2013 Regional Protocol Update
HEMS & W/L MCAs

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2013
Regional Protocol Update

- General Changes
- Adult Treatment
- Adult Cardiac
- Pediatric Treatment
- Pediatric Cardiac
- Procedures
- Pharmacy

General Changes

General Changes

- Pain Management selection boxes moved from individual protocols to **Pain Management** Procedure
- Sedation options moved to **Patient Sedation** Procedure
- Bronchodilator options moved to **Nebulized Bronchodilators** Procedure

General Changes

- **Vascular Access & IV Fluid Therapy Procedure**
  - 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.
  - Note: All Protocols where a bolus is indicated will use this 1 liter or 20 ml/kg start point. Usually up to 2 liter maximum. Use aggressive fluid treatment where indicated.

Adult Treatment

Adult Treatment

Altered Mental Status

8. If respiratory depression is present, administer Naloxone up to 2 mg IV slowly, titrating to improve respiratory status or IM, repeat as needed every 2-3 minutes.

Note: If treating the patient with IV naloxone consider 0.2 – 0.4 mg as a starting dose and titrate to improved respiratory status, not necessarily complete reversal.

Adult Treatment

Anaphylaxsis/Allergic Reaction

PARAMEDIC

7. If patient is symptomatic, administer diphenhydramine 50 mg IM or IV/IO.
8. In cases of severe allergic reaction, wheezing or hypotension:
    A. Administer Epinephrine 1:1000, 0.3 mg (0.3 ml) IM OR via auto-injector.
9. In cases of profound anaphylactic shock (near cardiac arrest):
    A. Administer Epinephrine 1:10,000, 0.3 mg (3 ml) slow IV/IO.
10. Per MCA selection, administer Bronchodilator per **Nebulized Bronchodilators Procedure**
11. Per MCA Selection, administer Prednisone **OR** Methylprednisolone.

MCA SELECTION – Prednisone 50 mg or Methylprednisolone 125 mg IV

Note: Steroids now given along with other initial treatments and does not wait until a second nebulized bronchodilator treatment is given

Adult Treatment

OB Emergencies – Eclampsia (Seizures)

PARAMEDIC

C. If seizure occurs, administer Magnesium Sulfate 2 gm over 10 minutes IV/IO until seizure stops**.** Administration of Magnesium Sulfate is best accomplished by adding Magnesium Sulfate 2gm to 100 or 250 ml of NS and infusing over approximately 10 minutes.

D. If seizure does not stop after Magnesium, then administer Benzodiazepine as specified below.

E. If an IV has not been established administer Midazolam 10 mg IM, if patient is actively seizing.

F. If an IV has already been established and Midazolam IM has not been administered, administer Midazolam, Lorazepam, or Diazepam slow IV push until seizure stops, per MCA selection.

MCA SELECTION for after IV start – Midazolam 5 mg IV/IO

G. If seizure persists, per MCA selection, repeat Midazolam, Lorazepam or Diazepam at the same dose or contact medical control for further instructions.

Adult Treatment

Seizure

PARAMEDIC

D. If patient is pregnant (eclampsia)

a. If seizure occurs, administer Magnesium Sulfate 2 gm over 10 minutes IV/IO until seizure stops**.** Administration of Magnesium Sulfate is best accomplished by adding Magnesium Sulfate 2gm to 50, 100 or 250 ml of NS and infusing over approximately 10 minutes.

b. If eclampsia seizure does not stop after magnesium, then administer benzodiazepine as specified in E below.

E. **Administer Midazolam 10 mg IM prior to IV start, if patient is actively seizing.**

F. If IV already established and Midazolam IM has not been administered, administer Midazolam, Lorazepam or Diazepam slow IV push until seizure stops, per MCA selection.

MCA SELECTION for after IV start – Midazolam 5 mg IV/IO

G. If seizures persist, per MCA selection, repeat Midazolam, Lorazepam or Diazepam at the same dose or contact medical control for further instructions.

NOTE: Midazolam (Versed) is now our treatment agent of choice for Seizures. Valium will be removed from the ALS Medication Box

Adult Treatment

New Protocol – **Excited Delirium**

<u>Pre-Medical Control</u>

MFR/EMT/SPECIALIST/PARAMEDIC

1. Scene Survey – Responder safety is the top priority. If Law Enforcement not on-scene, call for assistance.
2. Closely monitor risk level to patient and EMS personnel. Initiate verbal coaching.
3. Coordinate patient restraint management with Law Enforcement, if possible. Refer to **Physical Patient Restraints Procedure**.

PARAMEDIC

4. If the patient remains combative, administer Midazolam 10 mg IM or 5 mg IN.
5. Transport. Request Law Enforcement to accompany to hospital. All patients should be transported on a cardiac monitor and pulse oximeter, and capnography, if possible.
6. Treat other medical problems (hypoglycemia, vomiting, etc.) as indicated.

Adult Cardiac

Adult Cardiac

Bradycardia

- Indications for treatment in preamble modified to reflect actual expectations
- Serious symptomatic bradycardia may be defined as patients with heart rate less than 50 bpm and hypotension, or shock. Titrate treatments to a heart rate above 50 bpm.
- Treatments continue to be Atropine and Pacing

Adult Cardiac

New Protocol - Cardiac Arrest – Return of Spontaneous Circulation (ROSC)

Pre-Medical Control

MFR/EMT/SPECIALIST

1. If ventilation assistance is required, ventilate at 10-12 breaths per minute. Do not hyperventilate.
2. Reassess patient, if patient becomes pulseless begin CPR and follow **Adult** or **Pediatric Cardiac Arrest General Protocol**.
3. Monitor vital signs.
4. Initiate ALS response if available.

SPECIALIST

5. Start an IV/IO NS KVO**.**
6. Treat hypotension (SBP less than 90 mm/Hg) with an IV/IO fluid bolus consistent with **Shock Protocol**.

PARAMEDIC

7. Perform 12- lead ECG
8. Consider treatable causes
9. If ventilation assistance is required with an advanced airway in place and quantitative waveform capnography is available target PETCO2 of 35-40 mm Hg.
10. Transport to a facility capable of Percutaneous Coronary Intervention (PCI) and therapeutic hypothermia where available per MCA protocol.

Adult Cardiac

Chest Pain/Acute Coronary Syndrome

PARAMEDIC

1. Start an IV NS KVO. If the patient has a BP of less than 100 mmHg, administer an IV/IO NS fluid bolus up to 1 liter wide open, in 250 ml increments and reassess.
2. Administer oxygen 4 L/min per nasal cannula; titrate to maintain SaO2 ≥ 94%. If pulse oximetry is not available administer oxygen at 4 L/min per nasal cannula.
3. Administer aspirin 324 mg PO, chew and swallow if no aspirin or suspected insufficient dose since the onset of chest pain.
4. Obtain 12-lead ECG if available. Follow local MCA transport protocol if ECG is positive for acute ST Elevation Myocardial Infarction (STEMI) and alert the hospital as soon as possible.
5. Do not delay transport.
6. Inquire of all patients (male and female) if they have taken Viagra (sildenafil citrate) or similar erectile dysfunction medications or medications used to treat pulmonary hypertension in the last 48 hours. If yes, DO NOT ADMINISTER NITROGLYCERIN AND CONTACT MEDICAL CONTROL.
7. Administer nitroglycerin 0.4 mg sublingual if BP is above 100 mmHg. Dose may be repeated at 3 to 5 minute intervals if chest pain persists and BP remains above 100 mmHg. Nitroglycerin may be administered prior to IV placement if the BP is above 120 mmHg.
8. If pain persists after up to 3 doses of nitroglycerin, and BP is greater than 100 mmHg, administer narcotic analgesic per MCA selection per **Pain Management Procedure.**
9. Contact Medical Control.

Adult Cardiac

Pulmonary Edema / CHF

EMT/SPECIALIST

4. Consider CPAP (if available) per **CPAP/BiPAP Procedure.**

PARAMEDIC

8. Consider CPAP / Bi-PAP (if available) or if indicated, an advanced airway.
9. Obtain 12-lead ECG if available. Follow local MCA transport protocol if ECG is positive for ST segment elevation myocardial infarction (STEMI) and alert hospital as soon as possible.
10. Inquire of all patients (male and female) if they have taken Viagra (sildenafil citrate) or similar erectile dysfunction medications or medications used to treat pulmonary hypertension in the last 48 hours. If yes, DO NOT ADMINISTER NITROGLYCERIN AND CONTACT MEDICAL CONTROL.
11. If BP above 100 mmHg, administer Nitroglycerin 0.4 mg SL. Repeat every 3-5 minutes if BP above 100 mmHg. Nitroglycerin may be administered prior to IV placement if the BP is above 120 mmHg.
12. If wheezing or bronchial constriction administer nebulized Albuterol 2.5 mg/3ml.

Notes: CPAP is now available for BLS units as an optional item.

Furosemide (Lasix) has been removed from the protocol and will be coming out of the ALS Medication Box

Adult Cardiac

Tachycardia

UNSTABLE – Cardiovert or defibrillate per protocol

STABLE

8. DO NOT USE CAROTID MASSAGE. Have the patient attempt to bear down (a valsalva maneuver).
9. Start an IV NS KVO. A large bore antecubital IV should be secured whenever possible.
10. If the rhythm is regular, consider Adenosine 6 mg rapid IV push through the most proximal injection site. This should be followed immediately with 20 ml NS flush.
11. If conversion does not occur, administer Adenosine 12 mg IV using the same technique as stated above.
12. If rhythm is stable with narrow QRS contact medical control for possible orders.
13. If rhythm is stable with wide QRS administer Amiodarone ***OR*** Lidocaine per MCA Selection

Medication Options - <u>NEW SELECTION – Amiodarone 150 mg IV over 10 minutes</u>

14. If at any point a patient becomes unstable proceed to cardioversion.
15. Administer Magnesium Sulfate 2 gm IV/IO for suspected torsades de pointes.
16. Contact Medical Control

Adult Cardiac

Tachycardia

Post-Medical Control

17. Per MCA selection, administer additional Amiodarone 150 mg IV over 10 minutes as needed to a maximum of 450 mg OR Lidocaine 0.5 -1.0 mg/kg IV push every 5 - 10 minutes to a maximum of 3 mg/kg.

NOTES:

1. Administration of Amiodarone is best accomplished by adding Amiodarone 150 mg to 50, 100 or 250 ml of NS and infusing over approximately 10 minutes.
2. Administration of Magnesium Sulfate is best accomplished by adding Magnesium Sulfate 2gm to 50, 100 or 250 ml of NS and infusing over approximately 10 minutes.

NOTE: Amiodarone has taken the place of Lidocaine as the preferred treatment for stable wide complex tachycardia in the adult patient. Lidocaine is still preferred for treatment of pediatric stable wide complex tachycardia.

Adult Cardiac

Ventricular Fibrillation

Pre-Medical Control

PARAMEDIC

1. Follow the **Cardiac Arrest – General Protocol**.
2. Defibrillate and then continue CPR for 2 minutes.
3. Repeat defibrillation every 2 minutes as indicated with immediate resumption of compressions. If rhythm changes go to appropriate protocol.
4. Start an IV/IO NS KVO. If IV is unsuccessful after 2 attempts, start an IO line per **Vascular Access & IV Fluid Therapy Procedure.** IO may be first line choice.
5. Administer Epinephrine 1:10,000, 1 mg (10 ml) IV/IO. Repeat every 3-5 minutes. May be administered before or after defibrillations.
7. Establish an advanced airway. Avoid significant interruptions in CPR. See **Emergency Airway Procedure**.
8. For persistent or recurrent Ventricular Fibrillation / Pulseless Ventricular Tachycardia, administer Amiodarone 300 mg IV/IO. May be administered before or after defibrillations.
9. In a dialysis patient hyperkalemia is likely. Administer Calcium Chloride 1g IV/IO and Sodium Bicarbonate 1 mEq/kg IV/IO with 20 ml NS flush in between medications.
10. For persistent or recurrent Ventricular Fibrillation / Pulseless Ventricular Tachycardia, administer additional Amiodarone 150 mg IV/IO. May be administered before or after defibrillations.
11. If patient is in Torsades de Pointes administer Magnesium Sulfate 2 grams IV/IO.

Pediatric Treatment

Pediatric Treatment

Pediatric Anaphylaxis/Allergic Reaction

EMT/SPECIALIST

4. In cases of severe allergic reaction, wheezing or hypotension:
   - A. If child appears to weigh less than 10 kg (approx. 20 lbs.), contact medical control prior to epinephrine if possible.
   - B. If child weighs between 10-30 kg (approx. 60 lbs.); administer Epi-Pen Jr.
   - C. Child weighing greater than 30 kg; administer Epi-Pen.
5. Albuterol may be indicated. Refer to **Nebulized Bronchodilators Procedure**.

PARAMEDIC

6. If patient is symptomatic, administer diphenhydramine 1 mg/kg IM/IV/IO (maximum dose 50 mg).
7. In cases of severe allergic reaction, wheezing or hypotension:
   - A. If child appears to weigh less than 10 kg (approx. 20 lbs.), contact medical control prior to epinephrine if possible.
   - B. Child weighing less than 30 kg (approx. 60 lbs.); administer Epinephrine 1:1000, 0.15 mg (0.15 ml) IM OR via Epi-Pen Jr., if available.
   - C. Child weighing greater than 30 kg; administer Epinephrine 1:1000, 0.3 mg (0.3 ml) IM OR via Epi-Pen if available.
8. In cases of profound anaphylactic shock (near cardiac arrest):
   - A. Administer Epinephrine 1:10,000, 0.01 mg/kg (0.1 ml/kg) slow IV/IO to a maximum of 0.3 mg (3 ml).
9. Per MCA selection, administer Bronchodilator per **Nebulized Bronchodilators Procedure**.

Pediatric Treatment

Pediatric Anaphylaxis/Allergic Reaction

PARAMEDIC

7. In cases of severe allergic reaction, wheezing or hypotension:

   A. If child appears to weigh less than 10 kg (approx. 20 lbs.), contact medical control prior to epinephrine if possible.

   B. Child weighing less than 30 kg (approx. 60 lbs.); administer Epinephrine 1:1000, 0.15 mg (0.15 ml) IM OR via Epi-Pen Jr., if available.

   C. Child weighing greater than 30 kg; administer Epinephrine 1:1000, 0.3 mg (0.3 ml) IM OR via Epi-Pen if available.

NOTE: Pediatric dosing for Epinephrine has been made simpler:

10 kg – 30 kg	Epinephrine 1:1000, 0.15 mg (0.15 ml) IM OR via Epi-Pen Jr
> 30 kg	Epinephrine 1:1000, 0.3 mg (0.3 ml) IM OR via Epi-Pen

Pediatric Treatment

Pediatric Bronchspasm

EMT/SPECIALIST

3. Albuterol may be indicated. Refer to **Nebulized Bronchodilators Procedure**.
4. Consider CPAP, if available, per **CPAP/BiPAP Procedure.**
5. In cases of severe respiratory distress/failure:

   A. If child appears to weigh less than 10 kg (approx. 20 lbs.), contact medical control prior to epinephrine if possible.

   B. If child weighs between 10-30 kg (approx. 60 lbs.); administer Epi-Pen Jr.

   C. Child weighing greater than 30 kg; administer Epi-Pen.

PARAMEDIC

6. Per MCA selection, administer Bronchodilator per **Nebulized Bronchodilators Procedure**.
7. Per MCA selection, if a second nebulized treatment is needed also administer Prednisone **OR** Methylprednisolone.

- MCA Medication Selection: **Prednisone** 50 mg tablet PO **(Children 6 and above, if tolerated)**
  or Methylprednisolone 2 mg/kg IV/IO, (maximum dose 125 mg)

Pediatric Treatment

New Protocol - Pediatric Nausea/Vomiting

Pre-Medical Control

MFR/EMT/SPECIALIST/PARAMEDIC

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

SPECIALIST/PARAMEDIC

2. If signs of significant dehydration, administer NS IV/IO fluid bolus 20 ml/kg.
3. If signs of shock are present, bolus may be repeated at the same dose up to a maximum total of 40 ml/kg.

Post-Medical Control

PARAMEDIC

1. Consider Ondansetron (Zofran) 0.1 mg/kg IV/IM, maximum dose of 4 mg.
2. Repeat Ondansetron (Zofran) 0.1 mg/kg IV/IM, maximum dose of 4 mg.

NOTE: Ondansetron (Zofran) is still Post-Medical Control for Pediatric Patients

Pediatric Treatment

Pediatric Seizure

PARAMEDIC

F. Administer Midazolam 0.1mg/kg IM, maximum individual dose 10 mg prior to IV start, if patient is actively seizing

G. If IV established and Midazolam IM has not been administered, administer Midazolam, Lorazepam or Diazepam per MCA selection.

MCA SELECTION for after IV start – Midazolam 0.05 mg/kg IV/IO, maximum individual dose 5 mg

H. If seizures persist, per MCA selection, repeat Midazolam, Lorazepam or Diazepam at the same dose or contact medical control for further instructions.

MFR/EMT/SPECIALIST/PARAMEDIC

1. **IF PATIENT IS NOT CURRENTLY SEIZING, BUT HAS ALTERED MENTAL STATUS REFER TO ALTERED MENTAL STATUS PROTOCOL.**

NOTE: Midazolam (Versed) is now our treatment agent of choice for Pediatric Seizures. Valium will be removed from the ALS Medication Box

Pediatric Cardiac

Pediatric Cardiac

Pediatric VF/Pulseless VT

Pre-Medical Control

PARAMEDIC

1. Follow the **Pediatric Cardiac Arrest – General Protocol**.
2. Defibrillate at 2 J/kg* and then continue CPR for 2 minutes.
3. Repeat defibrillation at 4 J/kg* every 2 minutes as indicated with immediate resumption of compressions. If rhythm changes go to appropriate protocol.
4. Start an IV/IO NS KVO. If IV is unsuccessful after 2 attempts, start an IO line per **Vascular Access & IV Fluid Therapy Procedure.** IO may be first line choice.
5. Administer Epinephrine 1:10,000, 0.01 mg/kg (0.1 ml/kg) IV/IO, maximum dose 1 mg (10 ml). Repeat every 3-5 minutes. May be administered before or after defibrillation.
6. If unable to ventilate or unable to maintain a patent airway, establish a patent airway, maintaining C-Spine precaution if indicated, using appropriate airway adjuncts & high flow oxygen. See **Emergency Airway Procedure.**
7. For persistent or recurrent Ventricular Fibrillation / Pulseless Ventricular Tachycardia, administer Amiodarone 5 mg/kg IV/IO, maximum dose 300 mg. May be administered before or after defibrillation.
8. Repeat defibrillation at 4 joules/kg*. Continue CPR and repeat defibrillations as indicated.
9. For persistent of recurrent VF / Pulseless VT, may repeat Amiodarone 5 mg/kg IV/IO twice up to a maximum of 15 mg/kg or a maximum dose of 450 mg. May be administered before or after defibrillation.

NOTE: Epinephrine and Amiodarone are still the drugs of choice for Pediatric VF/ Pulseless VT

Pediatric Cardiac

Pediatric Wide Complex Tachycardia

Pre-Medical Control

PARAMEDIC

1. Follow the **Pediatric Assessment and Treatment Protocol.**

STABLE

1. Consider 12-Lead ECG, if available.

Post-Medical Control

2. Per MCA Selection Administer Lidocaine OR Amiodarone.

MCA Selection: Lidocaine 1 mg/kg IV/IO

NOTE: Lidocaine is the drug of choice for Pediatric Wide Complex Tachycardia

Pediatric Cardiac

Pediatric Wide Complex Tachycardia

UNSTABLE

Pre-Medical Control

1. If Cardiopulmonary compromise is present as evidenced by hypotension, acutely altered mental status or signs of shock, contact medical control.

Post-Medical Control

2. If time and condition allow prior to cardioversion, sedate per MCA selection. Refer to **Patient Sedation Protocol**.
3. If HR greater than 180, consider Synchronized Cardioversion 0.5 – 1 J/kg.
4. Consider repeat cardioversions at 2 J/kg.
5. In borderline unstable patients, consider Adenosine if rhythm regular and QRS is monomorphic. If IV/IO is readily available, administer Adenosine 0.1 mg/kg (maximum 6 mg) IV/IO, rapid IV push through the most proximal injection site. This should be followed immediately with a 5 – 10 ml NS flush. May repeat Adenosine 0.2 mg/kg IV/IO (maximum 12 mg).

Procedures

Procedures

New Protocol – Adrenal Crisis

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.**

NOTE: Patients will know they have this condition and should have their own medication. Medics may administer it if available per the above protocol.

Procedures

CPAP/BiPAP Administration

- The protocol now allows MCAs to allow BLS or Specialists to use CPAP
- WL MCA and HEMS have selected to allow BLS & LALS services to uses CPAP on an optional basis
- Treatment with CPAP is used in CHF/Pulmonary Edema, Asthma and COPD

Procedures

Impedance Threshold Device (ITD)

- This protocol continues to be optional for services in the HEMS MCA
- This protocol is required for services in the W/L MCA
- For those using this protocol use the ITD on all medical cardiac arrests of all ages as soon as possible during CPR

Procedures

Intranasal Medication Administration

- Intranasal medication administration device will be added to the A-Pak for use with Naloxone as indicated.
- Another Intranasal medication administration device is in the ALS Medication Box for use with Fentanyl, Midazolam or Naloxone
- See following table for dosing

Procedures – IN Medication

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

Procedures

Medication Shortage

- Provided acceptable alternatives to medications currently in the ALS Medication Box which may be in shortage
- Alternate medication supplied should be listed on a sticker on the ALS Medication Box

Procedures

New Protocol – Nebulized Brochodilators

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.

MCA ADDITIONAL BRONCHODILATOR TREATMENT SELECTION:

Albuterol 2.5 mg/3 ml NS nebulized

NOTE: The first treatment is now Albuterol/Ipratroprium. Subsequent treatments will all be Albuterol. EMT/Specialist treatments are still all Albuterol.

Procedures

Pain Management

<u>Pre-Medical Control</u>

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 > 100 mm Hg, Pediatric 80 + (2 x 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.

Procedures

Pain Management

MCA Pain Management Selections

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

Procedures

Pain Management Notes:

- Fentanyl & Morphine are our MCA selections for all indications, Morphine is preferred for Chest Pain
- IM medication may be administered pre-medical control, but only one dose is allowed without on-line direction (20 minute onset of action IM)
- IN Fentanyl may be used (one dose) per Intranasal Medication Administration Procedure

Procedures

Patient Sedation

Pre-Medical Control

PARAMEDIC

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.

Pediatric Sedation: MCA Selection

(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

Fentanyl 1 mcg/kg IV/IO titrated slowly, may repeat every 5 minutes to a maximum of 3 mcg/kg.

Adult Sedation: MCA Selection

(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.

Fentanyl 50-100 mcg (1 mcg/kg) IV/IO titrated slowly, may repeat every 5 minutes to a maximum of 3 mcg/kg.

Post-Medical Control

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

Procedures

Patient Sedation Notes:

- Fentanyl & Midazolam are our MCA selections for all Patient Sedation indications
- Mediations may be administered pre-medical control for cardioversion, pacing and post intubation sedation
- Contact medical control for sedation in conjunction with CPAP or for Chemical Restraint

Procedures

Termination of Resuscitation

Pre-Medical Control

PARAMEDIC

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.

Procedures

Termination of Resuscitation

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.

Procedures

Termination of Resuscitation Notes:

- Resuscitation is best performed at the scene
- Do not initiated transport unless ROSC is achieved or scene safety issues arise
- Resuscitation should be continued for 30 minutes unless approved by on-line medical control

Procedures

Tourniquet Application

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.

Pre-Medical Control

MFR/ EMT/SPECIALIST/PARAMEDIC

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.

Procedures

Tourniquet Application Notes:

- Tourniquets are required equipment for all levels of licensed EMS units
- MDCH is sending CAT Tourniquets to all licensed EMS services to help comply with this requirement

Procedures

Vascular Access& IV Fluid Therapy

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.

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).

NOTES: -Standard IV Fluid bolus is 1 liter normal saline for most protocols.

-Contraindicated in pulmonary edema.

-Lidocaine may be administered through an IO prior to medication administration in order to decrease the pain of medication & fluid administration via IO.

Procedures

Waveform Capnography Notes:

- Capnography is required for tube placement confirmation in all intubated patients, when available.
- Continuous capnography is required for these patients, when available, for monitoring and early notice of change in patient status.

Pharmacy

- ALS Medication Box and A-Pack changes will start August 1, 2013. Boxes will be updated as they are restocked.
- Valium and Furosemide(Lasix) will be removed
- Zofran and Intranasal Device (IND) will be added to A-pack. IND for use with Naloxone (Narcan)
- Magnesium and Amiodarone may be mixed with 50 ml NS for infusion