<table>
<thead>
<tr>
<th>Protocol Number</th>
<th>Protocol Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>9.1</td>
<td>Medication Administration</td>
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<td>9.9.1</td>
<td>MFR/BLS Opioid Overdose Naloxone Kit Contents and Exchange: Oakland County</td>
</tr>
<tr>
<td>9.10</td>
<td>2 Pam Chloride/Duodote</td>
</tr>
<tr>
<td>9.11</td>
<td>Acetaminophen</td>
</tr>
<tr>
<td>9.12</td>
<td>Adenosine</td>
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<td>9.13</td>
<td>Albuterol</td>
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<td>9.14</td>
<td>Amiodarone</td>
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<td>9.15</td>
<td>Aspirin</td>
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<td>9.16</td>
<td>Atropine</td>
</tr>
<tr>
<td>9.17</td>
<td>Calcium Chloride</td>
</tr>
<tr>
<td>9.18</td>
<td>Dextrose</td>
</tr>
<tr>
<td>9.20</td>
<td>Diphenhydramine</td>
</tr>
<tr>
<td>9.22</td>
<td>Epinephrine</td>
</tr>
<tr>
<td>9.23</td>
<td>Fentanyl</td>
</tr>
<tr>
<td>9.25</td>
<td>Hydromorphone</td>
</tr>
<tr>
<td>9.26</td>
<td>Hydroxocobalamin/Cyanokit</td>
</tr>
<tr>
<td>9.28</td>
<td>Ipratropium</td>
</tr>
<tr>
<td>9.29</td>
<td>Ketamine</td>
</tr>
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<td>9.30</td>
<td>Ketoralac</td>
</tr>
<tr>
<td>9.32</td>
<td>Lidocaine</td>
</tr>
<tr>
<td>9.33</td>
<td>Magnesium Sulfate</td>
</tr>
<tr>
<td>9.34</td>
<td>Methylprednisolone: Regional Protocol</td>
</tr>
<tr>
<td>9.35</td>
<td>Midazolam</td>
</tr>
<tr>
<td>9.36</td>
<td>Morphine</td>
</tr>
<tr>
<td>9.37</td>
<td>Naloxone</td>
</tr>
<tr>
<td>9.38</td>
<td>Nitroglycerin</td>
</tr>
<tr>
<td>9.39</td>
<td>Ondansetron</td>
</tr>
<tr>
<td>9.40</td>
<td>Prednisone</td>
</tr>
</tbody>
</table>
9.41 Sodium Bicarbonate
Medication Administration

Information:
EMS providers preparing to administer medications in the out of hospital setting should review and/or recite the "6 Rights" prior to administering any medication to a patient. While all 6 elements are important, in the out of hospital setting, special attention should be paid to the right medication, right dose, and right route - as these are frequently the areas of error in the EMS environment. In addition, EMS providers should ensure the patient is informed as to what medications they are receiving, and afford an opportunity for the patient to refuse. Lastly, documentation is essential so that medications administered in the out of hospital setting become part of the patient's clinical medical record. By following the "6 Rights" of medication administration, EMS providers will significantly decrease the potential and number of errors associated with medication administration.

Definitions:
I. Medication: Any pharmacological intervention used to treat, prevent, or reduce signs and symptoms of diseases, disorders, and/or traumatic injuries.

II. Medication administration routes include the following: Intramuscular, Intravenous, Intraosseous, Oral, Buccal, Rectal, Inhaled, and Subcutaneous.

Procedure:
I. Prior to the administration of any medication ensure the following are reviewed and/or verbalized by at least two providers – if available (checked, and double checked):

   A. 6 Rights of Medication Administration –
      1. Right Patient
      2. Right Dose
      3. Right Medication
      4. Right Route
      5. Right Time
      6. Right Documentation

   B. Following administration of controlled medications, EMS personnel shall follow their individual department's policy on the correct accounting, disposal, and restocking of these medications.

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

   A. Calculate weight in kilos and multiply by the prescribed dosage (e.g. - mg/kg)

   B. The resultant dose should be less than the maximum single dose.
      1. In adults, 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: 1.2 mg rounded to 1 mg, 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.
      2. For pediatric patients, utilize MI-MEDIC and a length based tape for all medication calculations.

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

Purpose:
This protocol allows for MCA to substitute medications during a time of shortage without having to enact emergency protocols within the MCA. This protocol does not replace or override any portion of the Medication Shortage Procedure. All procedures within that procedure must still be followed in regards to substitutions in concentration or medication.

Indications:
1. Medications indicated in the primary protocol are not available.
2. No other medication is listed in primary protocols as accepted by the MCA for use.

Procedure:
1. Follow Medication Shortage Procedure.
2. Alternate concentrations are listed within this protocol for reference; these do not require a protocol change and are outlined in the Medication Shortage Procedure.
3. Notification and education of providers within the MCA should be done as soon as the substitution is known.
   a. It is the responsibility of the MCA to distribute information on the shortages and substitutions to agencies for distribution to providers.
   b. If a substitution is imminent, it is acceptable for an MCA to distribute information prior to the medication being substituted.
4. The MCA should notify the Division of EMS and Trauma if a substitution is suspected to last more than 60 days so that a more permanent protocol solution can be enacted.
5. All uses of substitute medications will be reviewed by PSRO for appropriateness.

<table>
<thead>
<tr>
<th>Current Medication</th>
<th>Alternate A</th>
<th>Alternate B</th>
<th>Protocols</th>
</tr>
</thead>
<tbody>
<tr>
<td>Atropine</td>
<td>Epinephrine 2-10 mcg/min infusion Pediatric 0.1 mcg/kg/min</td>
<td>Transcutaneous Pacing</td>
<td>Bradycardia</td>
</tr>
<tr>
<td>Amiodarone</td>
<td>Lidocaine 1-1.5 mg/kg IV Pediatric 1 mg/kg IV</td>
<td>Procainamide 20 mg/min, max 17 mg/kg IV/IO</td>
<td>Adult and Pediatric Cardiac Arrest – General</td>
</tr>
<tr>
<td>Calcium Chloride</td>
<td>Calcium Gluconate 20 ml of 10% solution administered over 1 to 2 minutes IV (adults only)</td>
<td>Glucagon 1 mg</td>
<td>Poisoning/Overdose Cardiac Arrest – General (Adult)</td>
</tr>
<tr>
<td>Dextrose 50%, 50 ml</td>
<td>Dextrose 10%, 250 ml IV Pediatric Dextrose 10% 5 ml/kg IV</td>
<td>Pediatric 0.05 mg/kg, up to 1 mg IM</td>
<td>Adult and Pediatric Altered Mental Status</td>
</tr>
<tr>
<td>Diphenhydramine</td>
<td>Famotidine 20 mg IV Pediatric 0.25 mg IV Or Ranitidine 50 mg IV Pediatric 0.1 mg/kg IV</td>
<td>Hydroxyzine 50 mg IM</td>
<td>Adult and Pediatric Seizures</td>
</tr>
<tr>
<td>Lidocaine</td>
<td>Amiodarone:</td>
<td>Procainamide 20 mg/min,</td>
<td>Adult and Pediatric Cardiac Arrest – Alloergic Reaction</td>
</tr>
</tbody>
</table>
## MEDICATION SUBSTITUTION

**Initial Date:** 10/25/2017

**Revised Date:**

<table>
<thead>
<tr>
<th>Protocol Source/References</th>
<th>Pain Management</th>
<th>General Adult and Pediatric Tachycardia</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. For Recurrent VF/VT: Adults 300 mg IV/IO repeat 150 mg one time. Pediatrics 5 mg/kg IV Wide complex Tach 150 mg x 2 PRN, pediatric 5 mg/kg IV</td>
<td>Fentanyl 1 mcg/kg</td>
<td>max 17 mg/kg IV/IO Pediatric 15 mg/kg IV/IO over 60 minutes</td>
</tr>
</tbody>
</table>

### Pain Management

<table>
<thead>
<tr>
<th>Morphine</th>
<th>Morphine 4 mg IV/IO</th>
<th>Hydromorphone 2 mg IV or IM Pediatric 0.05 mg/kg max dose 2 mg</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fentanyl</td>
<td>Fentanyl 1 mcg/kg</td>
<td>Hydromorphone 2 mg IV or IM Pediatric 0.05 mg/kg max dose 2 mg</td>
</tr>
</tbody>
</table>

### General Adult and Pediatric Tachycardia

| Midazolam (Versed) | Lorazepam 2 mg or 0.05 mg/kg IV | Diazepam 5 mg IV Pediatric 0.1 mg/kg | Patient Sedation
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Ondansetron (Zofran)</td>
<td>Promethazine 12.5 mg IM Pediatric 0.25 mg/kg IM</td>
<td>Compazine 10 mg Pediatric 0.1 mg/kg</td>
<td></td>
</tr>
<tr>
<td>Diasepam (Valium)</td>
<td>Midazolam 5 mg IV Pediatrics 0.1 mg/kg</td>
<td>Lorazepam 2 mg IV Pediatrics 0.1 mg/kg IV</td>
<td></td>
</tr>
<tr>
<td>Ketamine</td>
<td>Midazolam 5 mg IV Pediatrics 0.1 mg/kg</td>
<td>Diazepam 5 mg IV Pediatrics 0.1 mg/kg IV</td>
<td></td>
</tr>
</tbody>
</table>

### Patient Sedation

<table>
<thead>
<tr>
<th>Epinephrine 1mg/1ml 30mL Vial</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Expel 1mL of normal saline from a 10mL syringe (pre-filled)</td>
</tr>
<tr>
<td>2. Instill 1mg/mL of Epinephrine 1:1,000 from 30 mL vial in to pre-filled syringe</td>
</tr>
<tr>
<td>3. 30mL vials are to be single patient use only</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Epinephrine 1mg/ml Ampule</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Expel 1mL of normal saline from a 10mL syringe (pre-filled)</td>
</tr>
<tr>
<td>2. Instill 1mg/mL of Epinephrine 1:1,000 from ampule in to pre-filled syringe</td>
</tr>
</tbody>
</table>
Medication Shortage

A. Definitions:
   1. **Alternate Concentration** – same medication, different concentration, while volume may change, the delivered dose remains unchanged, dilution may be required (Epinephrine 1: 10,000 replaced using Epi 1: 1,000 with a 10mL diluent)
   2. **Alternate Supplied Volume** – same medication, same concentration, standard volume is unavailable, the delivered dose and volume remain the same (Epi 1: 1,000, typically supplied in a 1mL vial replaced with Epi 1: 1,000 in a 10mL multi-dose vial due to shortage of the smaller vials)
   3. **Alternate Supply/Type** – same medication, standard supply type is unavailable (preloads vs. vials), dosing remains unchanged (diphenhydramine 50mg/5mL preload is unavailable, replaced with diphenhydramine 50mg/5mL in a vial)
   4. **Alternate Form** – same medication, different route such that identical dosing does not yield the same systemic concentration or effect (ondansetron 4mg vial unavailable, replaced with ondansetron 4mg ODT, option to repeat x 1 added to allow approximation of equivalent dosing)
   5. **Alternate Medications** – medication other than the standard approved medication which accomplishes an acceptably similar effect as the medication it replaces (fentanyl 100mcg approved to replace morphine 10mg, dosing adjusted to obtain therapeutic equivalency)
   6. **Missing Medication** – standard medication which is unavailable (amyl nitrite not available, acceptable alternative of Cyanokit is excessive in cost and size: alternate means to access treatment established – MEDDRUN)

B. Criteria:
   1. Each EMS Medication Management System (MMS), be it at the individual MCA or at a wider regional level, shall establish and maintain a listing of the standard medications and supplies contained in drug bags or boxes supplied to life support agencies for the purposes of treating patients.
   2. Each MMS shall maintain a dated listing of alternative medications which are approved as substitutes or replacements for medications which are in shortage.
   3. Due to the frequency of medication shortages and the need for alternative dosing or medication substitutions, each MCA shall develop and enact a medication cross-check procedure, to which EMS personnel will be held accountable as a means to avoid medication errors.
   4. Both the standard list and the alternate list (may be combined into a single document) shall be made readily available to system participants.
   5. The MMS shall enact policies/procedures which guide each of the following:
      A. Recognition of medication shortages and a means to report them
      B. Pharmacy involvement in the investigation and designation of acceptable alternatives when shortages are identified
      C. An organized process by which participant pharmacies will enact the replacement or substitution.

MCA Name: Oakland County
MCA Board Approval Date: April 6, 2018
MCA Implementation Date: June 1, 2018
Protocol Source/References:
D. A documented means of visually identifying when an alternative medication or dosing has been placed into an EMS drug bag or box, or when a medication is missing

a. **Alternate medications** will be indicated by the placement of a sticker, tag or label on the outside of the bag or box; on the compartment where the alternate medication is located (if applicable) such that one inspecting the bag or box could easily recognize that the medication was included and what the missing medication it is intended to replace was. (Stickers GREEN or WHITE with GREEN)

b. **Missing medications** will be signified by the placement of a sticker, tag or label on the outside of the bag or box, on the compartment where the missing medication would be located (if applicable) such that one inspecting the bag or box could easily recognize that the medication was missing and what the potential alternate medication was. (Stickers YELLOW or WHITE with YELLOW)

E. A method for dissemination of information related to changes made to the MMS drug bags or boxes with a means of accounting for receipt of the notifications at the agency/pharmacy levels

C. **Selection of Alternative Medications:**
   1. Alternative concentrations, alternative supply/type and alternative supplied volume may be approved at the MCA/MMS level without a change to protocol provided that the standard and approved alternate medications are documented in the required lists, by effective date or date range.
   2. Alternate form and alternate medications may be enacted as an emergency protocol according to statute and state approval, in the event of imminent shortage.
   3. Non-standard medications, or those with no precedence of EMS use within Michigan must be submitted as new protocol submissions. The state may allow for expedited review in the event of imminent shortage of the medication being replaced.
   4. If a missing medication will not be replaced, or an acceptable alternative is not found, a protocol or process should be developed or presented which addresses the potential inability to meet the existing protocol established standard of care.

D. **Process:**
   1. A brightly colored ALTERNATE DOSE sticker/tag MUST be attached to the outside of the drug bag, box or narcotics box that lists the effected medication, the concentration of the substituted medication, the expiration date of the medication and the pharmacy name/date.
   2. A brightly colored – MISSING MEDICATION sticker/tag must be placed on bags/boxes when a protocol medication is not available to stock in that bag/box.
   3. A dosing/instruction card may be required to be included in the bag/box depending on the change.
4. Pharmacies experiencing shortages must provide notification of the need to utilize alternate dosing to the MCA and the drug exchange coordinator, and receive approval, prior to any change being implemented.

5. Drug bags, boxes or narcotics boxes with alternate dose medications/missing medications should have the medication replaced and the sticker/tag removed by pharmacy as soon as possible when the proper medication or concentration of medication is available.

6. Any additional equipment, which is needed to deliver the medication, must be included with the alternate dose. *(I.e. – Medication is typically in a carpuject but a vial is being substituted due to shortages of the carpuject version. An appropriately sized safety needle and syringe must be available within close proximity to the medication in order to facilitate administration. These supplies too may be removed when the proper medication concentration is returned to the bag/box.)*

7. EMS Agencies receiving notice of the utilization of alternate dosing, alternate medications or missing medications due to shortage must post the changes and ensure that all providers that may have cause to use the medications are made aware of the changes and are educated on proper use, risk and dosing of any new or replacement medication prior to their first potential exposure to the alternate dose or medication.

8. Any Special Instruction for a particular shortage will be communicated to all effected pharmacies and EMS services.
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 (and other levels of licensure, for naloxone) 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
☒ Pain Management
☒ Altered Mental Status with Suspected Opiate Overdose
☒ Sedation
☒ Seizures

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. Use the highest concentration available for the medication.
9. Note: Maximal dose per nostril is 1 cc.

<table>
<thead>
<tr>
<th>Indication</th>
<th>Medication</th>
</tr>
</thead>
<tbody>
<tr>
<td>Suspected Opiate Overdose</td>
<td>Naloxone (1mg/1mL)</td>
</tr>
<tr>
<td>Sedation/Seizures</td>
<td>Midazolam</td>
</tr>
<tr>
<td>Adult Pain Control</td>
<td>Fentanyl</td>
</tr>
<tr>
<td>Adult Pain Control/Sedation</td>
<td>Ketamine</td>
</tr>
<tr>
<td>Pediatric Pain Control</td>
<td>Fentanyl</td>
</tr>
<tr>
<td>Pediatric Sedation/Seizure</td>
<td>Midazolam</td>
</tr>
<tr>
<td>Pediatric Pain Control/Sedation</td>
<td>Ketamine</td>
</tr>
</tbody>
</table>

10. Dosing is outlined in each protocol.
IV Ancillary Supply Exchange

Vehicle Stock
A. Each approved ALS/LALS unit will be initially provided with IV supplies listed on the Southeast Michigan Regional Protocol IV Ancillary Supply Exchange Form (Attached). The IV supplies listed on the IV Ancillary Supply Exchange Form will be made available in the Emergency Department or Pharmacy for all Southeast Michigan Regional Protocol participating EMS Agencies.

B. Each ALS/LALS Agency and Advanced Life Support Agency will be responsible for providing any additional equipment required by the Michigan Department of Health and Human Services (MDHHS).

C. All IV solutions, needles, syringes, and supplies will be stored in a securely locked, temperature controlled location on each approved ALS/LALS unit at all times except when in use.

D. IV supplies/fluids are to be inspected daily by the crew of the unit for evidence of loss, theft, discrepancy, and expiration date. It is recommended that this inspection be included in a standard documented vehicle checklist.

Use / Replacement / Exchange
A. IV supplies will only be used by a Paramedic or Specialist when presented with a patient requiring Advanced Life Support or Limited Advanced Life Support care and/or IV therapy and then only when acting on written or transmitted orders from a physician at an appropriate on-line medical control facility or pre-contact provisions of approved treatment protocols.

B. All hospitals participating in the regional EMS medication exchange system will stock and exchange IV supplies, as listed on the Southeast Michigan Regional Protocol IV Ancillary Supply Exchange Form used by approved ALS/LALS providers. IV supplies will be available within the hospital pharmacy or emergency department of the participating hospital (24 hrs/day, 7 days/wk). Appropriate record keeping and security measures are required at each exchange site to ensure that only appropriately licensed and authorized personnel have access to IV solutions, and other related supplies.

C. IV supplies, used by approved EMS units for patients transported, will be replaced, at the time of the run, by the receiving hospital according to established procedure. If the receiving facility does not participate in the regional EMS medication exchange system and/or and medications / IV supplies are expended
for the patient who is subsequently not transported, the unit will then proceed to the regional participating hospital which provided Medical Control for the run to complete replacement. An e-PCR will be submitted when completed.

D. Use of any IV fluids/supplies will be documented on the IV Ancillary supply Exchange Form for exchange and the EMS run report of the patient for whom the supplies were used. This includes any medications / IV solutions/supplies prepared for use but not actually administered to the patient, such as failed IV attempts, etc.).

E. All empty containers and packaging and used materials will be properly disposed of by the EMS crew that used the IV fluids/supplies. If there is blood or body fluid contamination to any unused materials or packaging, the EMS crew will clean and dispose of contaminated material per protocol.

F. The EMS crew will complete the Southeast Michigan Regional Protocol IV Ancillary Supply Exchange Form provided for any IV solutions/supplies used. The form shall serve as a permanent medical record of IV solutions administered.

G. The EMS crew is responsible for proper distribution of forms.

Expiration of Solutions
All IV solutions will have expiration dates not less than 90 days after dispensing.

Discrepancies
A. For purpose of this policy, a discrepancy is any breakage, expiration, shortage, theft, or diversion of IV fluids/supplies.

B. A standard “medication discrepancy/incident report” will be completed each time a discrepancy occurs. The form should be initiated by the person(s) who discovered the discrepancy and investigated to the fullest capacity by that person(s). EMS personnel or hospital staff may fill out this form and is responsible for distributing the forms as required.

C. Copies should be sent to the hospital pharmacy involved, (if applicable) and the Medical Control Authority that the discrepancy occurred.

D. A copy of the EMS run form, for which the discrepancy occurred, is to be attached to each copy of the discrepancy report where applicable.

E. If an ALS/LALS unit has less than the required stock of IV fluids/supplies and
cannot document use of these supplies in connection with a patient, a discrepancy report must be completed. The completed discrepancy report, along with a completed IV Ancillary Supply Exchange Form indicating the EMS Provider Agency Name under "Patient Name" and clearly marked "Replacement for Missing Stock" will be presented to the agency's Medical Control Hospital Pharmacy for replacement. The ALS agency can be held accountable for replacement.
IV ANCILLARY SUPPLY EXCHANGE LIST

This list of IV supplies will be made available in the Emergency Department or Pharmacy for all Southeast Michigan Regional Protocol participating EMS Agencies. Only a one for one exchange will be given.

Needleless stock only!

<table>
<thead>
<tr>
<th>IV ANCILLARY SUPPLIES</th>
</tr>
</thead>
<tbody>
<tr>
<td>NaCl 0.9% 1000 ml</td>
</tr>
<tr>
<td>NACl 0.9% 500 ml</td>
</tr>
<tr>
<td>Macrodrip tubing (10-20 gtt/ml) (with y site pre-pierced reseal)</td>
</tr>
<tr>
<td>Extension Set (with y site pre-pierced reseal).</td>
</tr>
<tr>
<td>14g x 2” angiocath</td>
</tr>
<tr>
<td>16g x1 ½” angiocath</td>
</tr>
<tr>
<td>18g x 1 ¼” angiocath</td>
</tr>
<tr>
<td>20g x 1 ¼” angiocath</td>
</tr>
<tr>
<td>22g x 1” angiocath</td>
</tr>
<tr>
<td>24g x 3¼” angiocath</td>
</tr>
<tr>
<td>18g x 1 ½” needle</td>
</tr>
<tr>
<td>21g x 1 ½” needle</td>
</tr>
<tr>
<td>Syringe 1cc w 25g x 5/8” needle</td>
</tr>
<tr>
<td>Syringe 3cc w 22g x 1 ½” needle</td>
</tr>
<tr>
<td>Syringe 5cc without needle</td>
</tr>
<tr>
<td>Syringe 10cc without needle</td>
</tr>
<tr>
<td>Saline Lock (Macrobore extension tubing 5” – 7”)</td>
</tr>
<tr>
<td>Saline Flush (Preservative free) Vial 20-30 ml or 10 ml pre-filled syringe</td>
</tr>
</tbody>
</table>

*Catheters should be the shielded type and may be passive or spring-loaded*
Southeast Michigan Medication Exchange and Replacement Procedure

VEHICLE STOCK
A. Each approved ALS unit will carry one GREEN LOCK SEALED Southeast Michigan (SEM) Regional Medication Box and A-Pack (Ancillary Pack). Contents are listed in Pharmacy Appendixes 1 and 2. Only appropriately numbered Medication Boxes and A-Packs issued by the participating Medical Control Authority are to be stocked by participating hospital pharmacies and issued to approved ALS units.
B. Each EMS agency will be responsible for providing any additional equipment required by Michigan Department of Health & Human Services – Bureau of EMS & Trauma (MDHHS).
C. All drugs, needles, syringes, and supplies will be stored in a securely locked and temperature controlled location on each approved unit. Medication Boxes/A-Packs will remain sealed at all times except when in actual use.
D. Medication Boxes/A-Packs are to be inspected daily by the crew of the unit for evidence of loss, theft, discrepancy, and expiration date. Inspection items include, but are not limited to: the Medication Box/A-Pack is locked in a compartment, the green lock is intact, the lock # matches number on the label, and medications are not expired. It is recommended that this inspection be included in a standard documented vehicle checklist.
E. Unopened Medication Boxes/A-Packs are to be exchanged within seven (7) days of the, “Use or Replace By” date.

USE/REPLACEMENT/EXCHANGE
A. Medication Boxes/A-Packs will only be opened by a Paramedic when presented with a patient requiring Advanced Life Support care (when acting on written or transmitted orders from a physician at an appropriate On-Line Medical Control Facility) or the Pre-Medical Control section of approved treatment protocols.
B. Red/Green Lock Procedure for Medication Boxes/A-Packs
1. The Medication Box/A-Pack will be sealed using a green lock bearing the number indicated on the label.
2. After the pharmacy inventory/restocking is complete, a red lock bearing the number indicated on the label will be placed in the Medication Box/A-Pack to be used by the Paramedic to seal the Medication Box/A-Pack after it has been used.
3. When the Medication Box/A-Pack is opened by the Paramedic the broken numbered green lock will be placed in the Medication Box/A-Pack and delivered with the used Medication Box/A-Pack to the replacing pharmacy.
4. After use the Paramedic will seal the Medication Box/A-Pack for exchange with the red lock from the Medication Box/A-Pack bearing the number indicated on the label.
Southeast Michigan Regional Protocol
Medication Section Version: 28 – February 2019
(Discard all previous versions)

SOUTHEAST MICHIGAN MEDICATION EXCHANGE AND REPLACEMENT PROCEDURE

February, 2019

Section 9-6

C. **OPTIONAL (MCA adoption required)** Red/Green/White/ (or Yellow) Lock Procedure for MEDICATION BOXES ONLY
1. After the pharmacy inventory/restocking is complete, a red lock and green lock bearing the respective numbers indicated on the label will be placed in the Medication Box to be used to seal the box after initial inspection (green lock) and after post use inspection (red lock).
2. The Medication Box will be sealed using a white (yellow) lock.
3. After the Medication Box is inspected jointly by the Paramedic and ED/Pharmacy representative the Medication Box will be sealed with the green lock, from the Medication Box, bearing the number indicated on the label.
4. When the Medication Box is opened by the Paramedic, the broken numbered green lock will be placed in the Medication Box and delivered with the used Medication Box to the replacing pharmacy.
5. After use, and after joint inspection of the Medication Box for exchange by the Paramedic and ED/Pharmacy representative, the Paramedic will seal the Medication Box with the red lock from the Medication Box bearing the number indicated on the label.

**MEDICATION BOXES:**

A. All Participating Hospitals will have Medication Boxes/A-Packs, with contents as approved by the participating Medical Control Authorities and MDHHS, available for replacement of supplies used by approved ALS Units. Replacement Medication Boxes/A-Packs will be maintained in a locked area, under the control of hospital staff, which is available 24 hours a day, 7 days a week. This area will be located within the either Emergency Department or Pharmacy of the Participating Hospital. Appropriate record keeping and security measures are required at each exchange site to ensure that only appropriately licensed and authorized personnel have access to medications and other related supplies.

B. Medication Boxes/A-Packs used by approved ALS units for patients transported will be replaced, at the time of the run, by the receiving hospital according to established procedure. Where the receiving facility does not participate in the Regional EMS Medication Exchange System and/or supplies are expended for a patient who subsequently is not transported, the unit will proceed immediately to the Regional Participating Hospital which provided Medical Control for the run to complete replacement. A PCR will be submitted when completed.

C. Use of any supplies contained in the Regional Medication Box/A-Pack will be documented on the Use/Replacement Form for exchange and the PCR of the patient for whom the supplies were used. This includes any medications or supplies prepared for use but not actually administered to the patient.
BOX CLEANING
A. All empty containers, packaging and used materials will be properly disposed of by the ALS crew that used the Medication Box/A-Pack.
B. The EMS crew using standard hard surface decontamination techniques will clean any blood or body fluid contamination to the exterior of the Medication Box.
C. If there is blood or body fluid contamination to the interior of the Medication Box/A-Pack, or to any unused materials or packaging, the EMS crew will clean and dispose of contaminated material. If direction is needed in the cleaning and disposal of contaminated materials the crew can contact the receiving hospital pharmacy.
D. All unused, un-contaminated supplies will be returned to the Medication Box/A-Pack.

THE ALS CREW WILL:
A. For all SEM runs, complete the Use/Replacement Form contained in the Medication Box/A-Pack. The form shall serve as the permanent medical record for drugs administered, and the paramedic will document their MCA Medical Director’s name when any controlled substance is used. For post-radio controlled substance orders, document the ordering physician’s name on the Replacement Form.
B. The ALS crew is responsible for proper distribution of the completed forms.
C. The expended Medication Box/A-Pack (cleaned as described above and red sealed) and the completed Use/Replacement Form will be presented to an appropriate member of the hospital staff who will issue a fresh Medication Box/A-Pack (green seal). A member of the ALS crew and the hospital staff member will complete the exchange log sheet.
D. In the event that controlled substances are prepared for use and not used or the entire contents of a container are not used, the remaining medication will be appropriately wasted by ALS crew member in the presence of licensed hospital personnel/or other ALS crew member. The following will be recorded on the Use/Replacement Form:
   1) The name and amount of the medication wasted.
   2) The initials of the ALS crew member and hospital personnel or other ALS crew member witnessing the waste.
For post-radio controlled substance orders, documentation of waste must be completed before the ordering physician signs the Use/Replacement Form.
E. All requests for information concerning the “Use/Replacement Form” by other agencies are to be directed to the appropriate Medical Control Authority.

EXPIRATION OF DRUGS/SOLUTIONS
A. All items in a SEM Regional Medication Box/A-Pack will have expiration dates not less than 90 days after the Medication Box/A-Pack is prepared.
B. Any unused items bearing expiration dates less than 90 days subsequent shall be removed from the Medication Box/A-Pack and replaced with fresh stock as described in A above.
C. Each Regional Medication Box/A-Pack will have a label securely attached to the outside containing the following information:

1. The name of the participating hospital pharmacy, which restocked the Medication Box/A-Pack.
2. The date the Medication Box/A-Pack was restocked.
3. The printed name and initial of the pharmacist and pharmacy technician that inventoried and restocked the Medication Box/A-Pack.
4. The expiration date is the last day of the month of the earliest expiring medication (with a maximum of one year from the current date). The Medication Box/A-Pack label will include the month/day/year in the “use or replace by” section.
5. The red and green lock numbers.
6. The Medication Box/A-Pack number.

MEDICATION BOXES – ALTERNATIVE PACKAGING AND SHORTAGES:
A. Routinely, participating hospital pharmacies must provide items only in the dosage, concentration, and packaging listed. Use of alternative vendors or manufacturers is acceptable if consistent with the required contents.
B. For products in short supply hospital pharmacies may stock the Medication Boxes/A-Packs with less than a 90-day expiration date.
C. When a medication in alternative packaging is the only product available, place alternative medication, use directions and supplies for medication preparation inside the Medication Box/A-Pack.
D. Attach a sticker to the exterior top of the Medication Box or to the clear side near the bottom of the A-Pack stating the substitution.
E. Directions for specific medications in short supply, throughout the regional exchange system will be addressed through communications with participating pharmacies as approved by the Regional Protocol participating MCAs.

DISCREPANCIES
DEFINITION: For purposes of this policy, a "discrepancy" is any breakage, expiration, shortage, theft or diversion of a Regional Medication Box/A-Pack, or any contents thereof.
A. A standard "MEDICATION DISCREPANCY REPORT" will be completed each time a discrepancy occurs. The form may be initiated by either pre-hospital or hospital staff discovering the discrepancy. The person initiating the report will be responsible for distributing the forms as required.
B. The Medical Control copy of discrepancy reports will be sent to the Medical Control Authority in which the discrepancy occurred, which will serve as the central filing point.
C. A copy of the PCR for the run on which the discrepancy occurred/was discovered is to be attached to each copy of the discrepancy report where applicable.
D. The participating hospital pharmacist is to be notified immediately if controlled substances are involved in a discrepancy. The participating hospital pharmacist will determine if the discrepancy constitutes a diversion of controlled substances. In addition, the following are to be notified of controlled substance diversions:

1. The Medical Control Authority in which the diversion occurred.
2. Drug Enforcement Administration (DEA)
3. Michigan State Board of Pharmacy
4. Appropriate local law enforcement agency (for the jurisdiction where the diversion most likely took place)

E. **The participating hospital pharmacist will be responsible for assuring that all appropriate notifications are made.**

F. If, at any time, an ALS unit has less than the required stock of Medication Box/A-Pack supplies and cannot document use of these supplies in connection with a patient, a discrepancy report must be completed. The completed discrepancy report, along with a completed Use/Replacement Form indicating the EMS Provider Agency Name under "Patient Name" and clearly marked "Replacement for Missing Stock" will be presented to the agency's Base Hospital Pharmacy for replacement. The ALS agency can be held accountable for replacement.
### MEDICATION BOX CONTENTS

<table>
<thead>
<tr>
<th>DRUG/ITEM</th>
<th>CONCENTRATION</th>
<th>PACKAGING</th>
<th>QUANTITY</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acetaminophen</td>
<td>650 mg/20.3 mL</td>
<td>Unit Dose Cup</td>
<td>1</td>
</tr>
<tr>
<td>Adenosine</td>
<td>6 mg/2 mL</td>
<td>2 mL Vial/Syringe</td>
<td>3</td>
</tr>
<tr>
<td>Albuterol</td>
<td>2.5 mg/3 mL</td>
<td>3 mL Vial - UD</td>
<td>6</td>
</tr>
<tr>
<td>Amiodarone</td>
<td>150 mg/3 mL</td>
<td>Amp/Vial</td>
<td>3</td>
</tr>
<tr>
<td>Aspirin</td>
<td>81 mg/tablet</td>
<td>BT/UD – chewable</td>
<td>1 BT or 4 UD tabs</td>
</tr>
<tr>
<td>Atropine</td>
<td>1 mg/10 mL</td>
<td>10 mL Syringe</td>
<td>3</td>
</tr>
<tr>
<td>Calcium Chloride</td>
<td>1 g/10 mL</td>
<td>10 mL Syringe</td>
<td>2</td>
</tr>
<tr>
<td>Dextrose 50%</td>
<td>25 g/50 mL</td>
<td>50 mL Syringe</td>
<td>1</td>
</tr>
<tr>
<td>Diphenhydramine</td>
<td>50 mg/1 mL</td>
<td>1 mL Vial</td>
<td>2</td>
</tr>
<tr>
<td>Epinephrine</td>
<td>1 mg/1 mL</td>
<td>1 mL Amp/Vial</td>
<td>2</td>
</tr>
<tr>
<td>Epinephrine</td>
<td>1 mg/10 mL</td>
<td>10 mL Syringe</td>
<td>7</td>
</tr>
<tr>
<td>Fentanyl</td>
<td>10 mg/1 mL</td>
<td>1 mL Vial</td>
<td>4</td>
</tr>
<tr>
<td>Fentanyl</td>
<td>50 mcg/mL</td>
<td>2 mL Vial/Amp</td>
<td>3</td>
</tr>
<tr>
<td>Ipratropium Bromide</td>
<td>0.02%</td>
<td>2.5 mL Vial - UD</td>
<td>2</td>
</tr>
<tr>
<td>Ketamine</td>
<td>100mg/ml</td>
<td>5mL Vial</td>
<td>4</td>
</tr>
<tr>
<td>Ketorolac</td>
<td>15mg/ml</td>
<td>1mL Vial</td>
<td>1</td>
</tr>
<tr>
<td>Lidocaine</td>
<td>100 mg/5 mL</td>
<td>5 mL Syringe</td>
<td>3</td>
</tr>
<tr>
<td>Lidocaine Gel</td>
<td>2%</td>
<td>Tube 5 mL/30 mL</td>
<td>1</td>
</tr>
<tr>
<td>Magnesium Sulfate</td>
<td>1 g/2 mL</td>
<td>Amp/Vial</td>
<td>4</td>
</tr>
<tr>
<td>Methylprednisolone</td>
<td>125 mg</td>
<td>Vial</td>
<td>1</td>
</tr>
<tr>
<td>Midazolam</td>
<td>5 mg/1 mL</td>
<td>1 mL Vial</td>
<td>1</td>
</tr>
<tr>
<td>Morphine</td>
<td>10 mg/1 mL</td>
<td>1 mL Amp/Vial</td>
<td>2</td>
</tr>
<tr>
<td>Naloxone</td>
<td>2 mg/2 mL or 0.4 mg/mL</td>
<td>4 x 2 mL Syringe or 2 x 10 mL Vial</td>
<td>Total = 8mg</td>
</tr>
<tr>
<td>Nitroglycerin</td>
<td>0.4 mg/tab</td>
<td>Bottle</td>
<td>1</td>
</tr>
<tr>
<td>Ondansetron</td>
<td>2 mg/mL</td>
<td>2 mL Vial</td>
<td>2</td>
</tr>
<tr>
<td>Ondansetron ODT</td>
<td>4mg</td>
<td>Tablet</td>
<td>2</td>
</tr>
<tr>
<td>Prednisone</td>
<td>50 mg tab</td>
<td>50 mg Tab</td>
<td>1</td>
</tr>
<tr>
<td>Racpinephrine 2.25% with 3 mL NS</td>
<td>11.25 mg/0.5 mL</td>
<td>0.5 mL Vial</td>
<td>1</td>
</tr>
<tr>
<td>Sodium Bicarbonate</td>
<td>50 mEq/50 mL</td>
<td>50 mL Syringe</td>
<td>2</td>
</tr>
<tr>
<td>Sodium Chloride</td>
<td>0.9%</td>
<td>50 mL Bag</td>
<td>1</td>
</tr>
<tr>
<td>Sodium Chloride</td>
<td>0.9% Preservative Free</td>
<td>20-30 mL Vial or 10 mL syringes</td>
<td>1</td>
</tr>
<tr>
<td>Alcohol Pad</td>
<td></td>
<td></td>
<td>12</td>
</tr>
<tr>
<td>Incident Report Form</td>
<td></td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>IV Additive Labels</td>
<td></td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>IV Tubing with Y Site Pre-pierced Reseal</td>
<td>60 drops/mL(mini drip)</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Nebulizer</td>
<td></td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>Blunt Cannula</td>
<td>18 G x 1 inch</td>
<td></td>
<td>5</td>
</tr>
<tr>
<td>Filter Needle</td>
<td>18-21 G</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>Intranasal Mucosal Atomization Device</td>
<td>1</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Syringe</td>
<td>20 mL</td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>Syringe</td>
<td>10 mL</td>
<td></td>
<td>5</td>
</tr>
<tr>
<td>Syringe with needle/Luer Lock</td>
<td>1 mL</td>
<td></td>
<td>5</td>
</tr>
<tr>
<td>Syringe with needle</td>
<td>3 mL – 21/22 G x 1.5 inch</td>
<td></td>
<td>5</td>
</tr>
<tr>
<td>Oral Liquid Syringe</td>
<td>10 mL</td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>Needle</td>
<td>18 G x 1.5 inch</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>Red Lock</td>
<td></td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>Replacement Form</td>
<td></td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>Three or Four-Way Stopcock</td>
<td></td>
<td></td>
<td>1</td>
</tr>
</tbody>
</table>

**NOTE:** Participating hospital pharmacies must provide the above listed items only in the dosage, concentration, and packaging shown above. Use of alternative vendors or manufacturers is acceptable if consistent with the required contents.

MCA Name: Oakland County
MCA Board Approval Date: December 7, 2018
MCA Implementation Date: May 1, 2019
Protocol/Source References: BETP EMS Section Approval Date: March 22, 2019
### SEM/EMS Medication Box Contents and Schematic

**Top Shelf**

<table>
<thead>
<tr>
<th>Substance</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Acetaminophen</strong></td>
<td>650 mg/ 20.3 mL Unit dose cup X 1</td>
</tr>
<tr>
<td><strong>Magnesium Sulfate</strong></td>
<td>1 g/ 2 mL Amp/ Vial X 4</td>
</tr>
<tr>
<td><strong>Sodium Chloride 0.9%</strong></td>
<td>Preservative Free (1) 20 – 30 mL Vial or (2) 10 mL prefilled syringe</td>
</tr>
<tr>
<td><strong>Naloxone</strong></td>
<td>2mg/ 2ml Syringe x 2(+ 2 below)</td>
</tr>
<tr>
<td><strong>Misc. Supplies</strong></td>
<td>Alcohol Pad – x 12</td>
</tr>
<tr>
<td><strong>Naloxone</strong></td>
<td>2 mg/ 2 mL or 0.4 mg/ mL 4 x 2 mL Syringe or 2 x 10 mL Vial Total = 8 mg</td>
</tr>
<tr>
<td><strong>Intranasal Mucosal Atomization Device</strong></td>
<td>x 1</td>
</tr>
</tbody>
</table>

**Middle Shelf**

<table>
<thead>
<tr>
<th>Substance</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Amiodarone</strong></td>
<td>150 mg/ 3 mL Amp/ Vial X 3</td>
</tr>
<tr>
<td><strong>Adenosine</strong></td>
<td>6 mg/ 2 mL 2 mL Vial/Syringe X 3</td>
</tr>
<tr>
<td><strong>Epinephrine</strong></td>
<td>1mg/ 1 mL Amp/ Vial X 2</td>
</tr>
<tr>
<td><strong>Diphenhydramine</strong></td>
<td>50 mg/ 1 mL 1 mL Vial X 2</td>
</tr>
<tr>
<td><strong>Lidocaine Gel 2%</strong></td>
<td>Tube 5 mL/ 30 mL X 1</td>
</tr>
<tr>
<td><strong>Ipratropium Bromide 0.02 %</strong></td>
<td>2.5 mL Vial – UD X 2</td>
</tr>
<tr>
<td><strong>Ketorolac</strong></td>
<td>15mg/ml Vial X 1</td>
</tr>
<tr>
<td><strong>Albuterol</strong></td>
<td>2.5 mg/ 3 mL 3 mL Vial – UD X 6</td>
</tr>
<tr>
<td><strong>Neonizer</strong></td>
<td>X 1</td>
</tr>
<tr>
<td><strong>Racepinephrine</strong></td>
<td>2.25 %</td>
</tr>
<tr>
<td><strong>Nitroglycerin</strong></td>
<td>0.4 mg/ Tab Bottle X 1</td>
</tr>
<tr>
<td><strong>Ondansetron</strong></td>
<td>4mg ODT 2 Tabs</td>
</tr>
</tbody>
</table>

**Bottom Shelf**

<table>
<thead>
<tr>
<th>Substance</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Bag of Syringes</strong></td>
<td>Syringe (With needle/ Luer Lock) – 1 mL x 5</td>
</tr>
<tr>
<td><strong>Sodium Bicarbonate</strong></td>
<td>50 mEq/ 50 mL – 50 mL Syringe x 2</td>
</tr>
<tr>
<td><strong>Epinephrine</strong></td>
<td>1 mg/ 10 mL – 10 mL Syringe x 7</td>
</tr>
<tr>
<td><strong>Dextrose 50%</strong></td>
<td>25 g/ 50 mL – 50 mL Syringe x 1</td>
</tr>
<tr>
<td><strong>Epinephrine</strong></td>
<td>1 mg/ 10 mL – 10 mL Syringe x 7</td>
</tr>
<tr>
<td><strong>IV Tubing With Y Site Pre-pierced Reseal</strong></td>
<td>- 60 drops/mL (mini drip) x 2</td>
</tr>
<tr>
<td><strong>Forms</strong></td>
<td>Replacement/ Schematic/ Incident-Discrepancy</td>
</tr>
<tr>
<td><strong>Lidocaine</strong></td>
<td>100 mg/ 5 mL – 5 mL Syringe x 3</td>
</tr>
<tr>
<td><strong>Calcium Chloride</strong></td>
<td>1 g/ 10 mL – 10 mL Syringe x 2</td>
</tr>
<tr>
<td><strong>Atropine</strong></td>
<td>1 mg/ 10 mL – 10 mL Syringe x 3</td>
</tr>
<tr>
<td><strong>Sodium Chloride</strong></td>
<td>0.9 % - 50 mL Bag x 1</td>
</tr>
</tbody>
</table>

**Version:** 28 – February 2019 (Discard all previous versions) Needleless stock only!
## SEM/EMS ACCESSORY PACK (A-PACK) CONTENTS

*Version: 28 – February 2019* (Discard all previous versions)  
Needless stock only!

<table>
<thead>
<tr>
<th>DRUG/ITEM</th>
<th>CONCENTRATION</th>
<th>PACKAGING</th>
<th>QUANTITY</th>
</tr>
</thead>
<tbody>
<tr>
<td>Albuterol</td>
<td>2.5 mg/ 3 mL</td>
<td>3 mL Vial – UD</td>
<td>6</td>
</tr>
<tr>
<td>Aspirin</td>
<td>81 mg/Chewable tablet</td>
<td>UD Tabs</td>
<td>4</td>
</tr>
<tr>
<td>Dextrose 50%</td>
<td>25 g/50 mL</td>
<td>50 mL Syringe</td>
<td>1</td>
</tr>
<tr>
<td>Intranasal Mucosal Atomization Device</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ipratropium Bromide (in baggie)</td>
<td>0.02%</td>
<td>2.5 mL Vial – UD</td>
<td>1</td>
</tr>
<tr>
<td>Naloxone</td>
<td>2 mg/2 mL or 0.4 mg/mL</td>
<td>2x2 mL Syringe or 1x10 mL Vial</td>
<td>Total = 4 mg</td>
</tr>
<tr>
<td>Nitroglycerin</td>
<td>0.4 mg/ Tab</td>
<td>Bottle</td>
<td>1</td>
</tr>
<tr>
<td>Nebulizer</td>
<td></td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>Ondansetron</td>
<td>2 mg/ mL</td>
<td>2 mL Vial</td>
<td>2</td>
</tr>
<tr>
<td>Ondansetron ODT</td>
<td>4mg</td>
<td>Tablet</td>
<td>2</td>
</tr>
<tr>
<td>Prednisone</td>
<td>50 mg tab</td>
<td>50 mg Tab</td>
<td>1</td>
</tr>
<tr>
<td>Blunt Cannula</td>
<td>18 G – 1 inch</td>
<td></td>
<td>2</td>
</tr>
<tr>
<td>Syringe 3 mL with needle</td>
<td>21/22 G x 1.5 inch needle</td>
<td></td>
<td>2</td>
</tr>
<tr>
<td>Red Lock</td>
<td></td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>Replacement Form</td>
<td></td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>Incident Report Form</td>
<td></td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>Three or Four-Way Stopcock</td>
<td></td>
<td></td>
<td>1</td>
</tr>
</tbody>
</table>

### SEM/EMS ACCESSORY PACK (A-PACK) SCHEMATIC

- **Green Lock through zipper and eyelet**

<table>
<thead>
<tr>
<th>Item</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nebulizer (1)</td>
<td></td>
</tr>
<tr>
<td>Nitroglycerin (1)</td>
<td></td>
</tr>
<tr>
<td>Incident Report Form (1)</td>
<td></td>
</tr>
<tr>
<td>Replacement Form (1)</td>
<td></td>
</tr>
<tr>
<td>Ipratropium Bromide 0.02% Vial</td>
<td></td>
</tr>
<tr>
<td>Albuterol 2.5 mg/ 3 mL Vial UD (6)</td>
<td></td>
</tr>
<tr>
<td>Blunt Cannula 18 G x 1 inch (2)</td>
<td></td>
</tr>
<tr>
<td>Prednisone (In baggie) (1)</td>
<td></td>
</tr>
<tr>
<td>Naloxone 2 mg/ 2 mL or 0.4 mg/ mL</td>
<td></td>
</tr>
<tr>
<td>2 x 2 mL Syringe 1 x 10 mL Vial</td>
<td></td>
</tr>
<tr>
<td>Total = 4 mg</td>
<td></td>
</tr>
<tr>
<td>Aspirin 81 mg Tab UD Chewable (4)</td>
<td></td>
</tr>
<tr>
<td>Yellow Pharmacy Label</td>
<td></td>
</tr>
<tr>
<td>Three or Four-Way Stopcock (1)</td>
<td></td>
</tr>
<tr>
<td>Syringe 3 mL with 21 G x 1.5 inch needle</td>
<td></td>
</tr>
<tr>
<td>Red Lock (1)</td>
<td></td>
</tr>
<tr>
<td>Intranasal Mucosal Atomization Device (1)</td>
<td></td>
</tr>
<tr>
<td>Ondansetron 2 mg/ mL - 2 mL vial (2)</td>
<td></td>
</tr>
<tr>
<td>Ondansetron ODT 4mg 2 Tablets</td>
<td></td>
</tr>
</tbody>
</table>
SEM/EMS MEDICATION BOX/PACK INCIDENT/DISCREPANCY FORM

If there is any discrepancy with the contents of this Medication Box or A-Pack, this form **MUST** be filled out by the person(s) who discover the discrepancy. **The participating hospital pharmacist is to be notified immediately if controlled substance(s) are involved in a discrepancy.** The pharmacy must send the form and any supporting documentation to **THE PARTICIPATING MEDICAL CONTROL AUTHORITY WHERE THE INCIDENT/DISCREPANCY OCCURRED.**

<table>
<thead>
<tr>
<th>EMS Agency or Hospital Name:</th>
<th>Date Discovered:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reporting Individual(s) Name(s):</td>
<td></td>
</tr>
<tr>
<td>Witness to Discrepancy:</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>TYPE</th>
<th>BOX OR PACK #</th>
<th>RED SEAL #</th>
<th>GREEN SEAL #</th>
</tr>
</thead>
<tbody>
<tr>
<td>☐ EMS MEDICATION BOX</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>☐ A-PACK</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>☐ OTHER</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**RESTOCKING INFORMATION**

<table>
<thead>
<tr>
<th>Date Last Restocked:</th>
<th>Receiving Hospital:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Restocking Hospital:</th>
<th>Receiving Pharmacist:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Phone #</th>
<th>Phone #</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**PLEASE INDICATE THE NATURE OF THE ISSUE**

<table>
<thead>
<tr>
<th>☐ CONTROLLED SUBSTANCE DISCREPANCY (MUST COMPLETED SECTION BELOW)</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>☐ DAMAGED MEDICATION CONTAINER</td>
<td></td>
</tr>
<tr>
<td>☐ STOCKING ISSUE (MED/SUPPLY)</td>
<td></td>
</tr>
<tr>
<td>☐ CLEANING ISSUE</td>
<td></td>
</tr>
<tr>
<td>☐ DAMAGED EMS MEDICATION BOX/A-PACK</td>
<td></td>
</tr>
<tr>
<td>☐ OTHER</td>
<td></td>
</tr>
</tbody>
</table>

**MEDICATION**

<table>
<thead>
<tr>
<th>MEDICATION</th>
<th>DESCRIPTION STRENGTH/SIZE/VOLUME</th>
<th>QUANTITY # OF VIALS/AMPS</th>
<th>DISCREPANCY MISSING/BROKEN</th>
</tr>
</thead>
<tbody>
<tr>
<td>☐ Fentanyl</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>☐ Morphine</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>☐ Midazolam</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>☐ Naloxone</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>☐ Ketamine</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**EMS RUN INFORMATION**

<table>
<thead>
<tr>
<th>EMS AGENCY</th>
<th>UNIT #</th>
<th>RUN #</th>
<th>MCA</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**ADDITIONAL INFORMATION REGARDING MEDICATION BOX/PACK INCIDENT/DISCREPANCY**

---

This document can be faxed to the appropriate MCA: **Detroit East** 313-745-3653; **Genesee** 810-262-2556; **HEMS** 734-727-7281; **Lapeer** 810-664-0704; **Macomb** 586-792-1429; **Monroe** 734-240-8418; **Oakland** 248-975-9723; **St. Clair** 810-985-3012; **Washtenaw/Livingston** 734-973-4882

---

MCA Name: Oakland County
MCA Board Approval Date: December 7, 2018
MCA Implementation Date: May 1, 2019
Protocol/Source References: BETP EMS Section Approval Date: March 22, 2019
SOUTHEAST MICHIGAN (SEM) REGIONAL

MEDICATION BOX/A-PACK AND IV EXCHANGE PROCEDURES

PLEASE POST IN ALL MEDICATION EXCHANGE AREAS

STEP 1: EMS Personnel must complete a SEM Med Box/A-Pack/IV Supply Use/Replacement Form and/or the SEM IV Supply Use/Replacement Form (EMS Run Report – Genesee County MCA). All information must be complete. Used Medication Boxes/A-Packs must be cleared of contaminated items, cleaned, and sealed appropriately.

STEP 2: Hospital staff reviews form for completeness and receiving prescriber signature (only required for cases in which controlled substances are used). Staff unlocks cabinet and allows removal of appropriate supplies. Both EMS personnel and hospital staff complete the Medication Box/A-Pack and IV Supply Exchange Log. Both EMS and hospital staff ensure that the correct Medication Box/A-Pack numbers are recorded.

STEP 3: The original copy of the SEM Medication Box/A-Pack/IV Supply Use/Replacement Form shall be left in the MCA cabinet. Because the hospital staff person must review the documentation form, it may not be able to be placed in the Medication Box/A-Pack before it is sealed. It will be necessary for the pharmacist to collect all separated Documentation Logs that are stored in the cabinet, when restocking drug boxes.

STEP 4: The MCA cabinet must be re-locked when the exchange is complete.

THESE PROCEDURES ALSO APPLY WHEN ONLY AN IV FLUID/SUPPLY EXCHANGE IS COMPLETED.

NOTE: Receiving Prescriber: Physician, P.A., N.P.
<table>
<thead>
<tr>
<th>DATE</th>
<th>AGENCY NAME</th>
<th>EMS AGENCY RUN #</th>
<th>HOSPITAL RECEIVING STAFF</th>
<th># OF BOX/A-Pack-IN</th>
<th># OF BOX/A-Pack-OUT</th>
<th>IV REPLACEMENT YES OR NO</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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<td></td>
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</tr>
</tbody>
</table>

SEM/EMS REGIONAL PHARMACY EXCHANGE LOG

MCA Name: Oakland County
MCA Board Approval Date: December 7, 2018
MCA Implementation Date: May 1, 2019
Protocol/Source References: BETP EMS Section Approval Date: March 22, 2019
### Documentation of Controlled Substance Waste

**Witness:** __________________________  **Medic:** __________________________

**Needless stock only!**  * Items in both Medication Box and A-Pack

---

**MISCELLANEOUS**

<table>
<thead>
<tr>
<th>MEDICATION</th>
<th>UNIT/SIZE</th>
<th>QNTY</th>
<th>USED</th>
<th>NOTE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alcohol Pads</td>
<td>A-Pack</td>
<td>12</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Incident Report Form*</td>
<td>A-Pack</td>
<td>1 Each</td>
<td></td>
<td></td>
</tr>
<tr>
<td>IV Additive Labels</td>
<td></td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>IV Tubing 60 drops/mL (Minidrip) with Y Site Pre-Pierced Reseal</td>
<td></td>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nebulizer*</td>
<td>A-Pack</td>
<td>1 Each</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Blunt Cannula 18 g – 1 inch *</td>
<td>18 G x 1 inch</td>
<td>A-Pack</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>Filter Needle</td>
<td>18-21 G</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Intransanal Mucosal Atomization Device*</td>
<td>A-Pack</td>
<td>1 Each</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Red Lock*</td>
<td>A-Pack</td>
<td>1 Each</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Replacement Form*</td>
<td>A-Pack</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Syringe 1mL (With needle/Luer Lock)</td>
<td>Syringe 1 mL</td>
<td>5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Syringe 10 mL</td>
<td>Syringe 10 mL</td>
<td>5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Syringe 20 mL</td>
<td>Syringe 20 mL</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Needle</td>
<td>18 G x 1.5 inch</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3 or 4-Way Stopcock*</td>
<td></td>
<td>1 Each</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Syringe w/ needle 3 mL– 21/22 G x 1.5 inch*</td>
<td>Syringe 3 mL</td>
<td>A-Pack</td>
<td>5</td>
<td></td>
</tr>
</tbody>
</table>

**Replacing Hospital:** __________________________

**MCA Medical Director’s Name or post radio ordering physician:** __________________________

(Administered Substance use only) **PRINT NAME** __________________________

**Date:** __________________________

---

**PARAMEDIC’S STATEMENT**

SEM EMS Medication Box number ________ has been opened and the above noted medication(s) used as prescribed.  I accept pharmacy sealed SEM EMS Medication Box Number ________ sealed with breakaway tag number ________

**Paramedic Signature:** __________________________  **Date:** __________________________

---

**REPLACING PHARMACIST’S STATEMENT**

The medications in the sealed SEM EMS Medication Box number ________ have been distributed according to the Medication/Use and Replacement Policy of the participating Medical Control Authority. All medications are in the correct concentration, dosage form, volume, amount, and not expired.

**Name of Pharmacist on the dosage form:** __________________________

**Date:** __________________________  **Hospital:** __________________________

---

**Controlled Substance Use/Replacement Form**

**HOSPITAL:** __________________________  **EMS CREW (Names):** __________________________

**Patient Name:** __________________________  **Patient DOB:** __________________________

**AGENCY/UNIT #:** __________________________  **DATE:** __________________________

**INCIDENT #:** __________________________

**Patient Name:** __________________________  **Date:** __________________________  **HOSPITAL:** __________________________

---

**MEDICATION** | **UNIT/SIZE** | **QNTY** | **USED** | **NOTE**
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Acetaminophen 650 mg/20 mL</td>
<td>Unit dose cup</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Adenosine 6 mg/2 mL</td>
<td>Vial/Syringe 2 mL</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Albuterol 2.5 mg/mL*</td>
<td>Vial - UD 3 mL A-Pack</td>
<td>6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Amiodarone 150 mg/3 mL</td>
<td>Amp/Vial</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Aspirin 81 mg chewable tablets*</td>
<td>X 1 Bottle or 4 UD Tabs A-Pack</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Atropine 1 mg/10 mL</td>
<td>Syringe 10 mL</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Calcium Chloride 1 g/10 mL</td>
<td>Syringe 10 mL</td>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dextrose 50% 25 g/50 mL*</td>
<td>Syringe 50 mL A-Pack</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Diphenhydramine (Benadryl) 50 mg/1 mL</td>
<td>Vial 1 mL</td>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Epinephrine 1 mg/1 mL</td>
<td>Amp/Vial 1 mL</td>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Epinephrine 1 mg/10 mL</td>
<td>Syringe 10 mL</td>
<td>7</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ipratropium Bromide 0.02% (In Baggie)*</td>
<td>2.5 mL Vial - UD A-Pack</td>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ketorolac 15 mg</td>
<td>mls Vial</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lidocaine 100 mg/5 mL</td>
<td>Syringe 5 mL</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lidocaine Jelly 2%</td>
<td>Tube 5 mL/30 mL</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Magnesium Sulfate 1 g/2 mL</td>
<td>Amp/Vial</td>
<td>4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Methylprednisolone 125 mg</td>
<td>Vial</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Naloxone* 2 mg/0.2 mL or 0.4 mg/mL</td>
<td>4 x 2 mL Syringe or 2 x 10 mL Vial Total = 8 mg</td>
<td>4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nitroglycerin* 0.4 mg/tab</td>
<td>Bottle A-Pack</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ondansetron 2 mg/mL*</td>
<td>2 mL vial</td>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ondansetron 4 mg OD<em>T</em></td>
<td>4 mg tab</td>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Prednisone 50 mg tab*</td>
<td>50 mg, tab A-Pack</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Racepinephrine 2.25% 11.25 mg/0.5 mL</td>
<td>0.5 mL Vial &amp; 3 mL NS</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sodium Bicarbonate 50 mL/50 mL</td>
<td>Syringe 50 mL</td>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sodium Chloride 0.9% (Preservative free)</td>
<td>Vial 20-30 mL or 10 mL Syringe</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sodium Chloride 0.9%</td>
<td>Bag 50 mL</td>
<td>1</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

---

**CONTROLLED SUBSTANCES**

<table>
<thead>
<tr>
<th>MEDICATION</th>
<th>UNIT/SIZE</th>
<th>QNTY/DOSE</th>
<th>DOSE GIVEN</th>
<th>DOSE WASTED</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fentanyl 50 mcg/mL</td>
<td>Vial/Amp 2 mL</td>
<td>3 DOSE</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Midazolam 5 mg/1 mL</td>
<td>Vial 1 mL</td>
<td>4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Morphine 10 mg/1 mL</td>
<td>Vial/Amp 1 mL</td>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ketamine 100 mg/mL</td>
<td>Vial 5 mL</td>
<td>1</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

---

**Note:** Please print legibly and clearly.
SEM A-PACK SUPPLY USE/REPLACEMENT FORM

Date: _______  Agency Name: ______________________  Unit #: _________  Inc. #: ___________

Crew Names: ___________________________________________________________________________

Replacing Hospital: ________________________

Paramedic’s Statement

SEM EMS A-Pack #_____ has been opened and the noted medication(s) used as prescribed. I accept pharmacy sealed SEM EMS A-Pack #_____ sealed with breakaway # ________.

Patient Name: _______________________________

Patient DOB: ______________________________

Paramedic Signature: ________________________ Date: ________

Replacing Pharmacist’s Statement

The medication(s) in the sealed SEM EMS A-Pack #_____ has been distributed according to the Medication/Use and Replacement Policy of the participating MCA. All Medications are in the correct concentration, dosage, form, volume, amount, and not expired.

Signature of Replacing Pharmacist: ______________________

Hospital: _________________________________ Date: ________

<table>
<thead>
<tr>
<th>MEDICATION</th>
<th>UNIT/SIZE</th>
<th>QNTY</th>
<th>USED</th>
</tr>
</thead>
<tbody>
<tr>
<td>Albuterol 2.5 mg/ 3 mL</td>
<td>Vial – UD 3 mL</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>Aspirin 81 mg tablets</td>
<td>Chewable UD Tablets</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Dextrose 50% 25 g/50 mL</td>
<td>Syringe 50 mL</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Ipratropium Bromide 0.02% (In Baggie)</td>
<td>2.5 mL Vial – UD</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Naloxone 2 mg/2 mL or 0.4 mg/mL</td>
<td>2 x 2 mL Syringe or 1 x 10 mL Vial</td>
<td>4 mg</td>
<td></td>
</tr>
<tr>
<td>Nitroglycerin 0.4 mg/tab</td>
<td>Bottle</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Ondansetron 2 mg/mL</td>
<td>2 mL Vial</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Ondansetron ODT</td>
<td>4mg Tablet</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Prednisone</td>
<td>50 mg Tablet</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Nebulizer</td>
<td></td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Blunt Cannula</td>
<td>18 G x1 inch</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Intranasal Mucosal Atomization Device</td>
<td></td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Syringe w/needle 3 mL x 21/22 G x 1.5 inch</td>
<td>Syringe 3 mL</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>3 or 4-Way Stopcock</td>
<td></td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Red Lock</td>
<td></td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Replacement/Incident Forms</td>
<td></td>
<td>1ea</td>
<td></td>
</tr>
</tbody>
</table>

Needless Stock Only!  Version 28 – February 2019
Epinephrine Auto-Injector Procedure

Aliases: Epi-Pen ®

Purpose: To allow use of epinephrine auto-injector/pediatric epinephrine auto-injector for life-threatening anaphylaxis by authorized prehospital providers licensed at or above the Emergency Medical Technician level. *If MCA selected, epinephrine auto-injectors are approved for Medical First Responder use.

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.

3. Technique
   A. Epinephrine auto-injector 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: Epinephrine auto-injector (0.3 mg) is used for patients weighing over 32 kg. Pediatric epinephrine auto-injector (0.15 mg) is used for patients weighing at least 10 kg.
   C. Instructions for use are pictured on the side of each auto-injector.
   D. The auto-injector 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 Epinephrine Auto-injector Utilization Form.

5. Accountability
   A. Epinephrine auto-injectors will be stored in a securely locked compartment in a temperature controlled area of the EMS vehicle.
   B. Epinephrine auto-injectors 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.
### Epinephrine auto-injector Utilization Form

(To be used by Hospital)

<table>
<thead>
<tr>
<th>Drug</th>
<th>Standard</th>
<th>Quantity</th>
<th>Count</th>
<th>Exp. Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Epinephrine auto-injector</td>
<td>0.3 mg</td>
<td>1</td>
<td>_____</td>
<td></td>
</tr>
<tr>
<td>Pediatric Epinephrine auto-injector</td>
<td>0.15 mg</td>
<td>1</td>
<td>_____</td>
<td></td>
</tr>
</tbody>
</table>

Run Date __________________________________________________________

Patient Name ______________________________________________________

Physician _________________________________________________________

EMT ______________________________________________________________

Receiving Hospital _______________________________________________
Epi-Auto Injector Exchange

Life support agencies with BLS units, and approved MFR units will acquire and replace Epi-Auto Injectors and Epi-Auto Injector Jr’s as follows:

1. Each life support agency will be responsible for obtaining Epi-Auto Injectors and Epi-Auto Injector Jr’s from an assigned hospital in the Oakland County Medical Control Authority (MCA).

2. Each participating hospital of the OCMCA will acquire Epi-Auto Injectors and Epi-Auto Injector Jr’s for life support agencies. The hospital will determine a reasonable and customary re-stocking fee to charge the LSA.

3. The purchasing hospital will dispose of expired Epi-Auto Injectors at no additional cost.

4. The Epi-Auto Injectors/Epi-Auto Injector Jr’s and Use Form will be placed in a re-sealable plastic bag. A pharmacy label will be affixed to the bag with the expiration date.

5. Epi-Auto Injectors and Epi-Auto Injector Jr’s are to be inspected daily by the crew of the unit for evidence of loss, theft, discrepancy, and expiration date. It is recommended that this inspection be included in a standard documented vehicle checklist.

6. Hospital pharmacy should be notified 30 days prior to expiration date of medication.
**Nebulized Bronchodilators**

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

**Procedure**
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 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 re-disperse the medication.
8. Obtain and record another complete set of vital signs and lung sounds after completion of the treatment.

**Medication Dosage**
1. Administer Albuterol 2.5 mg/3 ml NS nebulized, if available, repeat as indicated.
2. 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.
3. 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/2.5 ml NS nebulized, as needed, if wheezing or airway constriction persists. For patients age 5 or under, Ipratropium .25 mg should be given in conjunction with albuterol.

**Pediatric Considerations**
- Infants and small children may not be able to use adult mouth piece and may need to use blow-by or pediatric mask.
MFR/BLS Opioid Overdose Naloxone Administration (OPTIONAL FOR EACH MFR and BLS LSA)

Indications:
Naloxone is indicated for the complete or partial reversal of opioid induced respiratory depression caused by opioid narcotic medications such as: Heroin, Morphine, Hydromorphone (Dilaudid), Methadone, Meperidine (Demerol), Fentanyl (Sublimaze), Oxycodone (Percocet, Percodan), Hydrocodone (Vicodin, Norco) or Codeine (Tylenol 3, Tylenol 4), and Carfentanil.

Pre-Medical Control
MFR/BLS
1. Follow the General Pre-Hospital Care Protocol.
2. If in cardiac arrest, refer to Cardiac Arrest – General Protocol.
3. If altered mental status due to hypoglycemia, refer to Altered Mental Status Protocol.
4. If respiratory distress or depression (Breathing rate <10/min), support ventilation. Refer to the Respiratory Distress Protocol and the Emergency Airway Procedure.
5. Using a vial access cannula on a 3 mL syringe, draw up 0.4 mg (1 mL) Naloxone 0.4 mg/mL (If using optional Narcan® Nasal Spray, see below. If using optional 2 mg/2mL prefilled syringe, begin with Step 7 “Attach atomizing device to syringe.”)
6. Remove the vial access cannula from the syringe.
7. Attach atomizing device to syringe.
8. Holding the syringe with the atomizing device up, remove excess air from the syringe without wasting the Naloxone.
9. Use one hand to support back of patient’s head, as needed.
10. Place tip of atomizing device snugly against nostril aiming slightly upward and outward.
11. Rapidly administer the entire dose of medication, briskly pushing plunger. If using optional 2 mg/2mL prefilled syringe, rapidly administer 1mg/1mL.
12. Repeat with other nostril if no effect in 3 minutes. Treatment goal is adequate patient breathing effort; the patient need not be woken up completely. Note: Maximal dose per nostril is 1 mL.

Note: Depending on availability, Naloxone may be provided in the MFR/BLS medication Kit as a vial with a drug concentration of 0.4 mg/mL or 1 mg/mL. If the 1 mg/mL form is provided, administer the full (1 mL) vial with each dose independent of concentration.

OPTIONAL:
MFR/BLS
Narcan® Nasal Spray (2mg, single-use, prefilled system) may be used in place of the 0.4 mg/mL vial, and the 2 mg/2mL prefilled syringe.

How to use Narcan® Nasal Spray:
1. Hold the Narcan® Nasal Spray with your thumb on the bottom of the plunger and your first and middle fingers on either side of the nozzle.
2. Tilt the patient’s head back and provide support under the neck with your hand. Insert the tip of the nozzle into one nostril until your fingers on either side of the nozzle are against the bottom of the person’s nose.
3. Press the plunger firmly to give the dose of Narcan® Nasal Spray. Remove the Narcan® Nasal Spray from the nostril after giving the dose.
4. Repeat Step 12 as described above, if indicated.
MFR/BLS Naloxone Kit Contents and Exchange Procedure

The medical control hospital pharmacy will stock the MFR/BLS naloxone kits in accordance with the MFR/BLS naloxone kit contents list.

1. Each life support agency (LSA) will be responsible for obtaining intranasal Naloxone or NARCAN® NASAL SPRAY from the medical control hospital.

2. Each participating hospital of the OCMCA will acquire Intranasal Naloxone or NARCAN® NASAL SPRAY for life support agencies. The hospital will determine a reasonable and customary re-stocking fee to charge the LSA.

3. The medical control hospital will dispose of expired intranasal Naloxone or NARCAN® NASAL SPRAY at no additional cost.

4. The life support agency shall notify the medical control hospital pharmacy 30 days prior to expiration date of the medication.

5. The intranasal Naloxone kit or NARCAN® NASAL SPRAY is to be inspected daily, by the crew of the unit, for evidence of loss, theft, discrepancy and expiration. It is recommended that this inspection be included in a standard documented vehicle check.

MFR/BLS Naloxone Kit Contents List (choose one kit)

<table>
<thead>
<tr>
<th>Medication / Item</th>
<th>Concentration</th>
<th>Packaging</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Naloxone (Narcan)</td>
<td>0.4 mg/1 ml</td>
<td>0.4 mg vial (1ml) or 1 mg vial (1ml)</td>
<td>2</td>
</tr>
<tr>
<td>Luer lock syringe</td>
<td></td>
<td>3 ml</td>
<td>2</td>
</tr>
<tr>
<td>Blunt vial access cannula</td>
<td></td>
<td></td>
<td>2</td>
</tr>
<tr>
<td>Intranasal Mucosal Atomization Device</td>
<td></td>
<td></td>
<td>2</td>
</tr>
<tr>
<td>Replacement Form / Discrepancy Form</td>
<td></td>
<td></td>
<td>1</td>
</tr>
</tbody>
</table>

Or

<table>
<thead>
<tr>
<th>Medication / Item</th>
<th>Concentration</th>
<th>Packaging</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Naloxone (Narcan)</td>
<td>2 mg/2 mL</td>
<td>2mg/2mL Prefilled Syringe</td>
<td>1</td>
</tr>
<tr>
<td>Intranasal Mucosal Atomization Device</td>
<td></td>
<td></td>
<td>2</td>
</tr>
</tbody>
</table>
Oakland County Medications
MFR/BLS NALOXONE KIT CONTENTS AND EXCHANGE PROCEDURE
Date: June, 2018

<table>
<thead>
<tr>
<th>Medication / Item</th>
<th>Concentration</th>
<th>Packaging</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>NARCAN® NASAL SPRAY</td>
<td>2 mg/.1 mL</td>
<td>2 mg</td>
<td>1</td>
</tr>
</tbody>
</table>

Or

<table>
<thead>
<tr>
<th>Medication / Item</th>
<th>Concentration</th>
<th>Packaging</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Replacement Form / Discrepancy Form</td>
<td></td>
<td></td>
<td>1</td>
</tr>
</tbody>
</table>

Procedure:
A. The medications placed in the kits shall be consistent throughout the stock of MFR/BLS naloxone kits as to dosages and concentrations prescribed by the MFR/BLS naloxone kit list.

B. Labels shall be placed over the seal of the naloxone kits, and the label shall include:
   1. Naloxone or Narcan® Nasal Spray kit listed on sticker. Use hospital-produced sticker or the drug box yellow sticker.
   2. The name of the hospital pharmacy that last restocked the naloxone or Narcan® Nasal Spray kit.
   3. The date the kit was last restocked.
   4. The legible initials of the pharmacist who inventoried and stocked the naloxone or Narcan® Nasal Spray kit.
   5. The earliest date at which the medication would expire.

C. The sealed naloxone or Narcan® Nasal Spray kits will be placed in a locked storage area in the participating hospital ED or location designated by the participating hospital pharmacy. Only staff designated by the participating pharmacy will have access to the kits. A permanent record shall be maintained indicating the number on the kit, the name of the MFR/BLS Service for which the kit was issued and the name of the pharmacy designated staff or pharmacist receiving or dispensing the kit.

D. Each MCA MFR/BLS Service will stock each of its MFR/BLS units with a MFR/BLS Naloxone or Narcan® Nasal Spray kit. The kit must be stored in a temperature-controlled environment. In addition, each service will stock sufficient additional MFR/BLS Naloxone or Narcan® Nasal Spray kits to restock anticipated usage for a minimum of 24 hours. MFR/BLS Unit Naloxone or Narcan® Nasal Spray kits, which are used, will be replaced by those in stock at the MFR/BLS Service station. Used kits will be exchanged for new kits, when convenient at the medical control hospital designated to provide kit exchanges for the MFR/BLS Service.

E. The EMS patient care record (PCR) shall serve as a permanent medical record of physician orders for medications administered.
F. When medications from the kit are used or whenever the pharmacy seal on the kit is broken, the MFR/BLS provider will place a copy of the MCA MFR/BLS Naloxone kit Replacement Form, including patient name, in the MFR/BLS Naloxone kit. Any unused medication or unused equipment will be left in the Naloxone kit with the Replacement Form.

G. The used kit will be exchanged for a pharmacy-sealed kit at the medical control hospital or the MFR/BLS Service station. Once sealed by the pharmacist, the exchanged kit will not be opened by the MFR/BLS personnel prior to necessity for use.

H. Any discrepancies in the MFR/BLS naloxone kit will be documented on the MFR/BLS Medication Discrepancy Form. If a discrepancy is discovered by the MFR/BLS personnel at the time of use, the report form shall be co-signed by another EMS crew member. Hospital pharmacists who note discrepancies in the naloxone kit inventory, which cannot be accounted for by the MFR/BLS Naloxone kit Replacement Form, shall initiate and sign the discrepancy report. Copies of the discrepancy reports along with copies of the EMS run report are sent to the MCA and the MFR/BLS Service responsible for evaluation and follow up and will retain the records for one year. The original is retained by the hospital pharmacy. Medications that are contaminated, lost through spillage or partially used must be accounted for on the EMS patient care record by MFR/BLS personnel and co-signed by another crewmember.

I. Locked and secure compartments or other locking devices approved by the Department shall be provided on the EMS vehicle and utilized to prevent access to stored medications by unauthorized persons. Additional MFR/BLS Naloxone or Narcan® Nasal Spray kits, which are stored at the MFR/BLS Service Station must also be locked using compartments or devices approved by the department.
MFR/BLS Naloxone Kit Replacement Form

AGENCY/UNIT___________________ DATE__________ INCIDENT #_________

EMS CREW (NAMES) ______________________________

<table>
<thead>
<tr>
<th>Medication</th>
<th>Unit/Size</th>
<th>Quantity</th>
<th>Used</th>
</tr>
</thead>
<tbody>
<tr>
<td>Naloxone (Narcan)</td>
<td>0.4 mg/mL vial or 1 mg/mL vial</td>
<td>2 vials</td>
<td></td>
</tr>
<tr>
<td>Luer lock syringe</td>
<td>3 mL</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Blunt vial access Cannula</td>
<td></td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Intranasal Mucosal Atomization Device</td>
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<tr>
<td>Replacement Form</td>
<td></td>
<td>1</td>
<td></td>
</tr>
</tbody>
</table>

or

<table>
<thead>
<tr>
<th>Medication / Item</th>
<th>Concentration</th>
<th>Quantity</th>
<th>Used</th>
</tr>
</thead>
<tbody>
<tr>
<td>Naloxone (Narcan)</td>
<td>2mg/2mL</td>
<td>1 prefilled syringe</td>
<td></td>
</tr>
<tr>
<td>Replacement Form / Discrepancy Form</td>
<td></td>
<td>1</td>
<td></td>
</tr>
</tbody>
</table>

or

<table>
<thead>
<tr>
<th>Medication / Item</th>
<th>Concentration</th>
<th>Quantity</th>
<th>Used</th>
</tr>
</thead>
<tbody>
<tr>
<td>NARCAN® NASAL SPRAY</td>
<td>2 mg/.1 mL</td>
<td>1 package</td>
<td></td>
</tr>
<tr>
<td>Replacement Form / Discrepancy Form</td>
<td></td>
<td>1</td>
<td></td>
</tr>
</tbody>
</table>

Patient Name: _____________________ Restocking Hospital: _____________________

MFR/BLS Statement

MFR/BLS Naloxone kit Number ___________ has been opened and the above noted medication(s) used as prescribed. This kit has been sealed with a Used Kit sticker.

Use this table to document medication that has been opened and not used or opened and wasted.

<table>
<thead>
<tr>
<th>Medication</th>
<th>Unit/Size</th>
<th>Quantity</th>
<th>Not Used/Wasted</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

EMS Provider Signature: ______________________________ Date: ______________________________
**OCMCA MFR/BLS Naloxone Kit Incident/Discrepancy Form**

If there is any discrepancy with the contents of this naloxone kit, this form MUST be filled out by the person(s) who discover the discrepancy. The Life Support Agency shall maintain a copy of this for their records as well as send a copy to the OCMCA, the original shall be placed with the naloxone kit and the pharmacy must send the form and any supporting documentation to THE PARTICIPATING MEDICAL CONTROL AUTHORITY WHERE THE INCIDENT/DISCREPANCY OCCURRED.

<table>
<thead>
<tr>
<th>EMS Agency or Hospital Name:</th>
<th>Date Discovered:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reporting Individual(s) Name(s):</td>
<td></td>
</tr>
<tr>
<td>Witness to Discrepancy:</td>
<td></td>
</tr>
</tbody>
</table>

**TYPE**

- [ ] MFR/BLS Naloxone kit

**RESTOCKING INFORMATION**

- Date Last Restocked: [ ]
- Restocking Hospital: [ ]
- Phone #: [ ]

**RECEIVING INFORMATION**

- Receiving Hospital: [ ]
- Receiving Pharmacist: [ ]
- Phone #: [ ]

**PLEASE INDICATE THE NATURE OF THE ISSUE**

- [ ] DAMAGED MEDICATION CONTAINER
- [ ] MISSING MEDICATION(S)
- [ ] STOCKING ISSUE (MED/SUPPLY)

**MEDICATION**

<table>
<thead>
<tr>
<th>MEDICATION</th>
<th>DESCRIPTION</th>
<th>QUANTITY # OF VIALS/AMPS</th>
<th>DISCREPANCY MISSING/BROKEN</th>
</tr>
</thead>
<tbody>
<tr>
<td>□ Naloxone</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>□ NARCAN NASAL SPRAY</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**EMS RUN INFORMATION**

<table>
<thead>
<tr>
<th>EMS AGENCY</th>
<th>UNIT #</th>
<th>RUN #</th>
<th>MCA</th>
</tr>
</thead>
</table>

**ADDITIONAL INFORMATION REGARDING MEDICATION BOX/PACK INCIDENT/DISCREPANCY**

This document should be faxed to the appropriate MCA: **Oakland 248-975-9723**
2-Pam Chloride/DuoDote

Protocols:
1. Nerve Agent Organophosphate exposure

Indications:
1. Exposure to organophosphate or nerve agents
2. Given in conjunction with atropine in DuoDote or Mark-1 kit

Contraindications:
1. None

Dosing:
1. Self-Rescue – 1 DuoDote (Mark-1) Injector
2. Mild Reaction
   a. Adults (8 years and over) – 1 DuoDote (Mark-1) Injector
   b. Pediatrics – Contact Medical Control
3. Moderate Reaction
   a. Adults (8 years and over) – 2 DuoDote (Mark-1) Injectors
   b. Pediatrics – Contact Medical Control
4. Severe Reaction
   a. Adults (8 years and over) – 3 DuoDote (Mark-1) Injector
   b. Pediatrics – 1 DuoDote (Mark-1) Injector, Contact Medical Control as needed

Expected Effects:
1. Decrease in symptoms

Side Effects:
1. Blurred vision
2. Headache
3. Dizziness
4. Nausea
Acetaminophen

Protocols:
1. Pediatric Fever
2. Pain Management (per MCA selection)

Indications:
1. Fever
2. Mild pain

Contraindications:
1. Hypersensitivity
2. Known severe acute liver disease

Dosing:
1. Adults – 15 mg/kg PO, maximum dose 1 gm
2. Pediatrics – 15 mg/kg PO, maximum dose 500 mg

Expected effects:
1. Decrease temperature
2. Pain Relief

Side effects:
1. Nausea/vomiting
Adenosine (Adenocard)

Protocols:
1. Tachycardia (Adult and Pediatric)

Indications:
2. Consider for regular or wide complex tachycardia.

Contraindications:
1. Sick sinus syndrome
2. Hypersensitivity to adenosine
3. 2nd or 3rd degree heart block

Dosing:
1. Adult
   a. 6 mg rapid IV/IO push over 1-3 seconds
   b. Repeat at 12 mg after 1-2 minutes, if no conversion
   c. Medication should be followed by a rapid 30 ml NS bolus

2. Pediatric
   a. 0.1 mg/kg IV/IO rapid bolus. (Max dose 6 mg)
   b. Repeat at 0.2 mg/kg after 2 minutes (Max dose 12 mg)
   c. Medication should be followed by rapid 5-10 ml NS flush

Expected Effects:
1. Slowed conduction through the AV node
2. Conversion to NSR

Side Effects:
1. Hypotension
2. Flushing
3. Dyspnea
4. Light-headedness
5. Nausea
Albuterol (Ventolin®)

Protocols:
1. Nebulized Bronchodilators
2. Crush Injury
3. Adult and Pediatric Respiratory Distress
4. Adult and Pediatric Allergic Reaction/Anaphylaxis

Indications:
1. Bronchospasm (wheezing)
2. Crush injury syndrome with evidence of hyperkalemia

Contraindications:
1. Hypersensitivity to albuterol

Dosing:
1. Adults and pediatric
   a. 2.5 mg in 3 ml NS via nebulizer

Expected Effects:
1. Dilated bronchi
2. Improvement in capnographic waveform (if available)
Amiodarone (Cordarone)

Protocols:
1. General Cardiac Arrest – Adult and Pediatric
2. Tachycardia - Adult

Indications:
1. Recurrent ventricular fibrillation or recurrent pulseless ventricular tachycardia
2. Recurrent hemodynamically unstable ventricular tachycardia
3. Stable ventricular tachycardia in consultation with online medical control

Contraindications:
1. Hypersensitivity to Amiodarone

Dosing:
1. Adult
   a. Cardiac Arrest – persistent shockable rhythm
      i. 300 mg IV/IO
      ii. May repeat one time at 150 mg IV/IO
   b. Tachycardia
      i. Wide complex symptomatic but stable
      ii. 150 mg IV over 10 minutes
2. Pediatric – Persistent shockable rhythm in cardiac arrest
   a. 5 mg/kg IV/IO
   b. Max dose 300 mg
   c. May be repeated up to 2 more times (max total dose 15 mg/kg or 450 mg total)

Expected Effects:
1. Prolongs refractory period
2. Inhibits alpha and beta adrenergic stimulation

Side Effects:
1. Prolonged QT
2. Vasodilation
3. Hypotension
Aspirin

Protocols:
   1. Chest Pain/Acute Coronary Syndrome

Indications:
   1. Suspected cardiac chest pain
   2. Suspected Myocardial Infarction

Contraindications:
   1. Hypersensitivity to aspirin or nonsteroidal anti-inflammatories

Dosing:
   1. Adult Only Medication
      a. 324-325 mg chewable tablet PO
Atropine

Protocols:
1. Bradycardia (Adult and Pediatric)
2. Poisoning
3. Nerve Agents/Organophosphate exposure

Indications:
1. Symptomatic bradycardia with a suspected vagal origin
2. Exposure to organophosphates or other nerve agents

Contraindications:
1. Known hypersensitivity (no absolute contraindications)

Dosing:
1. Symptomatic Bradycardia
   a. Adult:
      i. Administer 0.5 mg IV/IO every 3-5 minutes
      ii. Max dose 3 mg
   b. Pediatric:
      i. Given ONLY if primary AV block, or if bradycardia is unresponsive to oxygenation, ventilation and epinephrine.
      ii. Administer 0.01-0.02 0.02 mg/kg IV/IO
      iii. Minimum single dose 0.1 mg
      iv. Maximum single dose 1 mg
      v. Repeat prn in 5 minutes, maximum total dose 3 mg

2. Organophosphate/Nerve Agent Exposures
   a. Adults
      i. 2-6 mg IV/IM per Mark 1 Kit Dosing Directive (each kit contains 2 mg of atropine)
      ii. If kit is not available administer 2-6 mg IV/IM as needed
   b. Pediatrics
      i. Infant 0.05-0.1 mg/kg IM/IV/IO (0.2-1 mg), Pediatric Atropen or Vial
      ii. Child 1-4 mg IM/IV/IO, Pediatric Atropen, Vial, or Mark 1

Expected Effects:
1. Increased heart rate
2. Dilated pupils
**Dextrose**

**Protocols:**
1. Adult and Pediatric Seizures
2. Adult and Pediatric Altered Mental Status

**Indications:**
1. Hypoglycemia
2. Altered mental status in the absence of a glucometer

**Contraindications:**
None

**Concentration:**
1. Dextrose 10% 25 gm in 250 ml
2. Dextrose 12.5% (for patients up to 2 months of age)
   a. Created by expelling 37.5 ml from Dextrose 50% 50 ml syringe and drawing up 37.5 ml of NS
   b. Creates 6.25 gm/50 ml concentration of 12.5%
3. Dextrose 25% (for patients between 2 months and 6 years of age)
   a. Created by expelling 25 ml from Dextrose 50% 50 ml syringe and drawing up 25 ml of NS
   b. Creates 12.5 gm/50 ml concentration of 25%
4. Dextrose 50% (prefilled syringe of 25 gm in 50 ml)

**Dosing (ensure patent IV):**
1. Pediatric (weight based)
   a. 3-5 kg, Dextrose 12.5%, dose: 2.5g, Volume: 20mL or Dextrose 10%, 25 ml
   b. 6-7 kg, Dextrose 25%, dose: 3.25g, volume 13 mL or Dextrose 10%, 33 ml
   c. 8-9 kg, Dextrose 25%, dose: 4.25g, volume 17 mL or Dextrose 10%, 43 ml
   d. 10-11 kg, Dextrose 25%, dose: 5g, volume 20 mL or Dextrose 10%, 50 ml
   e. 12-14 kg, Dextrose 25%, dose 6.25g, volume 25 mL or Dextrose 10%, 63 ml
   f. 15-18 kg, Dextrose 25%, dose 8 g, volume 32 mL or Dextrose 10%, 80 ml
   g. 19-23 kg, Dextrose 25%, dose 10g, volume 40 mL or Dextrose 10%, 100 ml
   h. 24-29 kg, Dextrose 50%, dose 12.5g, volume 25 mL or Dextrose 10%, 125 ml
   i. 30-36 kg, Dextrose 50%, dose 15g, volume 30 mL or Dextrose 10%, 150 ml
2. Adult
   a. Dextrose 50%, 25 gm, 50 ml
   b. Dextrose 10%, 25 gm, 250 ml

**Incompatibilities/Drug Interactions:**
1. Sodium bicarbonate
2. Diazepam will precipitate if given concurrently without flushing
Calcium Chloride

Protocols:
1. Poisoning/Overdose
2. Crush Injury
3. Cardiac Arrest General – Adult

Indications:
1. Cardiac arrest in the renal failure patient
2. Calcium channel blocker toxicity
3. Crush Injury with suspected hyperkalemia

Precautions:
1. May precipitate digitalis toxicity
2. Extremely important to flush IV line fully after administration

Dosing:
1. Cardiac Arrest
   a. Adult:
      i. 1 gm slow IV
2. Calcium channel blocker toxicity
   a. Adult: 0.5 – 1 gm IV
3. Crush Injury
   a. Adult: 1 gm slow IV over 5 minutes, after extrication

Expected Effects:
1. Increased force of myocardial contraction
2. Rise in arterial pressure
Diphenhydramine (Benadryl ®)

Protocols:
1. Anaphylaxis/Allergic reaction
2. Poisoning/overdose

Indications:
1. Anaphylaxis
2. Mild or moderate allergic reaction
3. Urticaria

Contraindications:
1. Lower respiratory distress
2. Hypersensitivity to diphenhydramine

Dosing:
1. Adult: 50 mg IM or IV
2. Pediatric: 1-1.5 mg/kg IM or IV

Expected Effects:
1. Antihistamine, decreased urticarial, itching
2. Drowsiness
**Epinephrine**

**Protocols:**
1. Anaphylaxis/Allergic Reaction
2. Shock
3. Respiratory Distress (Adult)
4. Pediatric Respiratory Distress, Failure, or Arrest
5. Adult Cardiac Arrest – General
6. Adult Bradycardia
7. Pulmonary Edema/CHF
8. Return of Spontaneous Circulation
9. Pediatric Cardiac Arrest - General
10. Pediatric Bradycardia
11. Neonatal Assessment and Resuscitation

**Indications:**
1. Anaphylaxis
2. Bradycardia
3. Respiratory distress
4. Hypotension
5. Cardiac arrest

**Contraindications:**
1. No contraindications in critical patients

**Dosing:**

1. Epinephrine auto-injector (Protocols 1, 3, 4, MFR per MCA selection in protocol 1)
   - Adults 0.3 mg, IM
   - Pediatrics
     - 0.15 mg, IM
     - Pediatric auto-injector indicated for patients greater than 10 kg and less than 30 kg
2. Epinephrine 1mg/1mL (Protocols 1, 3, 4)
   - Adults 0.3 mg IM
   - Pediatrics
     - For patients less than 10 kg contact medical control prior to administration
     - For patients greater than 10 kg, administer 0.01 mg/kg, up to 0.3 mg
3. Nebulized (Protocol 4)
   - Racepinephrine 2.25%
     - Place 0.5 mL in nebulizer
     - Dilute with 3 mL normal saline
   - Epinephrine (1mg/1mL), 5 mL (5 mg) nebulized
4. Epinephrine 1mg/10mL
a. IV Bolus (Protocols 5, 9, 10, 11)
   i. Adults 1 mg every 3 to 5 minutes in cardiac arrest
   ii. Pediatrics 0.01 mg/kg (0.1mL/kg)

b. Push dose (Protocols 2, 6, 8)
   i. Prepare by combining 1 mL of Epinephrine 1 mg/10 mL with 9 mL NS
   ii. Adults
       1. Administer 10-20 mcg (1-2 mL Epinephrine 10 mcg/mL)
       2. Repeat every 3 to 5 minutes
       3. Titrate to SBP greater than 90 mm/Hg
   iii. Pediatrics
       1. Administer 1 mcg/kg (0.1 mL/kg Epinephrine 10 mcg/mL)
       2. Maximum dose 10 mcg (1 mL)
       3. Repeat every 3-5 minutes

**Expected Effects:**
1. Decreased wheezing
2. Increased BP
3. Increased HR
Fentanyl

Protocols:
1. Intranasal Medication Administration
2. Pain Management
3. Patient Sedation

Indications:
1. Pain management
2. Patient sedation

Contraindications:
1. Altered Mental Status
2. Hypotension
3. Respiratory Depression
4. Hypersensitivity to Fentanyl

Dosing:
1. Adult
   a. 1 mcg/kg
   b. Single dose up to 100 mcg
   c. May repeat, up to a max dose of 200 mcg
2. Pediatric
   a. 1 mcg/kg
   b. Single dose up to 40 mcg (otherwise dose as adult)
   c. May repeat, total dose up to 80 mcg

Expected Effects:
1. Decreased pain
2. Decreased agitation

Side Effects:
1. Drowsiness
2. Hypotension
3. Respiratory Depression
4. Vomiting

Special Notes:
1. Naloxone will reverse the effect of Fentanyl
2. Administration with Ondansetron for nausea is encouraged
Hydromorphone

Protocols:
1. Pain Management (MCA Selection)

Indications:
1. Severe pain with extended transport time

Contraindications:
1. Hypersensitivity
2. Hypotension
3. Hypovolemia

Dosing:
1. Adults only 0.5 mg IV/IM
2. IV dose must be administered slowly, over 2 minutes
3. May repeat one time

Expected Effects:
1. Decreased pain

Side Effects:
1. Respiratory depression
2. Hypotension
3. Altered mental status
Michigan
MEDICATION SECTION
CYANOKIT ® (HYDROXOCOBALAMIN)

Cyanokit ® (Hydroxocobalamin)

Protocols:
1. Cyanide Exposure Supplement Protocol

Indications:
1. Known or suspected cyanide poisoning

Contraindications:
1. Hypersensitivity to hydroxocobalamin or cyanocobalamin
2. Can not be administered in the same line as dopamine or fentanyl

Dosing:
1. A two vial kit with 2.5g of hydroxocobalamin each in powder form which must be reconstituted with 100mL of normal saline each, rotated or tipped for 30 seconds each (not shaken) and then administered through its own IV line (not used with any other medications) over 7.5 minutes each.
2. A one vial kit with 5g of hydroxocobalamin powder which must be reconstituted with 200mL of normal saline, be rotated or tipped for 60 seconds (not shaken) and administered through its own IV line (not used with any other medication) over 15 minutes.
3. The starting dose of hydroxocobalamin for adults is 5g (i.e., two 2.5g vials OR one 5g vial) administered as an intravenous (IV) infusion over 15 minutes.
4. Pediatrics:

<table>
<thead>
<tr>
<th>TWO VIAL KIT (2.5G/100ML)</th>
<th>ONE VIAL KIT (5G / 200ML)</th>
</tr>
</thead>
<tbody>
<tr>
<td>AGE GROUP</td>
<td>AMOUNT</td>
</tr>
<tr>
<td>INFANT / TODDLER (0-2YEARS)</td>
<td>¼ BOTTLE</td>
</tr>
<tr>
<td>PRESCHOOL (3-5 YEARS)</td>
<td>½ BOTTLE</td>
</tr>
<tr>
<td>GRADE SCHOOL (6-13 YEARS)</td>
<td>1 BOTTLE</td>
</tr>
<tr>
<td>ADULT &gt;14YEARS</td>
<td>2 BOTTLES (ENTIRE KIT)</td>
</tr>
</tbody>
</table>

Expected Effects:
1. Increased blood glucose

Side Effects:
1. Nausea
2. Vomiting
3. Abdominal pain
4. Red colored urine, skin, mucus membranes
5. Rash
**Ipratropium Bromide (Atrovent ®)**

**Protocols:**
1. Nebulized Bronchodilators

**Indications:**
1. Bronchial asthma
2. Bronchospasm in emphysema
3. Chronic bronchitis
4. Other wheezing in adults and pediatrics

**Contraindications:**
1. Hypersensitivity to ipratropium bromide
2. Hypersensitivity to atropine or its derivatives

**Dosing:**
1. Adult: 500 mcg/3 ml combined with Albuterol 2.5 mg/3ml, nebulized
2. Pediatric: For children aged 5 or under, Ipratropium 250 mcg should be given

**Expected Effects:**
1. Decreased wheezing
2. Decreased respiratory distress

**Side Effects:**
1. Palpitations
2. Dry Mouth
3. Anxiety
Ketamine

Protocols:
1. Excited Delirium
2. Patient Sedation
3. Pain Management
4. Patient Restraint

Indications:
1. Patients with excited delirium
2. Agitation
3. Significant pain

Contraindications:
1. Known hypersensitivity

Dosing:
1. Excited Delirium
   a. Adults only – 4 mg/kg IM
2. Patient Sedation
   a. Adults and Pediatrics
      i. 0.5 mg/kg IN, if available or
      ii. 0.2 mg/kg IV/IO
      iii. Maximum single dose 25 mg
      iv. May repeat after 10-15 minutes to a maximum dose of 2 mg/kg
3. Pain Management
   a. Adults and Pediatrics
      i. 0.5 mg/kg IN, if available or
      ii. 0.2 mg/kg IV/IO
      iii. Maximum single dose 25 mg
      iv. May repeat after 10-15 minutes to a maximum dose of 2 mg/kg
4. Patient Restraint
   a. Adults only – 4 mg/kg IM or IN

Expected Effects:
1. Sedation
2. Decreased agitation
3. Decreased pain

Side Effects:
1. Nausea/vomiting
2. Nystagmus
**Ketoralac (Toradol ®)**

**Protocols:**
1. Pain Management (per MCA selection)

**Indications:**
1. Mild to moderate pain

**Contraindications:**
1. Allergies to NSAIDs
2. Active labor or women who are breastfeeding
3. Renal impairment
4. Bleeding or high risk of bleeding
5. Pregnancy

**Dosing:**
1. Adults – 15 mg IM/IV
2. Pediatrics – 1 mg/kg IM/IV (max dose 15 mg)

**Expected effects:**
1. Pain Relief

**Side effects:**
1. Nausea/vomiting
2. Bloating
**Lidocaine**

**Protocols:**
1. Adult Cardiac Arrest – General (MCA Selection)
2. Adult and Pediatric Tachycardia (MCA Selection)
3. Vascular Access & IV Fluid Therapy (IO placement)

**Indications:**
1. Alternative to amiodarone in cardiac arrest from VF/VT
2. Alternative to amiodarone in pulsatile VT
3. As an anesthetic agent when administering medications via intraosseous route

**Contraindications:**
1. Hypersensitivity to lidocaine
2. Bradycardia or heart block

**Dosing:**
1. Cardiac Arrest (Adult) 100 mg IV/IO
2. Wide complex tachycardia
   a. Adults: 1 mg/kg
   b. Pediatric: 1 mg/kg (only with medical direction)
   c. May repeat after 5-10 minutes to a maximum of 3 mg/kg
3. For conscious patients with pain from IO infusion
   a. Adults: 20 mg IO
   b. Pediatrics: 0.5 mg/kg, maximum dose 20 mg

**Expected Effects:**
1. Increased VF threshold
2. Decreased ventricular irritability
3. Decreased pain with infusion


**Magnesium Sulfate**

**Protocols:**
1. Adult Cardiac Arrest - General
2. Adult Tachycardia
3. Adult Respiratory Distress
4. Adult Seizures

**Indications:**
1. Suspected Torsades de Pointes
2. VF/VT in hypomagnesemia
3. Seizures secondary to toxemia of pregnancy
4. Asthma exacerbation not responding to first line treatments

**Contraindications:**
1. Hypersensitivity to magnesium sulfate
2. Should not be given for 2 hours preceding delivery

**Dosing:**
1. Cardiac Arrest (and Wide Complex Tachycardia)
   a. 2 grams diluted in 10 ml NS
   b. Administered IVP
2. Asthma exacerbation (refractory)
   a. 2 grams diluted in 10 ml normal saline
   b. Administered over 10 to 20 minutes
   c. Administer with open line of normal saline
3. Seizures in pregnancy
   a. 4 grams diluted in 20 ml
   b. Administered over 10-20 minutes
   c. Administer with open line of normal saline

**Expected Effects:**
1. Seizure cessation
2. Decreased respiratory distress

**Side Effects:**
1. Respiratory depression
2. Hypotension
3. Asystole
4. Burning in IV site for conscious patients
Methyprednisolone

Protocols:
1. Anaphylaxis/Allergic Reaction
2. Adrenal Crisis
3. Adult Respiratory Distress
4. Pediatric Respiratory Distress, Failure, or Arrest

Indications:
1. Allergic reactions
2. Airway inflammation
3. Reactive airway disease
4. Acute adrenal insufficiency

Contraindications:
1. Hypersensitivity to methyprednisolone (or similar)
2. Inability to swallow (by age or patient status)

Dosing:
1. Adult 125 mg IV/IO/IM
2. Pediatrics 2 mg/kg IV/IO/IM (max dose 125mg)

Expected Effects:
1. Decreased inflammation

Side Effects:
1. Dizziness
2. Nausea/vomiting
Midazolam (Versed ®)

Protocols:
1. Adult and Pediatric Seizures
2. Excited Delirium
3. Heat Emergencies
4. Patient Restraint
5. Patient Sedation
6. Nerve agent/Organophosphate Pesticide Exposure

Indications:
1. Adult or pediatric seizures
2. Sedation for patients receiving electrical therapy
3. Excited delirium or severe agitation to enable assessment and/or treatment

Contraindications:
1. Hypersensitivity to midazolam
2. Shock

Dosing:
1. Seizures
   a. Adults
      i. 10 mg IM
      ii. 5 mg IV/IO
      iii. May repeat with medical direction
   b. Pediatrics
      i. 0.1 mg/kg IM (maximum dose 10 mg)
      ii. 0.05 mg/kg IV/IO (maximum dose 5 mg)
      iii. May repeat with medical direction
2. Excited Delirium and Chemical Restraint (Adults ONLY)
   a. 10 mg IM or
   b. 5 mg IN
3. Patient Sedation (and for tremors in heat emergencies)
   a. Adults
      i. 1-5 mg IV/IO/IN (0.05 mg/kg)
      ii. Titrated slowly
      iii. May repeat once in 5 minutes to a maximum of 0.1 mg/kg
   b. Pediatrics
      i. 0.05 mg/kg IV/IO (max single dose 5 mg)
      ii. Titrated slowly
      iii. May repeat once in 5 minutes to a maximum of 0.1 mg/kg

Expected Effects:
1. Seizure cessation
2. Sedation

Side Effects:
1. Respiratory depression
2. Hypotension
**Morphine**

**Protocols:**
1. Pain Management (MCA Selection)
2. Medication Substitution

**Indications:**
1. Severe pain

**Contraindications:**
1. Hypersensitivity to morphine
2. Hypotension

**Dosing:**
1. 0.1 mg/kg
   a. Adults max single dose 10 mg
   b. Pediatrics administer no more than 1 mg in a single dose
2. May repeat
   a. Adults up to 20 mg
   b. Pediatrics up to total dose of 5 mg

**Expected Effects:**
1. Decreased pain

**Side Effects:**
1. Respiratory depression
2. Hypotension
**Naloxone (Narcan ®)**

**Protocols:**
1. Adult and Pediatric Altered Mental Status
2. Pediatric Respiratory Distress, Failure, or Arrest
3. Poisoning/Overdose
4. Naloxone Administration

**Indications:**
1. Known opioid overdose with respiratory depression
2. Respiratory depression or arrest of unknown or suspicious origin

**Contraindications:**
1. Hypersensitivity to naloxone

**Dosing:**
1. For MFR and EMT-Basic (Per MCA selection)
   a. 0.4 mg IN
   b. 2.0 mg pre-filled syringe IN
   c. 4.0 mg intranasal spray
2. For Specialist and Paramedic
   a. 0.4 mg IN/IM/IV/IO
   b. Repeat as needed
   c. May need larger doses dependent on substance
3. Pediatrics (Specialist and Paramedics Only)
   a. 0.1 mg/kg IV/IO/IM
   b. Max dose 2 mg

**Expected Effects:**
1. Decreased pain

**Side Effects:**
1. Respiratory depression
2. Hypotension
Nitroglycerin

Protocols:
1. Chest Pain/Acute Coronary Syndrome
2. Nitroglycerin Drip Supplement (Optional)
3. Pulmonary Edema/CHF

Indications:
1. Chest, arm, or neck pain thought to be caused by cardiac ischemia
2. Pulmonary edema
3. Nitroglycerin drip may be used as a supplement to both above indications when sublingual nitroglycerin has not relieved symptoms and the MCA has both adopted the supplement and trained the providers. The provider must use vented IV tubing and an infusion pump.

Contraindications:
1. Use of erectile dysfunction medications within the previous 48 hours

Dosing:
1. MFR and EMT Basic may assist patients with their own sublingual nitroglycerin
2. Sublingual nitroglycerin
   a. 0.4 mg sublingual if BP is above 100 mmHg
   b. May repeat at 3 to 5 minute intervals if pain persists and BP sustains
   c. May be administered prior to IV start if BP is above 120 mmHg
3. Nitroglycerin IV drip (MCA selection)
   a. Begin drip at 10 mcg/min
   b. Increase by 10 mcg/min at 5 minute intervals, titrating to pain and BP
   c. Maximum dose is 200 mcg/min

Expected Effects:
1. Decreased blood pressure
2. Relief of chest pain

Side Effects:
1. Headache
2. Flushing
3. Hypotension
Ondansetron (Zofran ®)

Protocols:
1. Nausea/Vomiting
2. Pain Management

Indications:
1. Nausea and vomiting
2. Prophylactic use in patients receiving opioids for pain management to prevent nausea/vomiting

Contraindications:
1. Hypersensitivity to ondansetron (or similar)

Dosing:
1. Adult
   a. 4 mg ODT (oral dissolving tablet)
   b. 4 mg IM
   c. 4 mg slow IV (at least 30 seconds, recommended over 2 minutes)
2. Pediatrics
   a. For patients less than 40 kg, 0.1 mg/kg slow IV
   b. For patients greater than 40 kg, 4 mg slow IV
   c. Not routinely give IM in pediatrics, administer over at least 30 seconds, recommended over 2 minutes

Expected Effects:
1. Diminished nausea

Side Effects:
1. Headache
2. Dry mouth
3. Drowsiness
Prednisone

Protocols:
  1. Anaphylaxis/Allergic Reaction
  2. Adrenal Crisis
  3. Adult Respiratory Distress
  4. Pediatric Respiratory Distress, Failure, or Arrest

Indications:
  1. Allergic Reaction
  2. Inflammatory respiratory issues

Contraindications:
  1. Hypersensitivity to steroids
  2. Known systemic fungal infections

Dosing:
  1. Adult (and children over 6 years old): 50 mg tablet, PO

Expected Effects:
  1. Decreased inflammation

Side Effects:
  1. Retention of fluids
Sodium Bicarbonate (NaHCO3)

Protocols:
1. Excited Delirium
2. Adult and Pediatric Cardiac Arrest – General
3. Poisoning/Overdose
4. Crush Injury

Indications:
1. Cardiac arrest with suspected hyperkalemia
2. Tricyclic antidepressant (TCA)
3. To cause alkalization in significant acidosis

Contraindications:
1. Hypersensitivity to sodium bicarbonate
2. Severe pulmonary edema
3. Known Alkalosis

Dosing:
1. Adults in Excited Delirium: 50 mEq IV
2. Adult and Pediatric Cardiac Arrest: 1 mEq/kg IV/IO
3. TCA overdose with widened QRS
   a. 1-2 mEq/kg IV/IO
   b. May be repeated to narrow QRS and improve blood pressure
4. Crush Injury: 1 mEq/kg IV/IO, max dose 50 mEq

Precautions:
1. Must flush IV line between medications
2. Administer slowly
3. Only given if acidosis is suspected