bracelet shall be imprinted with the words “DO-NOT-RESUSCITATE ORDER”, the name and address of the declarant, and the name and telephone number of the declarant's attending physician, if any.*
- E. Guardian – means a person who has qualified as a guardian of a minor or a legally incapacitated individual under a parental or spousal nomination or a court appointment and includes a limited guardian as described in sections 5205, 5206, and 5306 “of the estates and protected individuals code, 1998 PA 386, MCL 700.1104(l)”.
- F. Order – means a do-not-resuscitate order.
- G. Patient Advocate – means an individual designated to make medical treatment decisions for a patient under Section 5506 to 5515 of the estates and protected individuals code, 1998 PA 386, MCL 700.5506 to 700.5515.
- H. Vital Sign – means a pulse or evidence of respiration.

Pre-Medical Control

MFR/EMT/SPECIALIST/PARAMEDIC

2. Procedure

A do-not-resuscitate order is applicable to all prehospital life support agencies and personnel. A do-not-resuscitate order may be executed by an individual 18 years of age or older and of sound mind **OR** by an individual 18 years of age or older and of sound mind, and adherent of a church or religious denomination whose members depend upon

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spiritual means through prayer alone for healing **OR** by a patient advocate of an individual 18 years of age or older.

- A. EMS providers **shall not attempt** resuscitation of any individual who meets **ALL** of the following criteria:
- a. 18 years of age or older
 - b. Patient has no vital signs. This means no pulse or evidence of respiration.
 - c. Either the patient is wearing a do-not-resuscitate identification bracelet **OR** EMS provider is provided with a do-not-resuscitate order from the patient. Such an order form shall be in substantially the form outlined in Annex 1 or 2 and shall be dated and signed by all parties.
- B. A patient wearing a “do-not-resuscitate order” identification bracelet, or who has executed a valid “do-not-resuscitate order” form, **but who has vital signs, shall not be denied** any treatments or care otherwise specified in protocols.
- C. If a do-not-resuscitate order form is presented and is not substantially in the form as outlined in Annex 1 or 2, or is not complete and signed by all parties, **resuscitation will be initiated** while Medical Control is being contacted for direction.
- D. In the event care has been initiated on a patient, and subsequently a valid do-not-resuscitate order form is identified, and the patient meets the criteria in Item 2 a. above, discontinue resuscitation.
- E. A do-not-resuscitate order will not be followed if the declarant, guardian or patient advocate revokes the order. An order may be revoked at any time and in any manner by which the declarant, guardian or patient advocate is able to communicate this intent. **Resuscitation efforts will be initiated** and EMS personnel shall contact on-line Medical Control to advise them of the circumstances.
- F. A patient care record will be completed for runs handled within this protocol. The patient care record will clearly specify the circumstances and patient condition found by the EMS providers, and describe the do-not-resuscitate documents involved.

Post-Medical Control

3. Honor DNR, terminate resuscitation or continue resuscitation and transport to the Hospital.

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“DO-NOT-RESUSCITATE ORDER”

THIS DO-NOT-RESUSCITATE ORDER IS ISSUED BY _____,
(Type or print physician’s name)

ATTENDING PHYSICIAN FOR _____.
(Type or print declarant’s or ward’s name)

Use the appropriate consent section below:

A. DECLARANT CONSENT

I have discussed my health status with my physician named above. I request that in the event my heart and breathing should stop, no person shall attempt to resuscitate me.

This order is in effect until it is revoked as provided by law.

Being of sound mind, I voluntarily execute this order, and I understand its full import.

(Declarant’s signature)

(Date)

(Signature of person who signed for
declarant, if applicable)

(Date)

(Type or print full name)

B. PATIENT ADVOCATE CONSENT

I authorize that in the event the declarant’s heart and breathing should stop, no person shall attempt to resuscitate the declarant. I understand the full import of this order and assume responsibility for its execution. This order will remain in effect until it is revoked as provided by law.

(Patient advocate’s signature)

(Date)

(Type or print patient advocate’s name)

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C. GUARDIAN CONSENT

I authorize that in the event the ward's heart and breathing should stop, no person shall attempt to resuscitate the ward. I understand the full import of this order and assume responsibility for its execution. This order will remain in effect until it is revoked as provided by law.

(Guardian's signature)

(Date)

(Type or print guardian's name)

(Physician's signature)

(Date)

(Type or print physician's full name)

(Date)

ATTESTATION OF WITNESSES

The individual who has executed this order appears to be of sound mind, and under no duress, fraud, or undue influence. Upon executing this order, the declarant has (has not) received and identification bracelet.

(Witness Signature) (Date)

(Witness Signature) (Date)

(Type or print witness's name)

(Type or print witness's name)

**THIS FORM WAS PREPARED PURSUANT TO, AND IS IN COMPLIANCE WITH,
THE MICHIGAN DO-NOT-RESUSCITATE ACT.**

ANNEX 1

MCA Name **Northwest Regional MCA**
MCA Board Approval Date **03-11-2014**
MDCH Approval Date **05-30-2014**
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“DO-NOT-RESUSCITATE ORDER”
Adherent of Church or Religious Denomination

Use the appropriate consent section below:

A. DECLARANT CONSENT

I request that in the event my heart and breathing should stop, no person shall attempt to resuscitate me.

This order is in effect until it is revoked as provided by law.

Being of sound mind, I voluntarily execute this order, and I understand its full import.

(Declarant’s signature)

(Date)

(Type or print declarant’s full name)

**(Signature of person who signed for
declarant, if applicable)**

(Date)

(Type or print full name)

B. PATIENT ADVOCATE CONSENT

I authorize that in the event the declarant’s heart and breathing should stop, no person shall attempt to resuscitate the declarant. I understand the full import of this order and assume responsibility for its execution. This order will remain in effect until it is revoked as provided by law.

(Patient advocate’s signature)

(Date)

(Type or print patient advocate’s name)

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ATTESTATION OF WITNESSES

The individual who has executed this order appears to be of sound mind, and under no duress, fraud, or undue influence. Upon executing this order, the declarant has (has not) received and identification bracelet.

(Witness Signature)

(Date)

(Witness Signature)

(Date)

(Type or print witness's name)

(Type or print witness's name)

**THIS FORM WAS PREPARED PURSUANT TO, AND IS IN COMPLIANCE WITH,
THE MICHIGAN DO-NOT-RESUSCITATE ACT.**

ANNEX 2

MCA Name **Northwest Regional MCA**
MCA Board Approval Date **03-11-2014**
MDCH Approval Date **05-30-2014**
MCA Implementation Date **11-17-2014**



Section 5-9

Electrical Therapy

Purpose: To provide a procedure for the performance of appropriate electrical therapy

Automatic External Defibrillation (AED)

Refer to the Automatic External Defibrillator (AED) procedure.

Manual Defibrillation

1. Indications:
 - A. Ventricular fibrillation
 - B. Pulseless ventricular tachycardia

Pre-Medical Control

PARAMEDIC

2. Technique:
 - A. Turn defibrillator on.
 - B. Apply defibrillator paddles/pads according to manufacturer specifications.
 - C. Charge defibrillator to energy level specified in appropriate protocol or according to manufacturer specifications.
 - D. Verify shockable rhythm.
 - E. Assure that no one is touching the patient.
 - F. Defibrillate patient.
 - G. Immediately initiate or resume CPR.
 - H. Repeat defibrillations at 2 minute intervals if the patient remains in a shockable rhythm per protocol.
 - I. Continue to treat the patient according to the appropriate protocol.
3. Precautions
 - A. Dry the chest-wall if wet or diaphoretic.
 - B. Nitroglycerin paste should be removed; paddles should not be placed over nitroglycerin patches.
 - C. Avoid placing the paddles over a pacemaker or AICD.
 - D. If visible muscle contraction of the patient did not occur, defibrillation did not occur; check equipment.
 - E. If pediatric pads were used with an AED prior to ALS management,
 - a. Either use the AED with their pediatric pads or
 - b. Remove the pediatric AED pads and use non-attenuated pediatric pads for defibrillation.
4. Complications
 - A. Accidental shock of adjacent individual
 - B. Skin burns resulting from inadequate contact between paddles and skin or due to inadequate conducting gel or dry conductive pads.

Synchronized Cardioversion

1. Indications: Hemodynamically unstable patient with the following rhythms:
 - A. Wide Complex Tachycardia (Presumed Ventricular Tachycardia).

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B. Narrow Complex Tachycardia (Supraventricular Tachycardia (SVT), or Atrial Fibrillation.

2. Contraindications: Heart rate < 150 unless ordered by medical control

Pre-Medical Control

PARAMEDIC

3. Technique:

- A. Consider IV sedation per **Patient Sedation Procedure**.
- B. Turn on defibrillator (monophasic or biphasic)
- C. Attach monitor leads to the patient and ensure proper display of the patient's rhythm.
- D. Turn SYNC on, assure that QRS complex is marked
- E. Apply defibrillator paddles/pads according to manufacturer specifications.
- F. Charge defibrillator to energy level specified in appropriate protocol or according to manufacturer specifications.
- G. Check Rhythm.
- H. Assure that no one is touching the patient
- I. Cardiovert patient
- J. Recheck pulse and rhythm
- K. If rhythm does not convert, repeat cardioversion according to the appropriate protocol.
- L. Recheck the "sync mode" after each synchronized cardioversion as many defibrillators default back to unsynchronized mode.
- M. If ventricular fibrillation occurs, deactivate synchronized mode and defibrillate.

4. Precautions

- A. Same as for defibrillation
- B. In "sync" mode, the button(s) need to be held until a shock is delivered. If a shock is not delivered the first time, hold the buttons again.
- C. If a sinus rhythm is achieved by cardioversion, even briefly, and then reverts to previous rhythm, repeat the cardioversion at the same setting as was initially successful.

5. Complications

- A. Accidental shock of adjacent individual
- B. Skin burns resulting from inadequate contact between paddles and skin or due to inadequate conducting gel or dry conductive pads.

Transcutaneous Pacing (TCP)

1. Indications: Symptomatic Bradycardia with inadequate perfusion.

Pre-Medical Control

PARAMEDIC

2. Technique:

- A. Monitor rhythm.
- B. ECG electrodes must be in place, along with pacing pads or combo-pads, in order for the pacer to function.
- C. Apply pacing electrodes per manufacturer's instructions.
- D. Consider sedation, per **Patient Sedation Procedure**.

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- E. If QRS complexes are present, select a lead in which the QRS is the most positive or upright (so machine can sense their presence).
 - F. Set external pacemaker rate to 60 bpm to begin.
 - G. Initiate pacing and increase MA output until evidence of capture has occurred
 - H. Increase at increments of 20 MA for unconscious patients and 5 MA for conscious patients.
 - a. Use minimal MA needed for mechanical capture.
 - I. Run an rhtyhm strip and save.
 - J. Assure adequate electrical and mechanical capture.
 - a. Electrical:
 - 1. Visible pacer spike immediately followed by wide QRS and broad T waves.
 - b. Mechanical:
 - 1. Palpable Pulses, improved LOC; improved BP; improved patient color
 - K. If mechanical capture is not obtained, contact medical control. Perform CPR if appropriate.
3. Precautions
- A. Use of transcutaneous pacemakers can cause painful muscle contractions. Consider the use of sedation in patients that are awake. See **Patient Sedation Procedure**
4. Contraindications
- A. Wet environment
 - B. Burns to the chest (relative)

Special Considerations for Electrical Therapy:

- 1. Electrical therapy may not be successful in hypothermic patients; refer to **Hypothermia Cardiac Arrest Protocol**.

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Emergency Airway

Effective airway management and ventilation are important lifesaving interventions that all EMS providers must be able to perform. The approach to airway management should generally proceed in a stepwise fashion, from basic to advanced, since basic maneuvers can sustain life until an advanced airway can be established. However, providers should use clinical judgment in determining which interventions are most appropriate for a particular patient.

Indications for Airway Management and Ventilation

1. Airway Management
 - A. Airway obstruction
 - B. Need for positive pressure ventilation (see below)
 - C. Airway protection, such as an unconscious patient without a gag reflex.
 - D. Trauma patient with a Glasgow Coma Score of 8 or less.
2. Positive Pressure Ventilation
 - A. Respiratory or cardiac arrest (including agonal respirations)
 - B. Respiratory failure (inadequate respiratory rate/volume)

Contraindications for Airway Management and Ventilation

1. Nasopharyngeal airway insertion and nasotracheal intubation are contraindicated in mid-face trauma.
2. Presence of a gag reflex may be a contraindication to some specific airway interventions.
3. Specific supraglottic airways may have contraindications due to caustic ingestion or known esophageal varices.

Pre-Medical Control

MFR/EMT/SPECIALIST/PARAMEDIC

1. In cases of foreign body airway obstruction, refer to **Foreign Body Airway Obstruction** section. When the airway is not self-maintained, open the airway using basic maneuvers (chin lift or jaw thrust). Patients with a potential cervical spine injury should have a modified jaw thrust performed attempting to minimize neck flexion and extension.
2. Perform oral pharyngeal suctioning as needed to remove body fluids and minimize risk of aspiration. When possible suctioning should be limited to no more than 15 seconds and should not extend beyond the pharynx.
3. In unconscious patients without a gag reflex, insert a properly sized oropharyngeal airway. Immediately remove upon return of gag reflex.
4. In unconscious patients with gag reflex, consider insertion of a properly sized nasopharyngeal airway, using water-soluble lubrication when available.
5. In patients requiring bag-valve-mask ventilations, consider inserting both oro- and nasopharyngeal airways to optimize ventilations.
6. In patients with respiratory arrest or significant respiratory depression (e.g., adult patient with respiratory rate less than 8) perform bag-valve-mask (BVM) ventilations. Note: BVM ventilations should be performed by 2 rescuers whenever possible. Use supplemental oxygen and reservoir system and avoid high-impulse ventilations.

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7. Ventilate at appropriate rate. AVOID HYPERVENTILATION! Generally appropriate rates for ventilation are:
 - A. Adults >8 y/o 8-12 breaths / minute
 - B. Children 1-8 y/o 20 breaths / minute
 - C. Infants < 1 y/o 25 breaths / minute
8. A pocket mask or face shield is an acceptable alternative for single rescuer ventilations.
9. When caring for patients with stomas, use pediatric masks to achieve seal.
10. For patients with a tracheostomy tube and home ventilator connect BVM (without mask) directly to tracheostomy tube and ventilate at appropriate rates.

EMT/SPECIALIST/PARAMEDIC

11. Providers may consider continuing basic airway management techniques if airway is able to maintained adequately in the adult patient.
12. Providers must continue basic airway management, unless the airway is unable to be adequately maintained, in the pediatric patient (8 or under).
13. MCA-approved supraglottic airways (e.g., Combitube, King Laryngeal Tracheal Tube) may be used to secure the airways in unconscious patients that do not have a gag reflex.
14. In cardiac arrest patients, supraglottic airways are considered equivalent to endotracheal intubation and are appropriate as a first-line advanced airway and should be used early when endotracheal intubation cannot be readily performed without interrupting chest compressions. Use of supraglottic airways in cardiac arrest patients may allow for earlier transition to continuous chest compressions.
15. Each MCA must select at least one state-authorized supraglottic airway for use in their system.
16. Supraglottic airways should be placed in accordance with manufacturer's instructions for use (see appropriate procedure) and must be confirmed by auscultation for absence of gastric sounds and presence of bilateral lung sounds and by positive end-tidal CO₂ levels by waveform capnography (preferred) or by use of colorimetric qualitative end-tidal CO₂ detectors. Additional clinical findings consistent with a properly placed airway include chest expansion, improvement in patient's color, and improvement in pulse oximetry (when available).
17. Supraglottic airway placement should be re-confirmed at frequent intervals throughout the care of the patient, particularly after each patient movement.
18. CPAP (when available) should be considered for patients with severe respiratory distress that do not improve with supplemental oxygen administration in accordance with the **CPAP/BiPAP Administration Procedure**.

PARAMEDIC

19. Orotracheal intubation under direct laryngoscopy may be performed in adult patients who are unable to protect their own airway (e.g., no gag reflex), require sustained positive pressure ventilation, and/or are in cardiac arrest.
20. Orotracheal intubation under direct laryngoscopy may be performed in pediatric patients (< 8 years old) who are unable to protect their own airway (e.g., no gag reflex), require sustained positive pressure ventilation, and/or are in cardiac arrest ONLY when basic airway management techniques (e.g., 2-person mask ventilation with oropharyngeal airway) are

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- ineffective.
21. When approved by local MCA, nasotracheal intubation may be performed for spontaneously breathing patients in severe respiratory distress who have a patent gag reflex. Caution should be used as this technique is difficult to perform and has a high failure rate. See optional **Nasotracheal Intubation** section.
 22. Deep tracheal suctioning may be performed when indicated using sterile technique and suctioning only during withdrawal of catheter.
 - A. Maximum suction time:
 - a. Adults (>8 years old): maximum 10 seconds
 - b. Children (1 to 8 years old): maximum 10 seconds
 - c. Infants (< 1 year old) maximum 5 seconds
 23. When approved by local MCA, needle and/or surgical cricothyroidotomy may be performed where massive facial trauma precludes the possibility of successful intubation, in cases of complete airway obstruction that cannot be corrected, in situations when other basic and advanced airway management techniques are unsuccessful in achieving effective ventilation and/or oxygenation.
 24. Endotracheal (ET) medications may not be given via the endotracheal tube unless IV or IO routes of administration cannot be obtained.
 - A. If IV or IO access is not available, the following medications may be given via the endotracheal tube:
 - a. Atropine, Epinephrine, Naloxone, Lidocaine
 - b. Adults – ET doses should be 2 to 2.5 times that of the IV dosage. Children – ET doses should be 2 to 3 times that of the IV dosage. All dosages for pediatric epinephrine administered ET are 1:1000 concentration.
 25. Use of sedation to facilitate advanced airway placement is contraindicated. Sedation for tube tolerance following successful tube placement is indicated in accordance with the **Patient Sedation Procedure**.

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FOREIGN BODY AIRWAY OBSTRUCTION

This procedure is intended for situations in which a severe foreign body airway obstruction (FBAO) has occurred. EMS personnel must be able to rapidly initiate treatment in such cases. Note: Sudden cardiac arrest that occurs while a person is eating is frequently dispatched as “choking”. EMS personnel should consider these cases to be potential cardiac arrests.

Indications for Obstructed Airway Procedures

Attempt to relieve the obstruction only if signs of severe obstruction develop:

1. Patient is unable to speak;
2. Patient’s cough becomes silent;
3. Patient’s respiratory difficulty increases and is accompanied by stridor;
4. Patient suspected of airway obstruction becomes unresponsive;
5. Patient is unresponsive, not breathing, and is unable to be ventilated using the 2-person bag-valve-mask ventilation technique with oropharyngeal airway.

Note: Conscious patients who are able to speak and have a forceful cough should be encouraged to continue coughing and do not require interventions unless the above occur.

MFR/EMT/SPECIALIST/PARAMEDIC

1. In conscious (responsive) adults and children ≥ 1 year of age, deliver abdominal thrusts in rapid sequence until the obstruction is relieved.
2. Administer chest thrusts in conscious patients in place of abdominal thrusts when:
 - A. Abdominal thrusts are ineffective (optional consideration)
 - B. Patient is obese and rescuer is unable to encircle the patient’s abdomen
 - C. Patient is in the later stages of pregnancy (e.g., greater than 20 weeks)
 - D. Patient is under 1 year of age
3. If the adult patient becomes unresponsive or is found unresponsive and is unable to be ventilated using the 2-person bag-valve-mask technique with oropharyngeal airway:
 - A. Begin immediate CPR in accordance with current American Heart Association Guidelines regardless of presence of pulse.
 - B. With each set of ventilations, visually inspect the mouth for evidence of foreign body and remove if present.
 - C. Bag-valve-mask ventilations should be performed using the two-rescuer technique with an oropharyngeal airway and special attention to maintain an effective mask seal.
 - D. Continue CPR, alternating 30 compressions with two attempted ventilations.
4. For conscious infants (under 1 year old) with evidence of severe FBAO deliver repeated cycles of 5 back blows (slaps) followed by 5 chest compressions until the object is expelled or the patient becomes unresponsive. Note: Abdominal thrusts are not recommended for infants because they may damage the infant’s relatively large and unprotected liver.
5. If the patient becomes unresponsive or is found unresponsive and is unable to be ventilated using the 2-person bag-valve-mask technique with oropharyngeal airway:
 - A. Start CPR with chest compressions (do not perform a pulse check).
 - B. After 30 chest compressions, open the airway and visually inspect the mouth for a foreign body, remove it but do not perform blind finger sweeps as this may

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push obstructing objects farther into the pharynx and may damage the oropharynx.

- C. Attempt to give 2 breaths and continue with cycles of chest compressions and ventilations until the object is expelled.

PARAMEDIC

6. Begin or continue basic FBAO treatment as described above.
7. For unconscious patients, while chest compressions are being provided, perform direct laryngoscopy. If foreign body is visible, remove using adult or pediatric Magill forceps.
8. If unsuccessful in visualizing foreign body, consider brief trial of abdominal thrusts while performing direct laryngoscopy.
9. Once FB is removed, perform endotracheal intubation if able to be readily accomplished or place supraglottic airway and begin ventilations.

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PARAMEDIC

Oral Endotracheal Intubation Procedure

The table below is the required elements for every patient care record in which endotracheal intubation is attempted.

Documentation Points

✓ Size of ET tube	✓ Visualization of vocal cords
✓ Number of attempts	✓ Suction required
✓ ET Tube measurement (cm) at teeth	✓ Chest rise with ventilation
✓ Ventilation compliance	✓ Bulb syringe check documented if used
✓ Capnography used	✓ ETCO ₂ /Capnography reading
✓ Equality of lung sounds	✓ Absence of epigastric sounds
✓ Method for securing ET tube	✓ Any complications with intubation procedure

Technique for Oral Endotracheal Intubation:

1. Ventilate the patient with 100% oxygen using BVM and 2-person technique.
2. Gather equipment:
 - A. appropriate size ETT with stylet
 - B. syringe
 - C. laryngoscope with blades
 - D. suction
 - E. bag-valve-mask (BVM)
 - F. commercial device for securing tube after placement
 - G. waveform capnography (preferred) or colorimetric capnometry for confirmation
 - H. pulse oximeter, if available
3. If no suspicion of cervical spine injury, position patient with head elevated and extended.
4. If cervical spine injury suspected, have 2nd person stabilize head and neck in neutral position.
5. Perform direct laryngoscopy.
 - A. If using a curved blade, place the tip anterior to the epiglottis into the vallecula.
 - B. If using a straight blade, directly lift the epiglottis with the tip of the blade.
 - C. For infants and children less than 4-6 years old, a straight blade is recommended.
 - D. For commercial video laryngoscopy systems (approved by MCA), follow manufacturer's instructions for use regarding placement.
6. In the adult patient the ET tube should be advanced through the cords until the proximal portion of the balloon is passed 2 to 3 cm beyond the vocal cords. Unless otherwise contradicted by auscultation, the tube should be 21 cm at the incisors (or corner of the mouth) in females and 23 cm in males.
7. In pediatric patients, the ET tube should be advanced to the depth recommended based on patient's weight. In general the ET tube should be advanced to a depth that is approximately 3 times the size of the ET tube (e.g., a 4.0 tube should be advanced to ~12 cm).
8. In general, attempts should be limited to less than 30 seconds each.
9. No more than two attempts should be made prior to considering a supraglottic airway and/or continuing with basic airway management techniques.

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10. In cardiac arrest patients, limit interruptions of compressions to no more than 10 seconds.
11. If using a cuffed tube, inflate the balloon.
12. Confirm tube placement by absence of gastric sounds and by presence of bilateral breath sounds and with waveform capnography (preferred) or colorimetric capnometry.
13. Document the procedure including all the above confirmation techniques for each oral intubation attempt. Maintain airway monitoring once established. For documentation purposes an oral attempt is defined as anytime an ET tube passes patient's lips.
14. Airway placement should be re-confirmed at frequent intervals throughout the care of the patient, particularly after each patient movement.

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PARAMEDIC

Nasotracheal (NT) Intubation – Optional MCA Approved Intervention



MCA Included



MCA Not Included

The table below is the required elements for every patient care record in which endotracheal intubation is attempted.

Documentation Points

✓ Size of ET tube	✓ Specific indication(s) for NT intubation
✓ Number of attempts	✓ Suction required
✓ ET Tube measurement (cm) at nare	✓ Chest rise with ventilation
✓ Ventilation compliance	✓ Color-metric Endtidal CO ₂
✓ Capnography used	✓ ETCO ₂ /Capnography reading
✓ Equality of lung sounds	✓ Absence of epigastric sounds
✓ Method for securing ET tube	✓ Any complications with intubation procedure

Indication: Spontaneously breathing adult patient with a gag reflex in need of advanced airway.

Contraindications:

1. Patients without spontaneous respiratory effort.
2. Patients with mid-face and nasal trauma.
3. Relative contraindication - known bleeding disorder.
4. Patients that are candidates for CPAP, if available, and not already attempted.

Technique for Nasotracheal Intubation:

1. Ventilate patient with 100% oxygen.
2. Gather equipment: Same as for orotracheal intubation except:
 - A. Stylet is not used
 - B. Water soluble lubricant needed, preferably lidocaine jelly
3. Liberally lubricate nares and the distal portion of the tube. If available, lidocaine jelly on a nasal pharyngeal airway should be used.
4. Secure the tube connector to the tube with firm pressure prior to beginning procedure.
5. Insert ET tube into nares with the bevel against the septum.
6. Advance the tube posteriorly with gentle pressure. If resistance is encountered may attempt gentle back and forth rotation of tube while advancing.
7. As tube is advanced into nasopharynx, listen for airflow through the ET tube. Advance the tube until airflow appears loudest. If using tip-controlled ET tube, direct tube tip anteriorly.
8. In synch with inhalation rapidly advance tube until airflow is clearly heard through tube.
9. Advance tube until the adapter is approximately 1 cm from nares.
10. Inflate balloon, attach ventilation device, and confirm as for orotracheal intubation. Right main stem intubation is uncommon. If chest rise is limited to right side, carefully withdraw tube (with balloon deflated) until breath sounds become equal.
11. Secure tube and reassess tube placement at frequent intervals.

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EMT/SPECIALIST/PARAMEDIC
Combitube Supraglottic Airway – Optional MCA Approved Intervention

MCA Included **MCA Not Included**

The table below is the required documentation elements for every patient care record in which a Combitube insertion is attempted.

Documentation Points

✓ Size of Combitube Airway	✓ Time of attempt(s)
✓ Number of attempts	✓ Suctioning required
✓ Ventilation compliance	✓ Chest rise with ventilation
✓ Capnography used	✓ ETCO ₂ /Capnography reading
✓ Equality of lung sounds	✓ Any complications with procedure
✓ Absence of epigastric sounds	✓ Which tube is used for ventilation

Indications:

For use in unconscious patients with absent gag reflex, who require assisted ventilation. May be used as a rescue device for failed endotracheal intubation or as a primary advanced airway technique. May be preferred over ET intubation in cardiac arrest patients to minimize interruptions in chest compressions.

Contraindications:

1. Patient with an intact gag reflex
2. Patient under 5 feet tall for a regular adult, 4 feet for Combitube SA
3. Patients in whom esophageal disease is suspected
4. Patients in whom caustic substance ingestion is suspected.
5. Presence of a tracheostomy

Equipment:

1. Combitube is available in 2 sizes, 41F and 37F (SA)
2. Combitube SA is preferred in most patients between 4 and 6 feet tall.
3. Support equipment: Bag-valve-mask, suction, capnography, securing device
4. Use appropriate size and inflation volumes for patient based on table below.

Combitube Size and Inflation Volume Tab

Airway Type	Patient Height	Proximal Balloon #1 Inflation Volume	Distal Balloon #2 Inflation Volume
Combitube 41F	> 5 Feet	50-75 cc initially (100 cc maximum)	15 cc
Combitube SA 37F	> 4 Feet	50-75 cc initially (85 cc maximum)	12 cc
Note: In most patients under 6 feet the Combitube SA (37F) is preferred.			

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Procedure for Combitube Airway Insertion

1. Provide bag-valve-mask ventilation using 2-person technique with an oropharyngeal airway, avoiding hyperventilation, and performing pharyngeal suctioning as needed.
2. Test cuff inflation system by injecting the maximum inflation volume listed in table above for the size of the tube.
3. Deflate cuffs completely before insertion, leaving syringe attached to connector.
4. Lubricate tip of Combitube with water soluble medical lubricant.
5. Position patient with head/neck in a neutral position (or slightly flexed if no suspected spinal injury).
6. With gloved hand, lift mandible (jaw) forward.
 - A. Alternatively, may use a curved laryngoscope blade to establish path for insertion (S,P)
 - B. Insert Combitube into mouth following the same curvature as the pharynx.
7. Gently advance Combitube (along midline) deep into the pharynx until the patient's teeth (gums) lie between the two circular ring markings on the outer end of the airway.
 - A. If resistance is felt while advancing, assure the mandible is fully displaced forward.
 - B. Do not forcibly advance the airway against resistance.
 - C. If resistance continues to be felt, withdraw the Combitube and reinsert.
8. Without holding the Combitube, inflate the Blue Port #1 (proximal pharyngeal balloon) with 50-75 cc of air using the large syringe. Combitube may be slightly displaced outward.
9. Inflate the White Port #2 (distal esophageal balloon) with 12 cc of air (Combitube SA 37 F) or 15 cc of air (Combitube 41 F) using the small syringe.
10. Attach the bag-valve ventilator to the Blue Tube (#1) and begin ventilations while assessing for placement.
 - A. Assess for chest rise, listen for absence of gastric (stomach sounds), then listen for bilateral breath sounds. Measure end tidal CO₂ as early as possible.
 - B. If chest rises, no gastric sounds and bilateral breath sounds are present and CO₂ detected, continue ventilating through Blue Tube #1. Tube should be in esophagus.
 - C. If chest does not rise and if gastric sounds are present when ventilating through Blue Tube #1, immediately switch to Clear Tube #2. If chest rises, no gastric sounds and bilateral breath sounds are present and CO₂ detected, continue ventilations through Clear Tube #2. Tube should be in trachea.
 - D. If ventilation through either tube does not produce chest rise, absent gastric sounds, bilateral breath sounds and detection of CO₂, then immediately fully deflate both balloons and remove Combitube, reinsert oropharyngeal airway and resume 2-person bag-valve mask ventilations prior to re-attempting procedure.
11. If ventilations are successful through Blue Tube #1 but an air leak is detected at the mouth, place additional air into Blue Port #1 in 10 cc increments while ventilating (85 cc maximum for 37 F or 100 cc maximum for 41 F) until air leak resolves.
12. If ventilating successfully through Blue Tube #1 and gastric distension is present, insert suction catheter (provided) through Clear Tube #2, attach suction and decompress stomach.
13. The large pharyngeal balloon generally is sufficient to keep the Combitube in place during

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- pre-hospital care. Additionally securing the Combitube with tape or similar means is recommended when extensive patient movement is likely to occur (e.g., during extrication).
14. Constant monitoring of the patency of the airway must be done throughout the care of the patient. End tidal CO₂ monitoring, evaluating chest rise and re-auscultation of gastric and breath sounds should be performed at frequent intervals.
 15. Both the pharyngeal and esophageal balloons are at risk for being punctured during insertion from sharp teeth. If either balloon is punctured the airway will not work effectively and must be removed. This can be detected by the pilot cuffs being unable to maintain air.
 16. Combitube should be removed if patient becomes develops a gag reflex. Alternatively, paramedics may sedate as needed for tube tolerance per **Sedation Procedure**.

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MDCH Approval Date 05-30-2014
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EMT/SPECIALIST/PARAMEDIC

King LTS/D™ Supraglottic Airway – Optional MCA Approved Intervention

MCA Included

MCA Not Included

The table below is the required documentation elements for every patient care record in which a King LTS/D insertion is attempted.

Documentation Points

✓ Size of King Airway used	✓ Time of attempt(s)
✓ Number of attempts	✓ Suctioning required before placement
✓ Ventilation compliance	✓ Chest rise with ventilation
✓ Capnography used	✓ ETCO ₂ /Capnography reading
✓ Equality of lung sounds	✓ Absence of epigastric sounds
✓ Method for securing King Airway	✓ Any complications with procedure
✓ Gastric decompression performed	

Indications:

For use in unconscious patients without gag reflex, who require ventilation. May be used as a rescue device for failed endotracheal intubation or as a primary advanced airway technique. Consider in cardiac arrest patients to minimize interruptions in compressions.

Contraindications:

1. Responsive patients with a gag reflex
2. Patients who are under 35 inches tall (#2 KLTD) or 4 feet (#3 KLTD/S)
3. Patients in whom esophageal disease is suspected
4. Patients in whom caustic substance ingestion is suspected.

Equipment:

1. King LTD: Disposable King Airway that does not have gastric access.
2. King LTDS: Disposable King Airway that provides gastric access to allow for gastric decompression using an 18F gastric tube (preferred for adults).
3. Supplies: Water-soluble lubricant, bag-valve-mask, capnography, securing device.
4. Use appropriate size and inflation volumes for patient based on table below.

King Airway Size and Inflation Volume Table

Size	Airway Type	Patient Height	Connector Color	Inflation Volumes
2	KLTD	35-45 Inches	Green	25-35 cc
2.5	KLTD	40-51 Inches	Orange	30-40 cc
3	KLTD	4-5 Feet	Yellow	45-60 cc
	KLTDS			40-55 cc
4	KLTD	5-6 Feet	Red	60-80 cc
	KLTDS			50-70 cc
5	KLTD	>6 Feet	Purple	70-90 cc
	KLTDS			60-80 cc

(King Airway Instructions for Use, King Systems, Noblesville, IN)

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King LTS/D Procedure:

1. Provide bag-valve-mask ventilation using 2-person technique with an oropharyngeal airway, avoiding hyperventilation, and performing pharyngeal suctioning as needed.
2. Test cuff inflation system by injecting the maximum inflation volume listed in table above for the size of the tube.
3. Deflate cuffs completely before insertion, leaving syringe attached to connector.
4. Lubricate the beveled distal tip and posterior aspect of the tube avoiding introduction of lubricant in or near the ventilatory openings.
5. Position the patient's head (ideal position is the sniffing position but the neutral position can be used).
6. Holding the King at the connector, hold the patient's mouth open and apply chin lift unless contraindicated due to trauma and/or spinal immobilization,
7. With the King rotated laterally 45-90 degrees, such that the blue orientation line is touching the corner of the mouth, introduce tip into the mouth and advance behind the base of the tongue. Never force the tube into position.
8. As the tip passes under tongue rotate tube back to midline (blue orientation line
9. faces chin).
10. Without exerting excessive force, advance the King until base of connector aligns with teeth or gums.
11. Inflate the cuff based on the listed volumes for the tube size used.

12. Attempt ventilation. If resistance is met and/or no chest rise occurs, carefully withdraw the airway approximately 1 cm at a time while attempting to ventilate. When airway is in supraglottic position, patient should easily ventilate and chest should rise and fall.
13. Attach bag, valve device and verify placement by ALL of the following criteria:
 - ✓ Rise and fall of chest
 - ✓ Bilateral breath sounds
 - ✓ Absent epigastric sounds
 - ✓ CO₂ measurement (capnography)
14. Secure the airway, preferably with a commercial tube holding device appropriate for the King Airway.
15. If there is any question about the proper placement of the King Airway, deflate the cuffs and remove the airway, ventilate the patient with BVM for 30 seconds and repeat insertion procedure or consider other airway management options.
16. Continue to monitor the patient for proper airway placement throughout prehospital treatment and transport.
17. Following successful placement, consider gastric decompression using a lubricated 18F gastric tube.
18. King Airway should be removed if patient becomes develops a gag reflex. Alternatively, paramedics may sedate as needed for tube tolerance per **Sedation Procedure**.

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MDCH Approval Date 05-30-2014
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PARAMEDIC
Cricothyrotomy

- Cricothyrotomy MCA Not Included
- Surgical Cricothyrotomy-MCA Included
- Needle Cricothyrotomy-MCA Included
- Commercial Percutaneous Cricothyrotomy – MCA Approved

Approved Device(s) : _____

NOTE: If MCA selects Commercial Percutaneous Cricothyrotomy; training program must be submitted with this protocol.

The table below is the required documentation elements for every patient care record in which a cricothyrotomy is attempted.

Documentation Points

✓ Type of cricothyrotomy attempted	✓ Indication for cricothyrotomy
✓ Number of attempts	✓ Time of attempt(s)
✓ Ventilation compliance	✓ Previous advanced airway attempt(s)
✓ ETCO ₂ /Capnography reading	✓ Chest rise with ventilation
✓ Equality of lung sounds	✓ Post-cricothyrotomy pulse oximetry
✓ Any complications with procedure	✓

The cricothyroid membrane is located subcutaneously between the thyroid cartilage ("Adam's apple") and cricoid cartilage. There are three methods for performing a cricothyrotomy: surgical cricothyrotomy, needle cricothyrotomy, and percutaneous cricothyrotomy using a state and local MCA-authorized commercial kit. The surgical technique uses a scalpel blade to create an opening in the cricothyroid membrane through which an endotracheal tube is inserted. The needle technique uses a large bore (≥ 14 ga) IV catheter inserted percutaneously and requires a commercial transtracheal jet insufflation device for optimal use. The percutaneous cricothyrotomy uses a commercial kit to perform the cricothyrotomy.

Patients less than age 8 may have a needle cricothyrotomy performed or approved pediatric percutaneous kit. Patient's age 8 or greater may undergo a needle, surgical, or commercial percutaneous cricothyrotomy, as approved by local medical control.

Indications for Cricothyrotomy:

1. Total airway obstruction not relieved by other methods.
2. Airway compromise from injuries that make oral or nasal intubation impractical.
3. Inability to intubate or effectively manage with basic techniques or supraglottic airway.

Pre-Medical Control

Technique for Surgical Cricothyrotomy:

1. Gather necessary equipment in addition to that needed for oral intubation
 - A. antiseptic solution
 - B. scalpel
 - C. tracheal hook (recommended)

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- D. gum elastic bougie (recommended)
2. Identify cricothyroid membrane
3. Prep the site with antiseptic solution
4. While stabilizing the larynx with one hand, use the opposite hand to make a 3 cm **vertical incision** through the skin in the midline over the cricoid membrane.
5. After identification of the cricoid membrane, use the scalpel to make a ~1 cm **horizontal incision** through the lower portion of the membrane.
6. Enlarge the hole and advance the ET tube into the airway, and inflate the balloon.
 - A. Care should be taken to assure tube is inserted into the trachea and not a false passage.
 - B. When available, use a tracheal hook to displace the inferior aspect of the membrane anteriorly so as to facilitate tube placement.
 - C. When available, insert a gum elastic bougie through the incised membrane and advance until resistance is felt at the level of the carina. Then advance the ET tube over the bougie (recommended technique)
7. Verify correct placement using usual techniques, including end tidal CO₂ detection.
8. Maintain continuous CO₂ monitoring once established.
9. Apply dressing to area.

Pre-Medical Control

Technique for Needle Cricothyrotomy:

1. Gather necessary equipment:
 - A. antiseptic solution
 - B. transtracheal jet insufflation device (preferred)
 - C. alternatively use an improvised ventilation system using a 3 mm ET tube adapter connected directly to the catheter Luer lock and to bag-valve device. This system provides only temporary limited oxygenation.
 - D. IV catheter (≥ 14 gauge) and syringe (5-10 cc). Do not use needle safety catheters that do not allow for connection of syringe.
2. Identify cricothyroid membrane.
3. Prep the site with antiseptic solution.
4. Connect the IV catheter to a syringe.
5. Stabilize the larynx and re-identify the cricothyroid membrane.
6. Direct the IV catheter posteriorly and inferiorly at an angle of ~45 degrees to the skin.
7. Insert the IV catheter through the skin, maintaining negative pressure on the syringe. Entry of air and loss of resistance signifies entry into the larynx.
8. Advance the catheter into the larynx and retract the needle.
9. Caution must be used to ensure the catheter does not bend.
10. Ventilate using a commercial transtracheal jet insufflation device (preferred).
11. Alternatively, ventilate by connecting Luer lock end of catheter to 3 mm ET tube adapter and then attach to bag-valve system. This system does not allow for effective ventilation but may provide temporary oxygenation until definitive airway can be established.
12. Deliver 100% O₂ at 20 bursts/minute with Inspiratory/Expiratory (I:E) of 1:2.

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Pre-Medical Control

Technique for Percutaneous Cricothyrotomy Using Approved Commercial Kit:

1. Prepare necessary equipment.
2. Note: Only state and local MCA approved commercial percutaneous cricothyrotomy kits may be used.
3. Follow Instructions for Use provided by device manufacture.

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General Procedure
EMS IMMUNIZATION & TB TESTING

Date: May 31, 2012

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EMS Immunization & TB Testing

Purpose: To allow paramedics to provide agency TB testing and vaccinations for seasonal influenza and during public health emergencies.

Community immunization and other public health applications are important duties that paramedics may perform as determined necessary in cooperation with the medical control authority and the local public health department. Training will be approved by the EMS Medical Director and Medical Control Authority and may be accomplished under the direction of the MCA and/or local public health department.

1. Indications for immunization and/or TB testing:

- a. Public or EMS agency personnel may be immunized or tested for TB under guidelines developed by the public health department or MCA.
- b. Age groups for immunization will be determined by the MCA or public health department as appropriate for the immunization clinic setting or agency TB testing requirements as determined necessary by the local public health department or agency infection control guidance.
- c. Timing of immunizations or TB testing will be determined by the MCA, EMS agency and public health department to comply with public health needs or agency immunization requirements as determined by agency infection control guidance.
- d. Immunizations or TB testing may be performed in clinic, NEHC, mass immunization or agency setting as approved by the MCA and/or local public health department.

2. Immunization or TB testing

- a. Immunizations or TB testing may be administered via IM, SQ or intranasal route in dosing determined by guidance provided by the MCA or local public health department as required for the agent administered.
- b. Screening will be performed as determined appropriate for the agent administered by the MCA or local health department.
- c. TB tests will be interpreted by paramedics performing the tests or personnel trained to review TB tests under MCA approved training programs.

3. Training

- a. Training for immunization will be provided by local public health department personnel or under an approved MCA program.

4. Personnel requirements

- a. Immunizations or TB testing may only be performed by paramedics trained by local public health department personnel or under approved MCA training programs.

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5. Record keeping

- a. A record of public or agency personnel receiving immunizations or TB testing will be maintained by the agency performing the immunizations or TB testing as determined by the local public health department/Medical Control Authority.
- b. Michigan Care Improvement Registry (MCIR) record keeping may be required for some immunizations such as is required for H1N1.

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General Procedures
EPI-PEN PROCEDURE

Date: May 31, 2012

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Epi-Pen Procedure

Purpose: To allow use of Epi-pen/Epi-Pen Jr. for life-threatening anaphylaxis by authorized prehospital providers licensed at or above the Emergency Medical Technician level.

1. Indications

- A. Life-threatening allergic/anaphylactic reactions
- B. Use with Allergic Reaction/Anaphylaxis Protocol

2. Contraindications

- A. No absolute contraindications to life-threatening anaphylaxis
- B. Caution: Use with caution in patients with heart disease, high blood pressure, and stroke.
- C. Patient weight less than 10 kg.

Pre-Medical Control

EMT/ SPECIALIST/PARAMEDIC

3. Technique

- A. Epi-Pen is an auto-injector that injects medication into the intramuscular tissue when the device is pushed against the skin. Injection is to be done at the anterolateral portion of the thigh.
- B. Dosing: Epi-Pen (0.3 mg) is used for patients weighing over 32 kg. Epi-Pen Jr. (0.15 mg) is used for patients weighing at least 10 kg.
- C. Instructions for use are pictured on the side of each autoinjector.
- D. The autoinjector must be held in place for ten (10) seconds once the needle injects into the thigh.

4. Documentation

- A. EMS providers will note any changes in the patient's condition and report those changes to on-line medical control and document changes on the run form and complete the Epi-Pen Utilization Form.

5. Accountability

- A. Epi-Pens will be stored in a securely locked compartment in a temperature controlled area of the EMS vehicle.
- B. Epi-Pens must be restocked at the pharmacy or through other Medical Control approved process in conformity with current pharmacy laws and the public health code. Utilization forms must be completed for each use.

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EPI-PEN PROCEDURE

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Epi-Pen Utilization Form
(To be used by Hospital)

<u>Drug</u>	<u>Standard Quantity</u>	<u>Count</u>	<u>Expiration Date</u>
Epi-Pen 0.3 mg	1	_____	_____
Epi-Pen Jr. 0.15 mg	1	_____	_____

Run Date _____

Patient Name _____

Physician _____

EMT _____

Receiving Hospital _____

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HELMET REMOVAL

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Helmet Removal

Purpose: To insure proper handling of patients suspected of sustaining a head, neck or back injury while wearing a protective helmet.

Policy: In the event that an individual is injured while wearing a protective helmet, the initial assessment should proceed as outlined in the **Adult Trauma Protocol** and the **Spinal Injury Assessment Protocol**. The goal is to appropriately treat the patient while maintaining spinal precautions and being able to manage the patient's airway.

Pre-Medical Control

MFR/EMT/SPECIALIST/PARAMEDIC

1. High Impact Helmets (i.e. motorcycle, car racing)
 - a. Whether the helmet is a closed or open faced style helmet, the helmet must always be removed while providing spinal precautions. The helmet interferes with a proper assessment of possible head injury and would cause the cervical spine into a flexion position while the patient is supine.
2. Low Impact Helmets with Shoulder Pads (i.e. football, ice hockey, etc.)
 - a. In those patients wearing a well-fitted helmet which conforms closely to the patient's head, **provided there is a prearranged agreement between team training/medical staff, EMS providers and the likely receiving facility**, it may be preferable to leave the helmet and shoulder pads in place. If such an agreement is in place the procedure would be as follows (or as determined by agreement):
 - i. If the patient is awake and able to protect his/her airway, the helmet should be left in place and the patient should have spinal precautions maintained using the helmet to assist with spinal precautions. The face shield must be removed prior to transport.
 - ii. If the patient has an altered level of consciousness or, for any other reason, is unable to protect his/her airway, the helmet should be left in place and the patient should have spinal precautions maintained using the helmet to assist with spinal precautions. The face shield should be immediately removed to allow access to the airway.
 - iii. If the face shield cannot easily be removed for any patient, the helmet and shoulder pads should be removed using in-line stabilization.
 - iv. If the airway cannot be controlled for any reason with the helmet in place, the helmet and shoulder pads should immediately be removed, using in-line stabilization.
 - b. If there has not been a prearranged agreement for the management of patients with Low Impact Helmets, the helmet and shoulder pads should be removed while providing manual in-line spinal precautions.

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HELMET REMOVAL

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3. Low Impact Helmets without Shoulder Pads (i.e. baseball, bicycle, rollerblade, etc.):
 - a. Whether the helmet is a closed or open faced style helmet, the helmet must always be removed while providing spinal precautions. The helmet interferes with a proper assessment of possible head injury and would cause the cervical spine into a flexion position while the patient is supine.

NOTE: When providing spinal precautions for patients with the helmet in place, cervical immobilization devices should generally not be used in these patients. The helmet should rest directly on the extrication device or stretcher with towel rolls used to provide lateral support to the helmet.

EMS crews should work closely with sports medicine personnel (team trainers and physicians) for organized team sports. When providing scheduled standbys at sporting events, EMS personnel should interface with team trainers/medical staff prior to the event and coordinate and agree to specifics of the care expected for the injured athlete. The expected receiving facility should also be consulted when the expected care includes leaving the helmet and pads on injured players.

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MDCH Approval Date 05-30-2014
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IMPEDANCE THRESHOLD DEVICE (ITD) (OPTIONAL)

Date: May 31, 2012

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Impedance Threshold Device (ITD) (Optional)

- Medical Control Authorities choosing to adopt this supplement may do so by selecting this check box. Adopting this supplement changes or clarifies the referenced protocol or procedure in some way. This supplement supersedes, clarifies, or has authority over the referenced protocol.

PURPOSE

Conventional CPR provides 15% of normal blood flow to the heart and blood flow to the brain is 25% of normal. Current survival rates average 5%.

PROTOCOL

The ITD is an impedance threshold device that prevents unnecessary air from entering the chest during the decompression phase of CPR. When air is prevented from rushing into the lungs as the chest wall recoils, the vacuum (negative pressure) in the thorax pulls more blood back to the heart, resulting in a:

- Doubling of blood flow to the heart.
- 50% increase in blood flow to the brain.
- Doubling of systolic blood pressure.

Pre-Medical Control

MFR/BASIC/SPECIALIST/PARAMEDIC

Indications:

1. Cardiopulmonary arrest (medical etiology)

Contraindications:

1. Cardiopulmonary arrest related to trauma

Procedure:

1. Confirm absence of pulse and begin CPR immediately. Assure that chest wall recoils completely after each compression.
2. Using the ITD on a facemask:
 - A. Connect ITD to the facemask.
 - B. Connect ventilation source (BVM) to top of ITD. If utilizing a mask without a bag, connect a mouthpiece.
 - C. Establish and maintain a tight face seal with mask throughout chest compressions. Use a two-handed technique or head strap.
 - D. Do not use the ITD's timing lights during CPR utilizing a facemask for ventilation.
 - E. Perform ACLS interventions as appropriate.
 - F. Prepare for endotracheal intubation.

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IMPEDANCE THRESHOLD DEVICE (ITD) (OPTIONAL)

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3. Using the ITD on an endotracheal tube or Supraglottic Airway Device (SAD):
 - A. Endotracheal intubation is the preferred method of managing the airway when using the ITD.
 - B. Place endotracheal tube or SAD and confirm placement. Secure the tube.
 - C. Move the ITD from the facemask to the advanced airway and turn on timing assist lights (remove clear tab).
 - D. Continue CPR with minimal interruptions:
 - a. Provide continuous (no pauses) chest compressions (approximately 10 per light flash) and ventilate asynchronously over 1 second when light flash 10/min).
 - E. Perform ACLS interventions as appropriate.
 - F. If a pulse is obtained, remove the ITD and assist ventilations as needed.

Special Notes:

1. Always place ETCO₂ detector between the ITD and ventilation source.
2. Administer endotracheal medications directly into endotracheal tube.
3. Do not interrupt CPR unless absolutely necessary.
4. If a pulse returns, discontinue CPR and the ITD. If the patient rearrests, resume CPR with the ITD.
5. Do not delay compressions if the ITD is not readily available.
6. Initial training and ongoing competency skills shall be monitored by the agency.

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MDCH Approval Date 05-30-2014
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General Procedures

INTRANASAL MEDICATION ADMINISTRATION (OPTIONAL)

Date: November 15, 2012

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Intranasal Medication Administration (Optional)

- Medical Control Authorities choosing to adopt this supplement may do so by selecting this check box. Adopting this supplement changes or clarifies the referenced protocol or procedure in some way. This supplement supersedes, clarifies, or has authority over the referenced protocol.

Purpose: This optional procedure authorizes intranasal medication administration by paramedics using an FDA-approved atomizing device. This procedure authorizes the substitution of the intranasal route for other routes specified in individual protocols as approved for specific indications stated below by the local medical control authority.

Indications: In general, the intravenous route is preferred for medication administration. This procedure may be considered when IV access is unavailable and when a needleless delivery system is desired because of patient agitation, combativeness, or similar conditions that may pose a safety risk to personnel.

CHECK MCA APPROVED INDICATION

- Adult Seizures
- Pediatric Seizures
- Sedation
- Adult Pain Control
- Pediatric Pain Control
- Altered Mental Status with Suspected Opiate Overdose

Contraindications:

1. Nasal trauma
2. Epistaxis, nasal congestion, (significant) nasal discharge
3. Known cocaine use is a relative contraindication

Pre-Medical Control

SPECIALIST – Limited to Naloxone administration.

PARAMEDIC

1. Select desired medication and determine dose (See Medication Table).
2. Draw up appropriate dose (volume) of medication plus an additional 0.1 ml to account for device dead space.
3. Attach atomizing device to syringe.
4. Use one hand to support back of patient's head as needed.
5. Place tip of atomizing device snugly against nostril aiming slightly upward and outward.
6. Rapidly administer one half of the dose of medication, briskly pushing plunger.
7. Repeat with other nostril delivering the remaining volume of medication.
8. Note: Maximal dose per nostril is 1 cc.

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INTRANASAL MEDICATION ADMINISTRATION (OPTIONAL)

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Indication	Medication	Dose	Comments
Adult Seizure	Midazolam (5 mg/1 cc)	10 mg	-Always use 5mg/1ml concentration
Pediatric Seizure	Midazolam (5 mg/1 cc)	0.2 mg/kg Max 10 mg	-Always use 5mg/1ml concentration
Sedation	Midazolam (5mg/1cc)	0.2 mg/kg Max 10 mg	-Always use 5mg/1ml concentration -Causes brief burning lasting approximately 30 seconds
Suspected Opiate Overdose	Naloxone (1mg/1ml)	2 mg	-Always use 1 mg/1ml concentration
Adult Pain Control	Fentanyl	2 mcg/kg	
Pediatric Pain Control	Fentanyl	2 mcg/kg	
Use most concentrated form of medication. Do Not dilute. Maximum 1 cc per nostril			

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Adult & Pediatric Protocol
MEDICATION SHORTAGE

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Medication Shortage

- Medical Control Authorities choosing to adopt this Emergency Protocol may do so by selecting this check box. Per Administrative Rule 325.22206 Rule 207 (5) an emergency protocol shall remain in effect for 60 days unless approved by the department.
- Medical Control Authority adopting as a Medication Shortage Procedure.

Purpose: The purpose of this protocol is to address the National Shortage of specific medications. This protocol authorizes the substitution of the Zofran, Benzodiazepine & Fentanyl options previously selected by Medical Control Authority that are currently on file with the State of Michigan.

The Michigan Protocols for Adult & Pediatric Treatment call for the selection of one (1) Benzodiazepine medication. This protocol allows for selecting all options. The Patient Sedation Procedures allow for multiple selections, this protocol allows for an MCA to make further selections in the event the options selected are affected by the medication shortage. The Narcotic options in the state Pain Management Procedure also allow for multiple selections, this protocol allows for an MCA to make further selections in the event the options selected are affected by the medication shortage. This protocol allows for an MCA to make selection of Zofran ODT as an alternative to Zofran IV/IM in the event IV Zofran availability is affected by the medication shortage.

The following Michigan protocols are affected by the **Benzodiazepine** medication shortage:

ADULT PROTOCOLS:
Obstetrical Emergencies
Seizures

PEDIATRIC PROTOCOLS:
Seizures

PROCEDURES:
Patient Sedation

ADULT TREATMENT (Seizure)

<p><u>Medication Options:</u> (Selection Options)</p> <ul style="list-style-type: none"><input checked="" type="checkbox"/> Midazolam 5 mg IV/IO<input checked="" type="checkbox"/> Lorazepam - 4 mg IV/IO<input checked="" type="checkbox"/> Diazepam - 10 mg IV/IO or rectally
--

PEDIATRIC TREATMENT (Seizure)

<p><u>Medication Options:</u> (Selection Options)</p> <ul style="list-style-type: none"><input checked="" type="checkbox"/> Midazolam 0.05 mg/kg IV/IO, maximum individual dose 5 mg<input checked="" type="checkbox"/> Lorazepam - 0.1 mg/kg IV/IO, max single dose 4 mg, may repeat in 5 minutes if seizure activity continues; not to exceed 0.2 mg/kg total (maximum of 8 mg)<input checked="" type="checkbox"/> Diazepam - 0.1 mg/kg IV/IO or 0.5 mg/kg rectally (maximum individual dose 10 mg)

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General Procedures
Adult & Pediatric Protocol
MEDICATION SHORTAGE

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PROCEDURES (Patient Sedation)

Adult Sedation: (Select Options)
(Titrate to minimum amount necessary)

- Midazolam 1-5 mg (0.05 mg/kg) IV/ IO titrated slowly, may repeat once in 5 minutes to a maximum of 0.1 mg/kg.
- Diazepam 5-10 mg (0.1 mg/kg) IV/ IO titrated slowly, may repeat every 5 minutes to a maximum of 0.3 mg/kg.
- Lorazepam 1-2 mg (0.1 mg/kg, max 4 mg/dose) IV/ IO titrated slowly, may repeat every 5 minutes to a maximum of 8 mg.
- Fentanyl 50-100 mcg (1 mcg/kg) IV/IO titrated slowly, may repeat every 5 minutes to a maximum of 3 mcg/kg.

Pediatric Sedation: (Select Options)
(Titrate to minimum amount necessary)

- Midazolam 0.05 mg/kg IV/ IO titrated slowly, may repeat once in 5 minutes to a maximum of 0.1 mg/kg.
- Diazepam 0.1 mg/kg IV/ IO titrated slowly, may repeat every 5 minutes to a maximum of 0.3 mg/kg.
- Lorazepam 0.1 mg/kg, max 4 mg/dose IV/ IO titrated slowly, may repeat every 5 minutes to a maximum of 8 mg.
- Fentanyl 1 mcg/kg IV/IO titrated slowly, may repeat every 5 minutes to a maximum of 3 mcg/kg.

The following Michigan protocols are affected by the **Fentanyl** medication shortage:

PROCEDURES:
Pain Management

ADULT NARCOTIC ANALGESIC OPTIONS

- Fentanyl 1 mcg/kg IV/IM/IO may repeat every 5 minutes until maximum of 3 mcg/kg
- Morphine Sulfate 2-5 mg (0.05 mg/kg) IV/IM/IO may repeat dose every 5 minutes until maximum of 20 mg.
- Hydromorphone 1 mg IV/IM/IO every 10 minutes for maximum of 3 mg.

IV/IO medication should be given slowly. IM administration should be limited to a single dose.

PEDIATRIC NARCOTIC ANALGESIC OPTIONS

- Fentanyl 1 mcg/kg IV/IM/IO may repeat every 5 minutes until maximum of 2 mcg/kg
- Morphine Sulfate - 0.05 mg/kg IV/IM/IO, may repeat dose every 5 minutes to a maximum of 0.2 mg/kg.
- Hydromorphone 0.01 mg/kg IV/IM/IO every 10 minutes for maximum of 0.03 mg/kg.

IV/IO medication should be given slowly. IM administration should be limited to a single dose.

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MCA Pain Management Selections

Protocols	Medications		Pre-Medical Control		Post-Medical Control	
			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Adult Abdominal Pain	<input checked="" type="checkbox"/>	Fentanyl	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	<input checked="" type="checkbox"/>	Morphine	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	<input checked="" type="checkbox"/>	Hydromorphone	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Adult Burns	<input checked="" type="checkbox"/>	Fentanyl	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	<input checked="" type="checkbox"/>	Morphine Sulfate	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	<input checked="" type="checkbox"/>	Hydromorphone	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Adult Soft Tissue & Orthopedic Injury	<input checked="" type="checkbox"/>	Fentanyl	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	<input checked="" type="checkbox"/>	Morphine Sulfate	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	<input checked="" type="checkbox"/>	Hydromorphone	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Adult Chest Pain/ACS	<input checked="" type="checkbox"/>	Fentanyl	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	<input checked="" type="checkbox"/>	Morphine Sulfate	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	<input checked="" type="checkbox"/>	Hydromorphone	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Pediatric Burns	<input checked="" type="checkbox"/>	Fentanyl	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	<input checked="" type="checkbox"/>	Morphine Sulfate	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	<input checked="" type="checkbox"/>	Hydromorphone	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other indications not listed above	<input checked="" type="checkbox"/>	Fentanyl	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	<input checked="" type="checkbox"/>	Morphine Sulfate	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	<input checked="" type="checkbox"/>	Hydromorphone	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

The following Michigan protocols are affected by the **Ondansetron (Zofran)** medication shortage. If Zofran IV/IM is not available, it may be replaced with Zofran ODT and the available medication may be administered per protocol if both boxes below are checked:

ADULT:
 Nausea/Vomiting

PEDIATRIC:
 Nausea/Vomiting

ADULT

PEDIATRIC

ONDANSETRON (ZOFRAN) OPTIONS
 (Select Options)

- Ondansetron (Zofran) 4mg IV/IM
- Ondansetron (Zofran) 4 mg ODT

ONDANSETRON (ZOFRAN) OPTIONS
 (Select Options)

- Ondansetron (Zofran) 0.1 mg/kg IV/IM, maximum dose of 4 mg
- Ondansetron (Zofran) 4mg ODT

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General Procedures
NEBULIZED BRONCHODILATORS

Date: November 15, 2012

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Nebulized Bronchodilators

Purpose: Proper administration of nebulized bronchodilator medications.

Indication

1. Patient with respiratory distress and wheezing.
2. When indicated under specific treatment protocol.

Pre-Medical Control

EMT/SPECIALIST/PARAMEDIC

1. Obtain vital signs and lung sounds.
2. Place the appropriate volume of medication in the lower half of the nebulizer unit. Then screw the upper half of the unit in place.
3. Attach the nebulizer to the base of the T-piece. Then attach the mouthpiece to the T-piece or connect neb chamber to NRB mask.
4. Attach one end of the oxygen tubing to the base of the nebulizer and the other end of the oxygen tubing to the oxygen source.
5. Set the oxygen liter flow at 6-7 L/min.
6. Instruct the patient to breathe normally through the mouthpiece, taking a deep inspiration every 4 or 5 breaths.
7. Continue the treatment until all the medication has been delivered through the nebulizer. You may need to gently tap the reservoir once or twice during the treatment to redispurse the medication.
8. Obtain and record another complete set of vital signs and lung sounds after completion of the treatment.

Medication Dosage

EMT/SPECIALIST

1. Administer Albuterol 2.5 mg/3 ml NS nebulized, if available, repeat as indicated.

PARAMEDIC

1. Administer treatment number one as Albuterol 2.5 mg/3 ml NS and Ipratropium 500 mcg/3 ml NS nebulized if wheezing or airway constriction.
2. Per MCA selection administer additional bronchodilator treatments as Albuterol 2.5 mg/3 ml NS nebulized OR Albuterol 2.5 mg/3 ml NS and Ipratropium 500 mcg/3 ml NS nebulized, as needed, if wheezing or airway constriction persists.

ADDITIONAL BRONCHODILATOR TREATMENTS OPTIONS

Albuterol 2.5 mg/3 ml NS nebulized

OR

Albuterol 2.5 mg/3 ml NS and Ipratropium 500 mcg/3 ml NS nebulized

Pediatric Considerations

1. Infants and small children may not be able to use adult mouth piece and may need to use blow-by.

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MDCH Approval Date 05-30-2014
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General Procedures
OXYGEN ADMINISTRATION

Date: May 31, 2012

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Oxygen Administration

Assuring adequate patient oxygenation is a fundamental responsibility of EMS providers at all levels. Supplemental oxygen when clinically indicated and through the proper delivery system can have an important impact on patient outcome.

INDICATIONS FOR OXYGEN ADMINISTRATION

1. Real or suspected hypoxia
2. Patients in respiratory or cardiac arrest
3. Respiratory distress
4. Chest pain, stroke, seizures, or altered mental status when pulse oximetry is unavailable or when oxygen saturation is less than 94%
5. Major multiple system trauma or isolated chest trauma
6. Shock
7. Suspected carbon monoxide and/or cyanide poisoning (including smoke inhalation) regardless of pulse oximetry value
8. Complicated childbirth
9. Patients who normally use supplemental oxygen as part of their routine care
10. Any condition in which pulse oximetry is <94%, when available

CONTRAINDICATIONS FOR OXYGEN ADMINISTRATION

1. There are no absolute contraindications to oxygen administration.
2. In general, supplemental oxygen should be guided by pulse oximetry (when available) to maintain oxygen saturations $\geq 94\%$.
3. Patients with COPD may develop a hypoxic drive to breath. High concentrations of oxygen may suppress their respiratory drive. Oxygen should still be administered when clinically indicated. Providers should monitor for respiratory depression and assist ventilations when indicated.

Pre-Medical Control

MFR/EMT/SPECIALIST/PARAMEDIC

1. Assure the patient has an adequate airway or establish an airway in accordance with the **Emergency Airway Procedure.**
2. In spontaneously breathing patients administer supplemental oxygen by appropriate means.
 - A. Nasal cannula at 2-6 LPM (decrease for peds): This is appropriate for most patients with mild to moderate hypoxia and minimal or no respiratory distress. Most patients tolerate nasal cannulas.
 - B. Non-rebreather (NRB) mask at 8-12 LPM (adjust flow rate to keep reservoir bag inflated). An NRB should be used on all spontaneously breathing patients with moderate to severe respiratory distress and all patients with suspected carbon monoxide and/or cyanide poisoning (e.g., smoke inhalation).
3. In patients not breathing or breathing below their normal respiratory rate use a bag-valve-mask to provide ventilations at 8-12 LPM (decrease in peds to assure reservoir bag inflated). See **Emergency Airway Procedure.**
4. Pediatric "blow-by" oxygen is an ineffective means of delivering supplemental oxygen to pediatric patients and should be avoided when possible. Pediatric nasal cannulas are well tolerated by most children. When using, blow-by technique, keep mask as close to face as possible and use high flow (e.g., ~15 LPM).
5. When caring for patients with stomas, use pediatric size masks.

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MCA Board Approval Date 03-11-2014
MDCH Approval Date 05-30-2014
MCA Implementation Date 11-17-2014



Section 5-19

Pain Management

The goal is to reduce the level of pain for patients in the pre-hospital setting. All non-cardiac pain should be assessed and scored according to the “Wong Pain Scale”. Reassessment should be timed according to medication onset of action, changes in patient condition, patient positioning and other treatments.

Pre-Medical Control

MFR/EMT/SPECIALIST/PARAMEDIC

1. Follow **General Pre-Hospital Care Protocol** or Follow **Pediatric Assessment and Treatment Protocol**.
2. For trauma patients follow the **Adult or Pediatric Trauma Protocol**.
3. Place the patient in the position of most comfort.

SPECIALIST/PARAMEDIC

1. Start an IV NS KVO. If the patient has a systolic blood pressure is less than 100 mm Hg and signs of hypoperfusion administer an IV/IO fluid bolus. Refer to **Vascular Access & IV Fluid Therapy Procedure**.

PARAMEDIC

Only one pain medication may be given pre-radio if authorized by the MCA. Medical Control must be contacted if a different pain medication is needed.

If indicated, administer pain medication as described below. Administer narcotics slowly when using IV or IO routes. Systolic BP should be maintained at:

Adult \geq 100 mm Hg

Pediatric $80 + (2 \times \text{age})$ mm Hg

1. Administer pain medication per MCA selection.
2. Administer Fentanyl in 1 mcg/kg increments IV/IM/IO. If pain persists after five minutes repeat dose up to a maximum dose of 3 mcg/kg. For pediatric patients, administer Fentanyl in 1 mcg/kg increments IV/IM/IO up to a maximum of 2 mcg/kg.
3. Administer Morphine sulfate in 2 – 5 mg (0.05 mg/kg) increments IV/IM/IO, up to a maximum of 20 mg. For pediatric patients administer Morphine sulfate 0.05 mg/kg IV/IM/IO, may repeat dose every 5 minutes to a maximum total dose of 0.2 mg/kg.
4. Administer hydromorphone 1 mg IV/IM/IO every 10 minutes for maximum of 3 mg. For pediatric patients administer hydromorphone 0.01 mg/kg IV/IM/IO every 10 minutes for maximum of 0.03 mg/kg.
5. Medications administered IM are limited to a single dose without medical control order.

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General Procedures
PAIN MANAGEMENT

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ADULT NARCOTIC ANALGESIC OPTIONS

Fentanyl 1 mcg/kg IV/IM/IO may repeat every 5 minutes until maximum of 3 mcg/kg

Morphine Sulfate 2-5 mg (0.05 mg/kg) IV/IM/IO may repeat dose every 5 minutes until maximum of 20 mg.

Hydromorphone 1 mg IV/IM/IO every 10 minutes for maximum of 3 mg.

IV/IO medication should be given slowly. IM administration should be limited to a single dose.

PEDIATRIC NARCOTIC ANALGESIC OPTIONS

Fentanyl 1 mcg/kg IV/IM/IO may repeat every 5 minutes until maximum of 2 mcg/kg

Morphine Sulfate - 0.05 mg/kg IV/IM/IO, may repeat dose every 5 minutes to a maximum of 0.2 mg/kg.

Hydromorphone 0.01 mg/kg IV/IM/IO every 10 minutes for maximum of 0.03 mg/kg.

IV/IO medication should be given slowly. IM administration should be limited to a single dose.

MCA Pain Management Selections

Protocols	Medications		Pre-Medical Control		Post-Medical Control	
Adult Abdominal Pain	<input checked="" type="checkbox"/>	Fentanyl	<input checked="" type="checkbox"/>			
	<input checked="" type="checkbox"/>	Morphine	<input checked="" type="checkbox"/>			
		Hydromorphone				
Adult Burns	<input checked="" type="checkbox"/>	Fentanyl	<input checked="" type="checkbox"/>			
	<input checked="" type="checkbox"/>	Morphine Sulfate	<input checked="" type="checkbox"/>			
		Hydromorphone				
Adult Soft Tissue & Orthopedic Injury	<input checked="" type="checkbox"/>	Fentanyl	<input checked="" type="checkbox"/>			
	<input checked="" type="checkbox"/>	Morphine Sulfate	<input checked="" type="checkbox"/>			
		Hydromorphone				
Adult Chest Pain/ACS	<input checked="" type="checkbox"/>	Fentanyl	<input checked="" type="checkbox"/>			
	<input checked="" type="checkbox"/>	Morphine Sulfate	<input checked="" type="checkbox"/>			
		Hydromorphone				
Pediatric Burns	<input checked="" type="checkbox"/>	Fentanyl	<input checked="" type="checkbox"/>			
	<input checked="" type="checkbox"/>	Morphine Sulfate	<input checked="" type="checkbox"/>			
		Hydromorphone				
Other indications not listed above	<input checked="" type="checkbox"/>	Fentanyl	<input checked="" type="checkbox"/>			
	<input checked="" type="checkbox"/>	Morphine Sulfate	<input checked="" type="checkbox"/>			
		Hydromorphone				

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Post-Medical Control

1. For patients with evidence of hypotension or hypoperfusion, contact medical control.

NOTE: Calculating medications when given a dosage range and a per kg dose:

1. Calculate weight in kilos and multiply by the prescribed dosage (e.g. - mg/kg)
2. The resultant dose should fall within the listed dosing range. For ease of administration, doses may be rounded to the nearest whole number within the range for those calculated doses at or above 1 dosage unit, or to the nearest tenth for those below 1 dosage unit (examples: 1.2mg rounded to 1mg, and 0.26mg rounded to 0.3mg). That calculated and rounded dose may be given and repeated in timed intervals, as indicated for that medication, to the control of symptoms or maximum stated cumulative dose if symptom control is not previously achieved.
3. Patients who are very small or very large may fall below or exceed the dosing range, respectively. Those that fall below should be given the lowest dose in the range. Those that exceed the range should be given the maximum dose within the range.

Pediatric patients will never be given a single or total dose that exceeds the maximum single or total adult dose.

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Wong Pain Scale: Pain Assessment Scale
Choose a number from 1 to 10 that best describes your pain

No pain		Distressing pain						Unbearable pain		
0	1	2	3	4	5	6	7	8	9	10
										
0	2	4	6	8	10					
NO HURT	HURTS LITTLE BIT	HURTS LITTLE MORE	HURTS EVEN MORE	HURTS WHOLE LOT	HURTS WORST					

Indications for pain management include the following:

Short term pain relief for significantly painful conditions, including:

- Burns, isolated extremity trauma
- Back pain
- Flank pain
- Significant abdominal pain
- Severe headaches with migraine history
- Severe headache without altered mental status
- Significant pain in alert multiple trauma patient

Precautions such as reduced dose or administration rate may be indicated for:

- Elderly
- Respiratory depressed
- Pregnancy – not a contraindication to pain treatment unless at term or in labor
- Altered mental status
- Severe respiratory disorders
- Nursing mothers – relative, still treat pain
- Impaired hepatic or renal function – decreased metabolism
- Ingestion of benzodiazepines (i.e. Valium) – increased respiratory depression

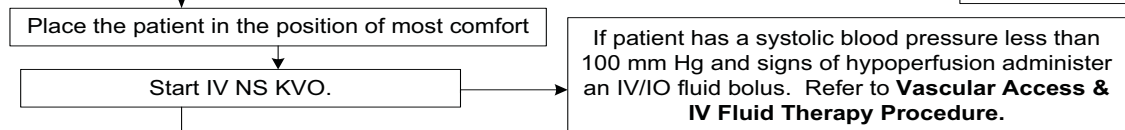
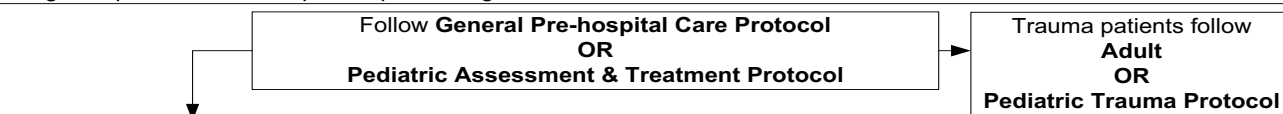
For conditions in which longer acting pain management is desired and appropriate, i.e. burns, isolated extremity trauma, Morphine may be used preferentially to Fentanyl.

Michigan General Procedures PAIN MANAGEMENT

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The goal is to reduce the level of pain for patients in the pre-hospital setting. All non-cardiac pain should be assessed and scored according to the Wong Pain Scale. Reassessment should be timed according to medication on set of action changes in patient condition, patient positioning and other treatments



Only one pain medication may be given pre-radio if authorized by the MCA. Medical Control must be contacted if a different pain medication is needed.

If indicated, administer pain medication as described below. Administer narcotics slowly when using IV routes. Systolic blood pressure should be maintained at:

- Adult greater than or equal to 100 mm Hg
- Pediatric 80 + (2 x age) mm Hg

- Administer pain medication per MCA selection.
- Administer Fentanyl in 1 mcg/kg increments IV/IM/IO. If pain persists after 5 minutes repeat dose to a maximum of 3 mcg/kg.
- For **pediatric** patients, administer Fentanyl in 1 mcg/kg increments IV/IM/IO up to a max of 2 mcg/kg.
- Administer Morphine Sulfate in 2 – 5 mg (0.05 mg/kg) increments IV/IM/IO, up to a maximum of 20 mg.
- For **pediatric** patients administer Morphine Sulfate 0.05 mg/kg IV/IM/IO, may repeat dose every 5 minutes to a maximum total dose of 0.2 mg/kg.
- Administer hydromorphone 1 mg IV/IM/IO every 10 minutes for a maximum of 3 mg.
- For **pediatric** patients administer hydromorphone 0.01 mg/kg IV/IM/IO every 10 minutes for max of 0.03 mg/kg.
- Medications administered IM are limited to a single dose without medical control order.

ADULT NARCOTIC ANALGESIC OPTIONS

Fentanyl 1 mcg/kg IV/IM/IO, may repeat every 5 min until max of 3 mcg/kg,

Morphine sulfate 2-5 mg (0.05 mg/kg) IV/IM/IO may repeat dose every 5 min until max of 20 mg.

Hydromorphone 1 mg IV/IM/IO every 10 min for maximum of 3 mg.

IV/IO medication should be given slowly. IM medication should be limited to a single dose.

PEDIATRIC NARCOTIC ANALGESIC OPTIONS

Fentanyl 1 mcg/kg IV/IM/IO, may repeat every 5 min until max of 2 mcg/kg.

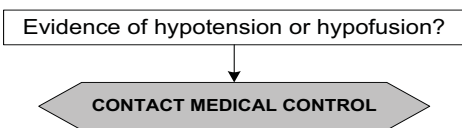
Morphine sulfate (0.05 mg/kg) IV/IM/IO, may repeat dose every 5 min until max of 0.2 mg/kg.

Hydromorphone 0.01 mg/kg IV/IM/IO every 10 min for maximum of 0.03 mg/kg.

IV/IO medication should be given slowly. IM medication should be limited to a single dose.

MCA Pain Management Selections

Protocols	Medications	Pre-Medical Control	Post-Medical Control
Adult Abdominal Pain	✓ Fentanyl	✓	
	✓ Morphine Sulfate	✓	
	Hydromorphone		
Adult Burns	✓ Fentanyl	✓	
	✓ Morphine Sulfate	✓	
	Hydromorphone		
Adult Soft Tissue & Orthopedic Injury	✓ Fentanyl	✓	
	✓ Morphine Sulfate	✓	
	Hydromorphone		
Adult Chest Pain/ACS	✓ Fentanyl	✓	
	✓ Morphine Sulfate	✓	
	Hydromorphone		
Pediatric Burns	✓ Fentanyl	✓	
	✓ Morphine Sulfate	✓	
	Hydromorphone		
Other indications not listed above	✓ Fentanyl	✓	
	✓ Morphine Sulfate	✓	
	Fentanyl		



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MDCH Approval Date 05-30-2014
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General Procedures
PAIN MANAGEMENT

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NOTE: Calculating medications when given a dosage range and a per kg dose:

1. Calculate weight in kilos and multiply by the prescribed dosage (e.g. - mg/kg)
2. The resultant dose should fall within the listed dosing range. For ease of administration, doses may be rounded to the nearest whole number within the range for those calculated doses at or above 1 dosage unit, or to the nearest tenth for those below 1 dosage unit (examples: 1.2mg rounded to 1mg, and 0.26mg rounded to 0.3mg). That calculated and rounded dose may be given and repeated in timed intervals, as indicated for that medication, to the control of symptoms or maximum stated cumulative dose if symptom control is not previously achieved.
3. Patients who are very small or very large may fall below or exceed the dosing range, respectively. Those that fall below should be given the lowest dose in the range. Those that exceed the range should be given the maximum dose within the range.

Pediatric patients will never be given a single or total dose that exceeds the maximum single or total adult dose.

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MCA Implementation Date 11-17-2014



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PAIN MANAGEMENT

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Wong Pain Scale: Pain Assessment Scale

Choose a number from 1 to 10 that best describes your pain

No pain		Distressing pain						Unbearable pain		
0	1	2	3	4	5	6	7	8	9	10
										
0		2		4		6		8		10
NO HURT		HURTS LITTLE BIT		HURTS LITTLE MORE		HURTS EVEN MORE		HURTS WHOLE LOT		HURTS WORST

Indications for pain management include the following:

Short term pain relief for significantly painful conditions, including:

- Burns, isolated extremity trauma
- Back pain
- Flank pain
- Significant abdominal pain
- Severe headaches with migraine history
- Severe headache without altered mental status
- Significant pain in alert multiple trauma patient

Precautions such as reduced dose or administration rate may be indicated for:

- Elderly
- Respiratory depressed
- Pregnancy – not a contraindication to pain treatment unless at term or in labor
- Altered mental status
- Severe respiratory disorders
- Nursing mothers – relative, still treat pain
- Impaired hepatic or renal function – decreased metabolism
- Ingestion of benzodiazapines (i.e. Valium) – increased respiratory depression

For conditions in which longer acting pain management is desired and appropriate, i.e. burns, isolated extremity trauma, Morphine may be used preferentially to Fentanyl.

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PATIENT ASSESSMENT

Date: May 31, 2012

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Patient Assessment

MFR/EMT/SPECIALIST/PARAMEDIC

Scene Size Up

1. Recognize environmental hazards to rescuers, and secure area for treatment.
2. Recognize hazard for patient, and protect from further injury.
3. Identify number of patients. Follow the **Mass Casualty Incident Protocol** if appropriate.
4. Observe position of patient, mechanism of injury, surroundings.
5. Identify self.
6. Utilize universal precautions in all protocols.
7. Determine if patient has a valid Do-not-resuscitate bracelet/order.

Primary Survey

1. Airway:
 - A. Protect spine from movement in trauma victims. Provide continuous spinal precautions. Follow the **Spinal Injury Assessment Protocol**.
 - B. Observe the mouth and upper airway for air movement.
 - C. Establish and maintain the airway. Follow the **Emergency Airway Procedure**.
 - D. Look for evidence of upper airway problems such as vomitus, bleeding, facial trauma, absent gag reflex.
 - E. Clear upper airway of mechanical obstruction as needed.
2. Breathing: Look, Listen and Feel
 - A. Note respiratory rate, noise, and effort.
 - B. Treat respiratory distress or arrest with oxygenation and ventilation.
 - C. Observe skin color and level of consciousness for signs of hypoxia.
 - D. Expose chest and observe chest wall movement, as appropriate.
 - E. Look for life-threatening respiratory problems and stabilize:

PARAMEDIC

- F. Tension pneumothorax: Follow **Pleural Decompression Procedure**.

MFR/EMT/SPECIALIST/PARAMEDIC

3. Circulation
 - A. Check pulse and begin CPR if no central pulse. Follow **Adult or Pediatric Cardiac Arrest – General Protocols**.
 - B. Note pulse quality and rate; compare distal to central pulses as appropriate.
 - C. Control hemorrhage by direct pressure. (If needed, use elevation, pressure points or follow the **Tourniquet Application Procedure**.)
 - D. Check capillary refill time in fingertips.
 - E. If evidence of shock or hypovolemia begin treatment according to **Shock Protocol**.
4. Level of consciousness:
 - A. Note mental status (AVPU)
 - a. Alert
 - b. Verbal stimuli response
 - c. Painful stimuli response
 - d. Unresponsive

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EMT/SPECIALIST/PARAMEDIC

B. Measure Glasgow Coma Scale

<u>Patient age > 2 years old</u>		Eye opening	<u>Patient age < 2 years old</u>	
● Spontaneous	4		● Spontaneous	
● To speech	3		● To speech	
● To pain	2		● To Pain	
● No response	1		● No Response	
		Verbal response		
● Oriented and talking	5		● Smiles, recognizes sounds, follows objects, interacts	
● Disoriented and talking	4		● Cries, consolable, inappropriate interactions	
● Inappropriate words	3		● Inconsistently inconsolable, moaning	
● Incomprehensible sounds	2		● Agitated, restless, inconsolable	
● No response	1		● No response	
		Motor response		
● Obeys command	6		● Spontaneous movement	
● Localizes pain	5		● Withdraws from touch	
● Withdraws to pain	4		● Withdraws from pain	
● Flexion to pain	3		● Abnormal flexion to pain (decorticate posturing)	
● Extension to pain	2		● Abnormal extension to pain (decerebrate posturing)	
● No response	1		● No response	

Any combined score of less than eight represents a significant risk of mortality.

If the patient is not alert and the cause is not immediately known, consider:

- | | | |
|---------------------|--------------------------|--------------------------|
| A – Alcohol | T – Trauma | C – Cardiac |
| E – Epilepsy | I – Ingestion | H – Hypoxia |
| I – Insulin | P – Psych | E – Environmental |
| O – Overdose | P – Phenothiazine | S – Stroke |
| U – Uremia | S – Salicylates | S – Sepsis |

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MFR/EMT/SPECIALIST/PARAMEDIC

The secondary survey is performed in a systematic manner.

(Steps listed are not necessarily sequential.)

1. Vital Signs:

- A. Frequent monitoring of blood pressure, pulse, and respirations
- B. Temperature as indicated in protocol.

EMT/SPECIALIST/PARAMEDIC

- C. Blood glucose measurement as available and appropriate.

MFR/EMT/SPECIALIST/PARAMEDIC

- D. Pulse oximetry as available and appropriate.

PARAMEDIC

- E. ECG monitoring as indicated in protocol.
- F. 12 Lead if available and appropriate, follow **12 Lead ECG Procedure**.

MFR/EMT/SPECIALIST/PARAMEDIC

2. Head and Face

- A. Observe and palpate for deformities, asymmetry, bleeding, tenderness, or crepitus.
- B. Recheck airway for potential obstruction: upper airway noises, dentures, bleeding, loose or avulsed teeth, vomitus, or absent gag reflex.
- C. Eyes: pupils (equal or unequal, responsiveness to light), foreign bodies, contact lenses, or raccoon eyes
- D. Ears: bleeding, discharge, or bruising behind ears.

3. Neck

- A. Maintain stabilization; follow the **Spinal Injury Assessment Protocol**, if appropriate.
- B. Check for deformity, tenderness, wounds, jugular vein distention, and use of neck muscles for respiration, altered voice, and medical alert tags.

4. Chest

- A. Observe for wounds, air leak from wounds, symmetry of chest wall movement, and use of accessory muscles.
- B. Palpate for tenderness, wounds, crepitus, or unequal rise of chest.
- C. Auscultate for bilateral breath sounds.
- D. Capnography/capnometry if available and appropriate

5. Abdomen

- A. Observe for wounds, bruising, distention, or pregnancy.
- B. Palpation.

6. Pelvis

- A. Palpate pelvis for tenderness and stability

7. Extremities

- A. Observe for deformity, wounds, open fractures, and symmetry.
- B. Palpate for tenderness and crepitus.
- C. Note distal pulses, skin color, and medical alert/DNR tags.
- D. Check sensation.
- E. Test for motor strength if no obvious fracture present.

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PATIENT ASSESSMENT

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8. Back
 - A. Observe and palpate for tenderness and wounds.

Special Considerations:

1. If there is a specific mechanism of injury with only localized injury, a focused exam may be performed in lieu of the full patient survey provided the patient is alert.
2. Follow the appropriate assessment protocol:
 - A. General Pre-hospital Care**
 - B. Pediatric Assessment and Treatment**
 - C. Newborn Assessment, Treatment and Resuscitation**
 - D. Cardiac Arrest – General Protocol**
 - E. Pediatric Cardiac Arrest – General Protocol**
 - F. Adult Trauma**
 - G. Spinal Injury Assessment**

MCA Name Northwest Regional MCA
MCA Board Approval Date 03-11-2014
MDCH Approval Date 05-30-2014
MCA Implementation Date 11-17-2014



Section 5-21

Michigan
General Procedures
PATIENT CARE RECORD & ELECTRONIC
DOCUMENTATION & EMS INFORMATION SYSTEM

Date: May 31, 2012

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Patient Care Record, Electronic Documentation & EMS Information System

This protocol is to be followed for completion of EMS Patient Care Records (PCR) and the use of an electronic documentation and information system.

1. Responsibility

- A. An electronic EMS PCR must be completed on any request for service to which a life support agency is dispatched. This includes all emergency and non-emergency EMS incidents and patients, ambulance inter-facility transfers, patient refusals, other patient contact, no patient found and cancellations.
- B. All PCR reports will be made available to the receiving facility, the MCA and Department of Community Health, in electronic format.
- C. If a patient is evaluated and/or treated and is not transported a Refusal of Treatment and/or Transport Evaluation Form shall be completed.

2. Documentation

- A. The PCR shall be created using a National EMS Information System (NEMSIS) and State of Michigan compliant software package allowing for upload to the state repository. All electronic charting software must meet or exceed State of Michigan requirements. To be compliant with MI-EMSIS, agencies must use a NEMSIS Gold Compliant system.
- B. Signed electronic or paper PCRs shall be maintained by the EMS agency as the official medical record for each patient treated and/or transported.
 - a. Each PCR should include:
 - 1. All demographic, response and other general information pertinent to the EMS personnel's actions related to the response or transfer.
 - 2. Patient care information including chronology and clarity of patient care including history, assessment, treatment, response to that treatment, changes in patient's condition upon arrival at destination and transfer of responsibility for care.
 - b. The agency PCR shall be considered a confidential medical record and treated in accordance with state and federal law.

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PATIENT CARE RECORD & ELECTRONIC
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- c. Each agency's PCR shall be signed by the person documented as the agency's Primary Care Provider for that particular patient/incident.

3. Distribution

- A. A printed or written copy of the PCR or an MCA approved field note should be left at the destination facility. An agency may be granted permission from their MCA to transmit a PCR by fax or electronically to the hospital deferring delivery under any of the following circumstances:
 - a. An agency that is transporting out of their primary service area.
 - b. An agency completing the PCR using an MCA approved mobile EMSIS.
 - c. An agency that is dispatched for another emergency call.
 - d. As otherwise approved by the MCA.

4. Submission to MI-EMSIS Data Repository

- A. All agencies using approved EMSIS software shall transfer data monthly. Reporting period begins at 00:00:01 hours on the 1st day of the calendar month, ending at midnight on the last day of the calendar month. Data must be uploaded by the 15th of the month following the close of the reporting period. MCA's may require data to be transferred more frequently.
- B. Agencies using approved EMSIS software are responsible to ensure that the quality of the data submitted to the MI-EMSIS repository is an accurate reflection of the information entered into their EMS information system.
- C. Agencies entering data from paper PCRs after-the-fact are responsible for entering those PCRs in accordance with the above time frames.

5. Utilizing Data

- A. Data submitted by the life support agencies shall be reviewed by the medical control authority professional standards review organization for the purpose of providing professional oversight and for improving the quality of medical care within the MCA region.
- B. MCA's may utilize aggregate data that does not identify the patient or agency to support EMS system and public health activities.

MCA Name Northwest Regional MCA
MCA Board Approval Date 03-11-2014
MDCH Approval Date 05-30-2014
MCA Implementation Date 11-17-2014



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General Procedures
PATIENT CARE RECORD & ELECTRONIC
DOCUMENTATION & EMS INFORMATION SYSTEM

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- C. MCA's may choose to maintain its own repository and in turn submit the data to the Department of Community Health.

- D. The information accessed by the MCA is confidential in nature and is intended for the medical control professional standards review organization (PSRO). Data protection is critical and is provided for through 1967 PA 270, MCL 331.531 to 331.533, other applicable confidentiality laws, and use and user agreements. The MCA will:
 - a. Only use or disclose data for the purposes described in Part 209 of the Public Health Code and the Michigan Administrative Code R 325.22101 through R 22217. Any other uses or disclosures will be made only as required by applicable laws.
 - b. Use appropriate safeguards to prevent use or disclosure of the information other than as provided by this agreement.
 - c. Limit access to the data to only those employees assigned to perform the functions under the above statute and administrative rules and who have signed a data user agreement.
 - d. Report any actual or suspected breach, intrusion, or unauthorized use or disclosure to the MDCH EMS and Trauma Systems Section and the affected life support agency within 10 days of becoming aware of such breach, intrusion, or unauthorized use or disclosure or such shorter time period as is reasonable under the circumstances.
 - e. Mitigate the effects of any breach, intrusion, or unauthorized use or disclosure.
 - f. Comply with the Michigan Identity Theft Protection Act notification procedures at MCL 445.61 et seq.
 - g. As a public body subject to the Freedom of Information Act (FOIA), redact all personal identifiers or other information pursuant to applicable FOIA exemptions. 1976 PA 441: MCL 15.231 et seq.

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MCA Board Approval Date 03-11-2014
MDCH Approval Date 05-30-2014
MCA Implementation Date 11-17-2014



Section 5-22

Michigan
General Procedures
PATIENT RESTRAINT

Date: May 31, 2012

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Patient Restraint

Purpose: To ensure appropriate restraint of patients and to assure patient, others and EMS safety.

Pre-Medical Control

MFR/EMT/SPECIALIST/PARAMEDIC

Indications:

1. When an ill or injured person who is behaving in such a manner as to interfere with their examination, care and treatment to the extent they endanger their life or the safety of others.

Physical Restraint Procedure

1. Ensure that enough personnel are available to properly control the patient and establish the restraints.
2. Explain the purpose of the restraints.
3. Physically control the patient and apply restraints.
4. Complete Primary and Secondary Assessments.
 - A. Restrained extremities should be evaluated for pulse quality, capillary refill time, color, sensory and motor function continuously
 - a. Restraints must be adjusted if any of these functions are compromised.
 - b. Restraints must not interfere with medical treatment.
5. Attempt to identify common physical causes for patient's abnormal behavior.
 - Hypoxia
 - Hypoglycemia
 - Head Trauma
 - ETOH/ Substances use/ abuse
6. Patient should be secured to a backboard or stretcher only. Patients must never be secured directly to a vehicle or immovable object.
7. Transport patient.
8. Contact medical control.
9. Inform hospital that restraints are in place and assistance will be necessary to continue restraint of the patient.

Post-Medical Control

PARAMEDIC

Chemical Restraint Procedure

1. If Chemical restraint is considered, contact medical control for appropriate guidance; also refer to **Patient Sedation Procedure**.
2. Chemical restraint may only be performed under direct medical control order.

Special Considerations

1. Physical restraints should be of a soft nature (e.g. leather cuffs, cravats, sheets, etc.) applied to the wrists and ankles. A restraint may also be needed across the chest and/or pelvis.

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General Procedures
PATIENT RESTRAINT

Date: May 31, 2012

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2. Stay with a restrained patient at all times, be observant for possible vomiting and be prepared to turn the patient and suction if necessary.
3. Documentation should include:
 - A. A description of the circumstance / behavior which precipitated the use of restraints.
 - B. Time of application of the restraints.
 - C. Type of restraint used.
 - D. The positions in which the patient was restrained.
4. When restraint devices are applied by law enforcement officers:
 - A. An officer must be present with the patient at all times at the scene, as well as in the ambulance during transport.
 - B. The restraint and position must not be so restrictive that the patient is in a position that compromise patient care.
5. EMS Personnel may NOT use:
 - A. Hard plastic ties or any restraint devices that require a key to remove.
 - B. Backboards to “sandwich” the patient.
 - C. Restraints which secures the patient’s hands and feet behind the back.
 - D. Restraints that “hog tie” the patient.
 - E. Any device that restricts normal breathing.

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General Procedures
PATIENT SEDATION

Date: May 31, 2012

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Patient Sedation

Purpose: Proper sedation of patients requiring a painful medical procedure. This procedure is for Paramedic use only.

Indications for Sedation

1. Electrical cardioversion
2. Transcutaneous pacing
3. Post intubation sedation
4. CPAP/BiPAP if used cautiously, only under direct Medical Control Order
5. Chemical Restraint, only under direct Medical Control Order

Contraindications

1. Inability to control the patient's airway
2. As an adjunct for establishing an airway
3. Known allergy to sedation medications

Assessment

1. Evaluate adequacy of airway.
2. Evaluate presence of adequate ventilation with oxygenation.
3. Monitor vital signs and level of consciousness.
4. Monitor ECG.
5. Monitor Pulse oximetry, if available.

Pre-Medical Control

PARAMEDIC

Procedure

1. Maintain airway, provide oxygenation and support ventilation.
2. Obtain vascular access.
3. For Electrical cardioversion, transcutaneous pacing, and post intubation sedation sedate patient to a level of consciousness where procedure can be performed, per MCA selection.

Adult Sedation: (Select Options) (Titrate to minimum amount necessary)

- Midazolam 1-5 mg (0.05 mg/kg) IV/ IO titrated slowly, may repeat once in 5 minutes to a maximum of 0.1 mg/kg.
- Diazepam 5-10 mg (0.1 mg/kg) IV/ IO titrated slowly, may repeat every 5 minutes to a maximum of 0.3 mg/kg.
- Lorazepam 1-2 mg (0.1 mg/kg, max 4 mg/dose) IV/ IO titrated slowly, may repeat every 5 minutes to a maximum of 8 mg.
- Fentanyl 50-100 mcg (1 mcg/kg) IV/IO titrated slowly, may repeat every 5 minutes to a maximum of 3 mcg/kg.

Pediatric Sedation: (Select Options) (Titrate to minimum amount necessary)

- Midazolam 0.05 mg/kg IV/ IO titrated slowly, may repeat once in 5 minutes to a maximum of 0.1 mg/kg.
- Diazepam 0.1 mg/kg IV/ IO titrated slowly, may repeat every 5 minutes to a maximum of 0.3 mg/kg.
- Lorazepam 0.1 mg/kg, max 4 mg/dose IV/ IO titrated slowly, may repeat every 5 minutes to a maximum of 8 mg.
- Fentanyl 1 mcg/kg IV/IO titrated slowly, may repeat every 5 minutes to a maximum of 3 mcg/kg.

MCA Name Northwest Regional MCA
MCA Board Approval Date 03-11-2014
MDCH Approval Date 05-30-2014
MCA Implementation Date 11-17-2014



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General Procedures
PATIENT SEDATION

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Post-Medical Control:

Possible orders post radio contact:

1. Additional sedation as needed.
2. Sedation for CPAP/BiPAP
3. Sedation for Chemical Restraint

NOTE: Calculating medications when given a dosage range and a per kg dose:

1. Calculate weight in kilos and multiply by the prescribed dosage (e.g. - mg/kg)
2. The resultant dose should fall within the listed dosing range. For ease of administration, doses may be rounded to the nearest whole number within the range for those calculated doses at or above 1 dosage unit, or to the nearest tenth for those below 1 dosage unit (examples: 1.2mg rounded to 1mg, and 0.26mg rounded to 0.3mg). That calculated and rounded dose may be given and repeated in timed intervals, as indicated for that medication, to the control of symptoms or maximum stated cumulative dose if symptom control is not previously achieved.
3. Patients who are very small or very large may fall below or exceed the dosing range, respectively. Those that fall below should be given the lowest dose in the range. Those that exceed the range should be given the maximum dose within the range.
4. Pediatric patients will never be given a single or total dose that exceeds the maximum single or total adult dose.

“Titrated slowly” means administering the medication over 1 to 2 minutes.

Michigan
General Procedures
PLEURAL DECOMPRESSION

Date: May 31, 2012

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Pleural Decompression

Purpose: Decompression of a tension pneumothorax. **This procedure is for Paramedic use only.**

Indications

1. Suspected Tension Pneumothorax (not simple pneumothorax) with hemodynamic compromise.
2. Considered for patients who remain in PEA after treatment of other reversible causes of PEA have been unsuccessful.
3. Direct medical control physician order.

Presentation of Tension Pneumothorax

A tension pneumothorax will have at least one of the following:

1. Severe respiratory distress in the conscious/breathing patient with hemodynamic compromise.
2. Difficult ventilation in the unconscious/apneic patient in the presence of a correctly positioned endotracheal tube with hypotension.

Pre-Medical Control

PARAMEDIC

Technique

1. Evaluate and maintain the airway, provide oxygenation and support ventilations.
2. **Decompression procedure:**
 - A. Assemble equipment
 - a. Large bore IV catheter - 14 ga or larger and at least 2" in length; or other MCA approved commercial device.
 - b. Antiseptic swabs
 - c. Dressing and tape
 - B. Identify landmarks
 - a. Insert needle in the mid-clavicular line at the second intercostal space just above the third rib.
 - C. Prep the area with antiseptic swab.
 - D. Remove flash chamber cap from IV catheter.
 - E. Insert the catheter over the top of the rib until air rushes out. Advance catheter over the needle. Remove needle leaving catheter in place.
 - F. Reassess breath sounds and patient's condition (patient's condition should improve almost immediately).
 - G. Secure catheter with tape.

NOTE: ***REMEMBER** to go just above the rib due to all of the major structures (arteries, veins, and nerves) which lie below the rib. The closer you stay to the top of the rib, the less chance of complication.

Pediatric Considerations

1. To perform needle decompression use an 18 or 20 gauge over the needle catheter inserting the needle in the mid-clavicular line at the second intercostal space, just above the third rib.

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Procedure Protocols

Date: January 30, 2014

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Michigan
General Procedures
REFUSAL OF CARE; ADULT AND MINOR

Date: July 18, 2014

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Refusal of Care; Adult & Minor

Purpose: To provide the process for EMS personnel interacting with a patient refusing care or transport.

EMS personnel have an affirmative duty to provide care to any patient presenting to them after a report of an emergency situation.

Individuals who are competent may object to treatment or transportation by EMS personnel. MCL 333.20969 “If emergency medical services personnel, exercising professional judgment, determine that the individual’s condition makes the individual incapable of competently objecting to treatment or transportation, emergency medical services may provide treatment or transportation despite the individual’s objection unless the objection is expressly based on the individual’s religious beliefs.”

1. Definition

- A. “Competent individual”:
 - a. One who is awake, oriented, and is capable of understanding the circumstances of the current situation.
 - b. Does not appear to be under the influence of alcohol, drugs or other mind altering substances or circumstances that may interfere with mental functioning.
 - c. Is not a clear danger to self or others.
 - d. Is 18 years of age or older, or an emancipated minor.
- B. “Emancipated Minor” is one who is married, is a parent, or has been granted emancipation by the court.

2. Procedure for Competent Individual Refusing Care or Transport

- A. All patients with signs or symptoms of illness or injury shall be offered assessment, medical treatment and transport by EMS.
- B. Clearly explain the nature of the illness/injury and the need for emergency care or transportation.
- C. Explain possible complications that may develop without proper care or transportation.
- D. Contact medical control in all cases when a patient (now refusing transport) has been given medications or other advanced treatment by EMS personnel (i.e., glucose, Albuterol, IV, etc.). Medical control should also be contacted if EMS providers believe an emergency condition still exists and a patient is attempting to refuse care or transport.
- E. Request that the individual sign an EMS Refusal Form. If the individual refuses to sign the EMS Refusal Form, attempt to obtain signatures of witnesses (family, bystanders, public safety personnel).
- F. Document assessment and complete approved EMS Refusal Form.

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General Procedures
REFUSAL OF CARE; ADULT AND MINOR

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- G. Inform the individual that if they change their mind and desire evaluation, treatment, and/or transport to a hospital, to re-contact the emergency medical services system or seek medical attention.
- 3. Procedure for the Individual Incapable of Competently Objecting to Treatment or Transportation**
- A. Contact medical control as soon as practical and follow applicable treatment protocol.
 - B. Any patient with an urgent/life-threatening illness or injury who is incapable of competently objecting to treatment or transportation shall be transported by EMS for further evaluation and treatment.
 - C. Police assistance may be sought if needed.
 - D. A patient with non-urgent/non life-threatening illness or injury who is incapable of competently objecting to treatment or transportation should be transported for further evaluation and treatment after consultation with on-line medical control.
- 4. Procedure for the Individual who becomes Competent after Treatment has been Initiated and Refuses Transport**
- A. Contact medical control in all cases when a patient (now refusing transport) has been given medications or other advanced treatment by EMS personnel (i.e., glucose, Albuterol, IV, etc.).
 - B. Such patients should be strongly encouraged to seek further evaluation and treatment.
 - C. Comply with Section II above and document treatment on a patient care record.
- 5. Procedure for the Minor Patient Refusing Care or Transport**
- A. A minor is any individual under the age of 18 and who is not emancipated.
 - B. In general, minor patients are unable to consent or refuse consent for medical care. Such permission can only be provided by the minor's parent or legal guardian.
 - C. Treatment and transport of real or potential life-threatening emergencies will not be delayed by attempts to contact the parent or guardian.
 - D. For all emergency and non-emergency patients, contact medical control.
- 6. Procedure for Parent/Guardian Refusing Care or Transport of the Minor Patient**
- A. All patients with signs or symptoms of illness or injury shall be offered assessment, medical treatment and transport by EMS.
 - B. Clearly explain the nature of the illness/injury and the need for emergency care or transportation.
 - C. Explain possible complications that may develop without proper care or transportation.
 - D. For individuals with signs or symptoms of illness or injury, contact medical control.
 - E. Request that the parent/guardian sign an approved EMS Refusal Form. If the parent/guardian refuses to sign the EMS Refusal Form, attempt to obtain signatures of witnesses (family, bystanders, public safety personnel).
 - F. Document assessment and complete an approved EMS Refusal Form.

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General Procedures
REFUSAL OF CARE; ADULT AND MINOR

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- G. Inform the parent/guardian that if they change their mind and desire evaluation, treatment, and/or transport to a hospital, to re-contact the emergency medical services system or seek medical attention.
- H. If the minor has evidence of life threatening illness or injury, such that parental refusal of care would constitute abuse or neglect (including medical neglect), Medical Control and Law Enforcement should be notified for assistance.

Note: A sample EMS Refusal Form has been included on a separate page.

MCA Name **NW Req. MCA**
MCA Board Approval Date **12-09-2014**
MDCH Approval Date **01-01-2015**
MCA Implementation Date **01-01-2015**



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General Procedures
REFUSAL OF CARE; ADULT AND MINOR

Date: July 18, 2014

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SAMPLE EMS REFUSAL FORM
REFUSAL OF TREATMENT, TRANSPORT AND/OR EVALUATION

PLEASE READ COMPLETELY BEFORE SIGNING BELOW!

Because it is sometimes impossible to recognize actual or potential medical problems outside the hospital, we strongly encourage you to be evaluated, treated if necessary, and transported to a hospital by EMS personnel for more complete examination by a physician.

You have the right to choose to not be evaluated, treated or transported if you wish; however, there is the possibility that you could suffer serious complications or even death from conditions that are not apparent at this time.

By signing below, you are acknowledging that EMS personnel have advised you, and that you understand, the potential harm to your health that may result from your refusal of the recommended care; and, you release EMS and supporting personnel from liability resulting from refusal.

PLEASE CIRCLE THE FOLLOWING THAT APPLY:

I refuse:

EVALUATION

TREATMENT

TRANSPORT

<input type="checkbox"/> IF YOU CHANGE YOUR MIND AND DESIRE EVALUATION, TREATMENT, AND/OR TRANSPORT TO A HOSPITAL, YOU MAY RE-CONTACT THE EMS SYSTEM AT ANY TIME.
--

Patient's Printed Name _____ Age ____ DOB ____ Phone # _____
 Patient's Address _____ City _____ State ____ Zip _____

Signature _____ Relationship, if applicable _____

Witness Signature _____ Witness Printed Name _____
 Date and Time _____

BP _____ Pulse _____ Resp. _____ Skin _____ Pupils _____ LOC _____

1. Oriented to person, place, and time? Yes No
2. Coherent speech? Yes No
3. Auditory and/or visual hallucinations? Yes No
4. Suicidal or homicidal? Yes No
5. Able to repeat understanding of their condition and consequences of treatment refusal?
 Yes No
6. Narrative: describe reasonable alternatives to treatment that were offered; the circumstances of the call; specific consequences of refusal; and, names of family or witnesses present:

EMS Agency Name Printed Crew Names Signature of EMS Provider

Michigan
General Procedures
SPINAL PRECAUTIONS

Date: July 18, 2014

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Spinal Precautions

Pre-Medical Control

MFR/EMT/SPECIALIST/PARAMEDIC

Indications & General Guidance

1. Refer to the **Spinal Injury Assessment Protocol**. Patients with a positive spinal injury assessment should have spinal precautions maintained during transport.
2. Major trauma patients who require extrication should have spinal precautions maintained using an extrication device (long backboard or equivalent) during extrication. If sufficient personnel are present, the patient may be log rolled from the extrication device to the ambulance cot during loading of the patient.
3. Patients may remain on the extrication device if the crew deems it safer for the patient considering stability, time and patient comfort considerations. This decision will be at the discretion of the crew.
4. Patients with penetrating traumatic injuries do not require spinal precautions unless a focal neurologic deficit is noted on the spinal injury assessment.
5. An ambulatory patient with a positive spinal injury assessment should have an appropriately sized cervical collar placed. Place the patient directly on the ambulance cot in a position of comfort, limiting movement of the spine during the process.
6. Patients, who are stable, alert and without neurological deficits may be allowed to self-extricate to the ambulance cot after placement of a cervical collar. Limit movement of the spine during the process.
7. Patients over the age of 65 with a mechanism of injury with the potential for causing cervical spine injury will have a cervical collar applied even if the spinal injury clinical assessment is negative.

Specific Techniques

1. Cervical Collars
 - A. Cervical collar should be placed on patient prior to patient movement, if possible.
 - B. If no collar can be made to fit patient, towel, blanket rolls, head block or similar device may be used to support neutral head alignment.
 - C. The cervical collar may be removed if interfering with airway management or airway placement, or if causing extreme patient distress.
2. Self-Extrication Procedure
 - A. Patients, who are stable, alert and without neurological deficits may be allowed to self-extricate to the ambulance cot after placement of a cervical collar.
 - B. Limit movement of the spine during the process.
3. Emergency Patient Removal
 - A. Indicated when scene poses an imminent or potential life threatening danger to patient and/or rescuers, (e.g. vehicle or structure fire).

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- B. Remove the patient from danger while best attempt is made to maintain spinal precautions.
- C. Rapid Extrication is indicated when patient condition is unstable (i.e.: airway or breathing compromise, shock, unconsciousness, or need for immediate intervention).
- 4. Long Extrication Device (e.g. long Backboard, scoop stretcher, basket stretcher)
 - A. Indicated when patient requires spinal precautions and the patient condition prevents self-extrication.
 - B. Patient's head and cervical spine should be manually stabilized.
 - C. Rescuers should place the patient in a stable, neutral position where space is created to place backboard or other long extrication device in position near the patient.
 - D. Move the patient to supine position on the long extrication device.
 - E. The patient is secured to the device with torso straps applied before head stabilization.
 - F. Head stabilization material should be placed to allow for movement of the lower jaw to facilitate possible airway management.
 - G. The extrication device is used to move the patient to the ambulance cot.
- 5. Log Roll Procedure
 - A. Cervical collar should be placed when indicated.
 - B. Place the backboard or equivalent behind the patient.
 - C. Patient is log rolled, maintaining neutral alignment of spine and extremities.
 - D. Log roll procedure requires 2 or more personnel in contact with the patient.
 - E. If log roll is not possible, patient should be moved to board or equivalent while attempting to maintain neutral alignment spinal precautions.
 - F. Patient is secured to the backboard or equivalent for movement to the ambulance cot.
 - G. Head stabilization materials such as foam pads, blanket rolls may be used to prevent lateral motion. Pad under the head when feasible.
 - H. If sufficient personnel are present, the patient should be log rolled from the extrication device to the ambulance cot during loading of the patient.
 - I. When log roll on to the ambulance cot is impractical, secure the patient to the extrication device and ambulance cot for transport.
- 6. Spinal Precautions
 - A. Once the patient is placed on the ambulance cot, if no extrication device is still in place, secure the patient with seatbelts in a supine position, or in position of comfort if a supine position is not tolerated.
 - B. Head may be supported with head block or similar device to prevent rotation if needed. Padding should be placed under the head when practical. Do not tape the head to the ambulance cot.

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Special Considerations

1. Hypoventilation is likely to occur with spinal cord injury above the diaphragm. Quality of ventilation should be monitored closely with support offered early.
2. Spinal/neurogenic shock may result from high spinal cord injury. Monitor patient for signs of shock. Refer to **Shock Protocol**.
3. Spinal precautions in the patient wearing a helmet should be according to the **Helmet Removal Procedure**.
4. Manual spinal precautions in the obtunded patient must be initiated and continued until the patient is secured to the ambulance cot.
5. Patients who are markedly agitated, combative or confused may not be able to follow commands and cooperate with minimizing spinal movement. Rigid immobilization should be avoided if it contributes to patient combativeness. Patients may remain on the backboard if the crew deems it safer for the patient, and this will be at the discretion of the crew.
6. Manual in line stabilization must be used during any procedure that risks head or neck movement, such as endotracheal intubation. If manual cervical stabilization is hampering efforts to intubate the patient, the neck should be allowed to move as needed to secure the airway. An unsecured airway is a greater danger to the patient than a spinal fracture.
7. Document spinal precautions techniques utilized.
8. Document the patient's neurologic status before and after establishing spinal precautions when possible.
9. Pediatric Patients and Car Seats:
 - a. Infants restrained in a rear-facing car seat may be immobilized and extricated in the car seat. The child may remain in the car seat if the immobilization is secure and his/her condition allows (no signs of respiratory distress or shock).
 - b. Children restrained in a car seat (with a high back) may be immobilized and extricated in the car seat; however, once removed from the vehicle, the child should have spinal precautions maintained as for an adult.
 - c. Children restrained in a booster seat (without a back) need to be extricated and immobilized following standard procedures.

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SUSPECTED PANDEMIC INFLUENZA

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Suspected Pandemic Influenza

Purpose: To have a standard approach to patients during a period of declared Pandemic Influenza, or state of public health emergency, that enhances awareness and protection of responders and prehospital care to patients and maximizing supplies that may become limited.

Criteria:

1. This protocol will apply to patients encountered by all levels of EMS, during an epidemic/ pandemic of influenza. All agencies should frequently check the CDC.gov/ website for the latest recommendations with Personal Protective Equipment (PPE) and treatment recommendations. These can change frequently in an evolving and ongoing epidemic/ pandemic.
2. The center for Disease Control and Prevention (CDC) has declared that an epidemic of influenza A or similar illness and / or the Michigan Department of Public Health has declared a statewide or local public health emergency.
3. “Acute Febrile Respiratory Illness” (AFRI) is defined as fever and at least one of the following (cough, nasal congestion/ runny nose or sore throat).

EMS System / Medical Control Authority (MCA) Recommendations:

1. Encourage all EMS personnel to receive seasonal vaccinations.
2. Each life support agency shall maintain a supply of fit tested disposable N-95 respirators and eye protection (e.g., goggles, eye shield), disposable non-sterile gloves, and gowns.
3. Each life support agency shall provide hand sanitizer to staff.
4. In areas with confirmed cases of influenza, each life support agency should instruct their personnel to stay home and not report for duty if they have signs or symptoms of acute febrile respiratory illness. A staff member that develops these symptoms during a shift should inform the agency supervisor for appropriate follow up procedures.
5. Dispatch centers should be encouraged to screen callers to determine if the patient may have an AFRI. Information should be provided to EMS personnel prior to arriving on the scene if suspected AFRI.
6. If it is determined by EMS that the patient may have an AFRI, early notification to the receiving facility should be done so that appropriate infection control may be taken prior to patient arrival.

Procedure and Patient Categorizations/Situations

1. Limiting Personnel Exposure:

- A. If the patient has symptoms of an “Acute Febrile Respiratory Illness” (AFRI) based upon the dispatch information the responding agency should consider limiting the initial number of personnel that approach or enter a residence.

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2. **Patients with a medical condition that requires immediate care (e.g., cardiac arrest) and have a recent history of AFRI will be assessed and treated after:**
 - A. EMS Personnel don appropriate PPE for suspected case of influenza prior to proceeding with assessment and treatment.

3. **Patient Assessment:**
 - A. Begin patient assessment while maintaining a 6 foot distance from the patient exercising appropriate routine respiratory droplet precautions (hand hygiene, cough etiquette, and distance) while assessing patient for suspected case of influenza.
 - B. Assess patient for “Acute Febrile Respiratory Illness” which is fever and at least one of the following (cough, nasal congestion/ runny nose or sore throat).
 - C. **If patient does not have an Acute Febrile Respiratory Illness (AFRI)** proceed to appropriate treatment protocol.

4. **If patient has an AFRI, EMS personnel with direct patient care shall:**
 - A. Don appropriate PPE.
 - B. Place a surgical mask on the patient if tolerated.
 - C. Treat patient according to appropriate protocol.
 - D. Notify Medical Control of assessment findings.
 - E. Encourage good patient compartment vehicle airflow/ventilation to reduce the concentration of aerosol accumulation when possible.

5. **Post Exposure**
 - A. Health care personnel, who have had a recognized unprotected close contact exposure to a person with AFRI can be considered for treatment according to current post-exposure guidelines.

6. **Cleaning EMS Transport Vehicles after Transporting a Suspected AFRI.**

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TERMINATION OF RESUSCITATION

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Termination of Resuscitation

Pre-Medical Control

PARAMEDIC

1. Follow the **Cardiac Arrest - General Protocol**.
2. Medical cardiac arrest patients undergoing attempted resuscitation should not be transported unless return of spontaneous circulation (ROSC) is achieved or transport is ordered by medical control or otherwise specified in protocol. These patients will have resuscitation continued at the scene for at least 30 minutes. Temporary return of pulse qualifies as ROSC.

If ALS personnel believe a prolonged resuscitation at the scene will be unduly distressing to the patient's family or bystanders, transport may begin prior to the termination of resuscitation. If the resuscitation can not be safely and efficiently performed on scene transport may begin whenever deemed appropriate by the ALS personnel.

Post-Medical Control

3. If the resuscitation has been unsuccessful after at least 30 minutes (ALS time without ROSC), the resuscitation may be terminated with the permission of medical control. If persistent Ventricular Fibrillation, prompt emergency transport will be initiated. **Once resuscitation is initiated by ALS or LALS it may be terminated only at the direction of medical control.** ROSC, i.e. return of a pulse resets the 30 minute clock and transport should be initiated.
4. Exceptions to the 30 minute time requirement may be requested of Medical Control. Care is to be provided, according to protocol, until such time as it is felt that appropriate procedures and medication are administered based on the medical condition and presentation of the patient. Medical Control must be contacted prior to termination of resuscitation. Total resuscitation time should be provided in the communication.
5. Once resuscitation is terminated, the prehospital personnel will provide information to the family which should include medical control procedures for termination of resuscitation.
6. The medical examiner system will be activated consistent with dead on scene protocol.

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General Procedures
TOURNIQUET APPLICATION

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Tourniquet Application

Purpose: A tourniquet is a constricting or compressing device used to control venous and arterial circulation to an extremity for a period of time. Pressure is applied circumferentially to the skin and underlying tissues a limb; this pressure is transferred to the vessel wall causing a temporary occlusion. There are a number of commercially available tourniquets available for pre-hospital and hospital patients of exsanguinating extremity trauma. While there are potential risks involved in the utilization of tourniquets (see “Notes” section), expeditious and clinically appropriate application in the presence of potentially life threatening hemorrhage is in keeping not only with the standards of medical professionals, but accordingly so with the best interests of the patient.

Indications:

1. Life threatening extremity hemorrhage. An amputation with hemorrhage does not necessitate the use of a tourniquet; most bleeding from these injuries is controllable through use of direct pressure and elevation.
2. Amputation with uncontrolled active bleeding.
3. A mass causality incident may be an indication for the use of tourniquets for temporary control of hemorrhage while the situation is brought under control.

Contraindications:

1. Never use a tourniquet for more than the recommended period of time (product-specific). With any extrication plus transport time of less than 180 minutes, there is minimal risk of developing an ischemic limb.
2. Never apply a tourniquet over an impaled object.

Pre-Medical Control

MFR/ EMT/SPECIALIST/PARAMEDIC

Procedure:

1. Check neurovascular status prior to tourniquet application (pulse, sensation, motor function distal to hemorrhage).
2. Apply tourniquet proximal to the area of bleeding, at least 3-5 centimeters from the wound margins.
3. Secure the tourniquet in place; continue to tighten the tourniquet until hemorrhage is controlled – avoid “over-tightening” the tourniquet. Use only the minimal effective pressure required to reliably maintain arterial occlusion throughout the procedure.
4. Elevate the extremity if possible.
5. Note the time the tourniquet was applied. Reassess neurovascular status every five minutes post application.
6. Notify the receiving hospital that a tourniquet is in place. Once tourniquet is in place, do not remove prior to transferring patient to the emergency department staff.

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Notes:

- Tourniquets should not be applied over joints. Application of the cuff over the peroneal nerve (knee or ankle) or ulnar nerve (the elbow) may result in nerve damage or paralysis.
- Tourniquets should not be applied over clothing. Any limb with an applied tourniquet should be fully exposed with removal of all clothing, and the tourniquet should never be covered with any other bandage.
- Continued bleeding (other than medullary oozing from fractured bones) distal to the site of the tourniquet is a sign of insufficient pressure and a need to tighten the tourniquet further.
- **A tourniquet should not be loosened in any patient with obvious signs of shock or amputation that necessitated use of the device.**

MCA Name Northwest Regional MCA
MCA Board Approval Date 03-11-2014
MDCH Approval Date 05-30-2014
MCA Implementation Date 11-17-2014



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VAGAL MANEUVERS

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Vagal Maneuvers

Purpose: Outline utilization of the Valsalva vagal maneuver.

Indications

1. Narrow complex tachycardia. See **Narrow Complex Tachycardia** and **Pediatric Narrow Complex Tachycardia** protocols.

Contraindications

1. Patient unable to attempt the maneuver.

Equipment Needed

1. ECG Monitor

Pre-Medical Control

PARAMEDIC

1. Ensure that patient has oxygen, and is on a cardiac monitor. Run ECG strip during procedure.
2. Instruct the patient to cough forcefully several times, if this is ineffective:
 - A. Explain Valsalva's Maneuver to the patient.
 - B. Have patient take a deep breath and bear down.

Documentation

1. Results of initial assessment, indications for procedure and results of maneuver.

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VASCULAR ACCESS & IV FLUID THERAPY

Date: November 15, 2012

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Vascular Access & IV Fluid Therapy

Purpose: To outline the process in patients requiring vascular access. This policy applies to Specialists and Paramedics.

Indications

1. For the purpose of fluid or medication administration.
2. External jugular cannulation should be initiated in patients in whom access is necessary and other peripheral vascular access is not accessible or is contraindicated.
3. IO indications: Adult and pediatric life threatening situations where venous access using peripheral veins has been unsuccessful. IO access should be considered early in situations where IV access is unsuccessful or technically challenging. Indications include:
 - A. Cardiac Arrest
 - B. Severe burn injury with shock
 - C. Shock
 - D. Severe multiple trauma with shock
 - E. Status epilepticus
 - F. Contact medical control for other situations without delaying transport

Saline Lock may be initiated in patients in whom IV access for medication administration may be necessary but IV fluid therapy unlikely.

IVs will be initiated in those situations in which fluid resuscitation may be indicated.

Contraindications

1. To peripheral vascular access:
 - A. No peripheral sites available
 - B. Burns overlying available peripheral sites unless no other sites available
 - C. Infection overlying available peripheral sites
2. To intraosseous infusion and placement:
 - A. If infiltration occurs (rare), do not reuse the same bone as fluid will leak out of the original hole; select another site.
 - B. Do not place in a fractured extremity. If the femur is fractured, use the opposite leg.

Special Considerations (Side effects/Complications)

1. Initiation of vascular access generally should not delay patient transport to the hospital.
2. General side effects or complications: infection, air embolism, catheter shear, hematoma, arterial puncture, fluid overload
3. Intraosseous placement:

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- A. Complications include subperiosteal infusion, osteomyelitis, sepsis, fat embolism, bone marrow damage.

Standards for IV attempts

1. Two (2) attempts per provider, maximum 4 attempts.
2. Consider IO early, as indicated above.
3. Document any reasons for deviation.

Needle size for IV placement

1. Adult TKO 18 ga - 20 ga Angiocath
2. Adult trauma, bleeding or cardiac arrest 14 ga - 18 ga.
3. Pediatrics 20 ga - 24 ga Angiocath

Flow Rates

1. Flow rates for all IV's are to be at rates TKO or saline lock unless otherwise indicated by specific protocol or Medical Control.
2. The amount of fluid infused along with the IV rate is to be noted on the EMS Medical Record
 - A. 25 ml/hr is TKO rate.
 - B. Saline lock IV is preferred in place of TKO IV lines.
3. Flow rates and changes in flow rates must be documented on the EMS Patient Care Record.
4. The standard IV/IO fluid bolus volume will be 1 liter normal saline with repeat as necessary, unless otherwise noted by protocol. IV/IO fluid bolus is contraindicated in patients with pulmonary edema. Volume for pediatric IV/IO fluid bolus is 20 ml/kg, unless otherwise noted by protocol.
5. Medicated drips should be piggybacked into the main IV line or saline lock.

Solutions – Unless otherwise specified the IV solution of choice is Normal Saline 0.9% (NS).

IV Tubing

1. Normal Saline – macrodrip
2. Children - macrodrip

Procedure IV/IO Placement

1. Utilize universal precautions for all IV/IO placements.

Procedure for Peripheral Vascular Cannulation:

1. Gather and prepare equipment.
2. Place the tourniquet on the extremity.
3. Cleanse the skin
4. Make your puncture while maintaining vein stability.

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5. Watch for flashback. Once you have a blood return, advance the catheter as per normal IV technique and attach the IV tubing or Normal saline lock tubing and cap.
6. If you have no blood return and you are in the vein, remove the needle hub and attach your syringe to assist in aspirating for blood.
7. Instill 2-3 ml of normal saline if normal saline lock placed.
8. Secure catheter and IV tubing.

Procedure for External Jugular Cannulation:

1. Gather and prepare equipment
2. Position patient supine (trendelenburg, if possible)
3. Turn head to opposite side of venipuncture (if no C-spine injury is suspected)
4. Cleanse the skin
5. Occlude the vein by using the side of your finger above the clavicle to facilitate filling the vein.
6. Make your puncture midway between the angle of the jaw and the middle of the clavicle.
7. Watch for flashback. Once you have a blood return, advance the catheter as per normal IV technique and attach the IV solution or normal saline lock cap, covering catheter with gloved finger while preparing to attach the IV tubing. If you have no blood return and you are in the vein, remove the needle hub and attach your syringe to assist in aspirating for blood.
8. Instill 2-3 ml of normal saline if normal saline lock placed.
9. Secure IV catheter and tubing.

Procedure for Intraosseous Placement:

1. Have all IO equipment ready prior to bone penetration.
2. Expose the extremity.
3. Stabilize the extremity to minimize motion.
4. Selection of site:
 - A. Proximal Tibia or Proximal Humerus.
 - B. In children less than six years of age, the preferred site is the proximal tibia.
5. Insertion:
 - A. Follow the manufacturer's recommendations for IO insertion with the above indications.
6. Scrub the insertion site with alcohol prep/chlorhexidine. Strict adherence to aseptic technique is essential.
7. Insert the IO needle.
8. Attempt to confirm marrow placement by removing the stylet and aspirating blood and/or bone marrow.
 - A. If unable to aspirate, attach 10 – 20 ml syringe with normal saline and gently infuse normal saline.

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- B. Observe for normal saline leakage or SQ tissue swelling.
 - a. If neither occurs, proceed.
 - b. If either occurs, select a different site.
- 9. Connect the appropriate IV equipment (normal saline locks not indicated in IO placement).
- 10. Administer the appropriate fluids and/or drugs.
- 11. Stabilize the entire intraosseous set-up as if securing an impaled object.
- 12. In conscious patients experiencing pain with IO infusion consider administering Lidocaine 2 %, 20 mg IO for adult patients, 0.5 mg/kg for pediatrics administer to a maximum of 20 mg. (Lidocaine 2% = 20 mg/ml).
- 13. Notify Medical Control of the IO placement.
- 14. If the IO is unsuccessful after 2 attempts, contact Medical Control.

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MCA Board Approval Date 03-11-2014
MDCH Approval Date 05-30-2014
MCA Implementation Date 11-17-2014



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WAVEFORM CAPNOGRAPHY (CAPNOMETRY & CAPNOGRAPHY)

Date: May 31, 2012

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Waveform Capnography (Capnometry and Capnography)

Purpose: The purpose of this procedure is to define the indications for use of capnography/capnometry and to describe the physical procedure for use, if available.

Indications:

1. Determining that tracheal rather than esophageal intubation has taken place.
 - A. Capnography/Capnometry **must** be utilized to confirm endotracheal tube placement.
2. Continuous monitoring of the integrity of the ventilatory circuit, including supraglottic or advanced airways.
 - A. Capnography/Capnometry **may** be utilized in patients with supraglottic airways or receiving assisted ventilations without advanced airways (used between the face mask and the bag-valve)
 - B. Capnography/Capnometry **may** be used for patients on transport ventilators
3. Monitoring severity of pulmonary disease (bronchospasm) and evaluating response to therapy
 - A. Capnography/Capnometry **may** be utilized in patients with respiratory distress, or with signs and symptoms suggestive of acidosis.
4. Monitoring therapy intended to increase coronary blood flow, reflected in CO₂ elimination
 - A. Capnography/Capnometry **may** be utilized in patients receiving CPR (even without advanced airway placement), cardiac pacing, or when receiving medications that are intended to increase cardiac output, as a means to determine the physiological effectiveness of interventions

Contraindications:

1. There are no absolute contraindications to Capnography/Capnometry

Pre-Medical Control

PARAMEDIC

Procedure:

1. Attach the CO₂ sensor to the monitoring device and to the advanced airway, or between the mask and the bag valve in the ventilated patient that does not have an advanced airway placed, or using the nasal cannula style sensor for patients not receiving assisted ventilation
2. Note the CO₂ level and waveform characteristics
3. Any loss of CO₂ detection or waveform may indicate an airway or ventilation problem and should be investigated, corrected and documented.
4. Document the use and results in the Patient Care Record (PCR).

Note: If a “0” value, or no value, is read for a patient:

- Ensure that the patient has adequate spontaneous circulation and ventilation, or that effective CPR is being performed
- Verify that the tubing is properly connected to the monitor and that there are no kinks in the tubing.
- If the tubing is found not to be the problem and an advanced airway has been placed, remove the advanced airway immediately and assist ventilations as needed with manual ventilation techniques.