	Section 9: Medications	Release for Public Comment	Due	change
	Table of Contents			
9.9	Metered Dose Inhaler (MDI)	11-Jul	9-Sep	NEW
9.27	Ibuprofen	11-Jul	9-Sep	Revised
9.28	Ipratropium Bromide	11-Jul	9-Sep	NO change
9.30	Ketoralac	11-Jul	9-Sep	Revised
9.31	Lorazepam	11-Jul	9-Sep	Revised
9.32	Lidocaine	11-Jul	9-Sep	Revised
9.33	Magnesium Sulfate	11-Jul	9-Sep	Revised
9.34	Methylprednisolone	11-Jul	9-Sep	Revised
9.35	Midazolam	11-Jul	9-Sep	Revised
9.36	Morphine	11-Jul	9-Sep	Revised
9.37	Naloxone	11-Jul	9-Sep	Revised
9.38	Nitroglycerin	11-Jul	9-Sep	Revised
9.39	Ondansetron	11-Jul	9-Sep	Revised
9.4	Prednisone	11-Jul	9-Sep	Revised
9.41	Sodium Bicarbonate	11-Jul	9-Sep	Revised
9.42	Tetracaine	11-Jul	9-Sep	Revised
9.43	Tranexamic Acid (Optional)	11-Jul	9-Sep	Revised
9.22	Epinephrine			TBD
9.29	Ketamine			TBD
9.44	Verapamil			TBD
9.1	Medication Administration	2-Jun	5-Aug	
9.2	Medication Substitution	2-Jun	5-Aug	
9.3	Medication Shortage	2-Jun	5-Aug	
9.4	Intranasal Medication Administration (Optional)	2-Jun	5-Aug	
9.5	Field Drug Box & IV Kits	2-Jun	5-Aug	
9.6	Pharmacy, Drug Box and IV Supply Exchange Procedure	2-Jun	5-Aug	
9.6a	Naloxone Medication Kit Contents and Distribution Procedure	2-Jun	5-Aug	
9.7	Epinephrine Auto-Injector Procedure	2-Jun	5-Aug	
9.8	Nebulized Bronchodilators	2-Jun	5-Aug	
9.9	Naloxone Administration			
9.10	2 Pam Chloride/Duodote	2-Jun	5-Aug	

9.11	Acetaminophen	2-Jun	5-Aug	
9.12	Adenosine	2-Jun	5-Aug	
9.13	Albuterol	2-Jun	5-Aug	
9.14	Amiodarone	2-Jun	5-Aug	
9.15	Aspirin	2-Jun	5-Aug	
9.16	Atropine	2-Jun	5-Aug	
9.17	Calcium Chloride	2-Jun	5-Aug	
9.18	Dextrose	2-Jun	5-Aug	
9.19	Diazepam	2-Jun	5-Aug	
9.20	Diphenhydramine	2-Jun	5-Aug	
9.21	Dopamine			
9.23	Fentanyl	2-Jun	5-Aug	
9.24	Glucagon	2-Jun	5-Aug	
9.25	Hydromorphone	2-Jun	5-Aug	
9.26	Hydroxocobalamin/Cyanokit	2-Jun	5-Aug	

Metered Dose Inhaler (OPTIONAL)

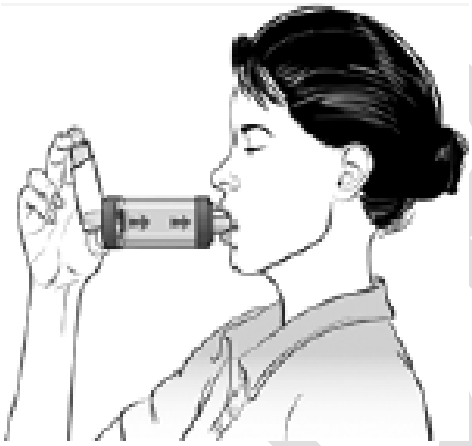
☐ Medical Control Authorities choosing to adopt this protocol may do so by selecting this check box.

Purpose: To reduce the utilization of nebulized medication administrations by EMS personnel in febrile respiratory symptoms.

A. Metered Dose Inhaler use:

1. Patients with febrile respiratory symptoms, where the protocol recommended treatment is the use of nebulized medications, may alternately receive four (4) puffs of their own rescue Albuterol Metered Dose Inhaler (MDI), with spacer, in place of each nebulized treatment.
2. Use of a spacer is optimal. When no spacer is available, ensure that that patient breathes out completely before each puff in order to inhale as much medication as is possible.
3. Do not use an MDI prescribed to another person
4. All MDI's should be brought to the hospital with the patient, if transported.

B. Directions for use



Using an MDI with a spacer (Figure 1)

1. Remove the cap from the MDI and spacer. Shake well
2. Insert the MDI into the open end of the spacer (opposite the mouthpiece).
3. Place the mouthpiece of the spacer between the patient's teeth and have them seal their lips tightly around it.
4. Have the patient breathe out completely
5. Press the MDI canister once.
6. Have the patient breathe in slowly and completely through their mouth. If you hear a "horn-like" sound, they are breathing too quickly and need to slow down.
7. Have the patient hold their breath for 10 seconds (count to 10 slowly) to allow the medication to reach the airway of the lung.

8. Repeat the above steps for each puff.
9. Replace the cap on your MDI when finished.

Ibuprofen

Protocols:

1. Pain Management (per MCA selection), Pediatric Fever (per MCA selection)

Indications:

1. Mild pain
2. Fever

Contraindications:

1. Hypersensitivity
2. Active bleeding
3. <6 months of age
4. Pregnancy

Dosing:

1. Adults – 10mg/kg PO, maximum dose 800 mg
2. Pediatrics – 10 mg/kg PO, maximum dose 800 mg

Dosing Table

Child's Weight (AGE)	Children's Acetaminophen Elixir (160 mg/5ml)	Children's Ibuprofen Elixir (100 mg/5 ml)
6-12 lbs. (0-2 mos.)	1.5 mL (48 mg)	DO NOT GIVE
13-16 lbs. (3-6 mos.)	3 mL (96 mg)	DO NOT GIVE
17-20 lbs. (7-10 mos.)	4 mL (128 mg)	4 mL (80 mg)
21-25 lbs. (11-18 mos.)	5 mL (160 mg)	5 mL (100 mg)
26-31 lbs. (19 mos-3yrs)	6 mL (192 mg)	6 mL (120 mg)
32-35 lbs. (3-4 yrs.)	7 mL (224 mg)	7.5 mL (150 mg)
36-40 lbs. (4-5 yrs.)	8 mL (256 mg)	8.5 mL (170 mg)
41-45 lbs. (5-6 yrs.)	9 mL (288 mg)	9.5 mL (190 mg)
41-51 lbs. (5-6 yrs.)	10 mL (320 mg)	11 mL (220 mg)
52-64 lbs. (7-9 yrs.)	12 mL (384 mg)	13 mL (260 mg)
65-79+ lbs. (10-14 yrs.)	15 mL (480 mg)	15 mL (300 mg)

Expected effects:

1. Pain Relief

Side effects:

1. Nausea/vomiting
2. Abdominal pain
3. Heartburn

Considering this disclaimer on ALL medication protocols – please comment

Disclaimer: The order of operation for proper dosing is
1. Treatment protocol
2. MI MEDIC cards
3. Medication Section (reference material)

These medication reference protocols are applicable only when used in conjunction with an MCA approved treatment protocol.

Ibuprofen

Protocols:

1. Pain Management (per MCA selection), Pediatric Fever (per MCA selection)

Indications:

1. Mild pain
2. Fever

Contraindications:

1. Hypersensitivity
2. Active bleeding
3. <6 months of age
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Dosing:

1. Adults – 10mg/kg PO, maximum dose 800 mg
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Expected effects:

1. Pain Relief

Side effects:

1. Nausea/vomiting
2. Abdominal pain
3. Heartburn

Considering this disclaimer on ALL medication protocols – please comment

Disclaimer: The order of operation for proper dosing is
1. Treatment protocol
2. MI MEDIC cards
3. Medication Section (reference material)

These medication reference protocols are applicable only when used in conjunction with an MCA approved treatment protocol.

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

Ketorolac (Toradol ®)

Protocols:
1. Pain Management (per MCA selection)

Indications:
1. Mild to moderate pain
    a.

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 (max dose 15 mg)
2. Pediatrics – 1 mg/kg IM/IV (max dose 15 mg)

Expected effects:
1. Pain Relief

Side effects:
1. Nausea/vomiting
2. Bloating

Ketorolac (Toradol ®)

Protocols:

1. Pain Management (per MCA selection)

Indications:

1. Mild to moderate pain
   ~~1.~~a.

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 (max dose 15 mg)
2. Pediatrics – 1 mg/kg IM/IV (max dose 15 mg[KK(C1)])

Expected effects:

1. Pain Relief

Side effects:

1. Nausea/vomiting
2. Bloating

Lorazepam (Ativan ®)

Protocols:
1. Medication Substitution

Indications:
1. Seizures when Midazolam is unavailable

Contraindications:
1. Hypersensitivity to lorazepam
2. Hypotension
3. Respiratory failure

Dosing:
1. Adults: 2 mg IV/IO
    a. May repeat to maximum of 4 mg
2. Pediatrics:
    a. 0.05 mg/kg IV/IO (change in medication substitution)
    b. Max single dose 2 mg, may repeat to maximum of 4 mg

Expected Effects:
1. Seizure cessation
2. Sedation

Side Effects:
1. Respiratory depression
2. Hypotension
3. Nausea/Vomiting

NOTES: Requires refrigeration for long term storage

Lorazepam (Ativan ®)

Protocols:
1. ~~Adult and Pediatric Seizures~~
2. Medication Substitution

Indications:
1. ~~Seizures (per MCA selection)~~
2. Seizures when Midazolam is unavailable

Contraindications:
1. Hypersensitivity to lorazepam
2. Hypotension
3. Respiratory failure

Dosing:
1. Adults: ~~4~~ 2 mg IV/IO
   ~~1.~~a. May repeat to maximum of 4 mg
2. Pediatrics:
   a. 0.05~~1~~ mg/kg IV/IO (change in medication substitution)
   b. Max single dose 2~~4~~ mg, may repeat to maximum of 4~~8~~ mg

Expected Effects:
1. Seizure cessation
2. Sedation

Side Effects:
1. Respiratory depression
2. Hypotension
3. Nausea/Vomiting

~~3.~~ NOTES: Requires refrigeration for long term storage

Lidocaine

Protocols:

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

Indications:

1. Alternative to amiodarone in cardiac arrest from VF/VT
2. Alternative to amiodarone in stable (pulsatile) wide complex tachycardia
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 - Unstable
    a. Adults: 1 mg/kg
        i. May repeat 0.5 mg/kg up to a maximum of 3 mg/kg
    
    b. Pediatric: 1 mg/kg
        i. May repeat after 0.5 mg/kg twice at 5-10 minute intervals
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

Lidocaine

Protocols:

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

Indications:

1. Alternative to amiodarone in cardiac arrest from VF/VT
2. Alternative to amiodarone in stable (pulsatile) wide complex ~~pulsatile V~~tachycardia~~T~~
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 - Unstable
    a. Adults: 1 mg/kg
        ~~a.~~i. May repeat 0.5 mg/kg up to a maximum of 3 mg/kg
    b. Pediatric: 1 mg/kg ~~(only with medical direction)~~
        i. May repeat after 0.5 mg/kg twice at 5-10 minute intervals
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
5. Obstetrical Emergencies

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. Administerd IV/IO
2. Asthma exacerbation (refractory)
    a. 2 grams diluted in 100 to 250 ml normal saline
    b. Infusing over approximately 10 minutes
3. Seizures in pregnancy
    a. 4 grams diluted in in 100 to 250 ml normal saline
    b. Infuse over 10 minutes

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

Magnesium Sulfate

Protocols:

1. Adult Cardiac Arrest - General
2. Adult Tachycardia
3. Adult Respiratory Distress
4. Adult Seizures
5. Obstetrical Emergencies

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. Administerd IV/IO
2. Asthma exacerbation (refractory)
    a. 2 grams diluted in 100 to 250 ml normal saline
    b. InfusingAdministered over approximately 10 to 20 minutes
    c. Administer with open line of normal saline
3. Seizures in pregnancy
    a. 2 4 grams diluted in in 100 to 250 ml normal saline 20 ml
    b. Infuse Administered over 10 120 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

Methylprednisolone

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 methylprednisolone (or similar)

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

Methylprednisolone

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 methylprednisolone (or similar)
2. ~~Inability to swallow (by age or patient status)~~[KK(C1]

Dosing:
1. Adult 125 mg IV/IO/IM ~~(make sure IM is in all related protocols)~~
2. Pediatrics 2 mg/kg IV/IO/IM (max dose 125mg)
~~2.~~

Expected Effects:
1. Decreased inflammation

Side Effects:
1. Dizziness
2. Nausea/vomiting

Midazolam (Versed ®)

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

Indications:
1. Adult or pediatric seizures
2. Procedural Sedation
3. Severe agitation to enable assessment and/or treatment

Contraindications:
1. Hypersensitivity to midazolam
2. Shock

Dosing:
1. Seizures
    a. Adults
        i. 10 mg IM prior to IV start
        ii. 5 mg IN prior to IV start
        iii. 5 mg IV/IO (if IM or IN was not administered first)
        iv. May repeat 5 mg IV/IO/IM/IN if seizure persists
    
    b. Pediatrics- Tonic Clonic Seizure only
        i. 5 mg IM/IN prior to IV start
        ii. OR 0.2 mg/kg IM/IN if MI-MEDIC cards are not available (maximum dose 10 mg)
        iii. If seizures persist after single dose (IM/IN/IV/IO) repeat additional full dose of **Midazolam** (IM/IN/IV/IO) one time per MCA selection

2. Patient Procedural 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

Midazolam (Versed [KK(C1)]®)

Protocols:

1. Adult and Pediatric Seizures
2. ~~Excited Delirium~~ Acute Extreme Agitation AKA
3. ~~3.~~2. Heat Emergencies
4. ~~4.~~3. Patient Restraint
5. ~~5.~~4. Patient Procedural~~e~~ Sedation
6. ~~6.~~5. Nerve agent/Organophosphate Pesticide Exposure

Indications:

1. Adult or pediatric seizures
2. Procedural Sedation
3. Severe agitation to enable assessment and/or treatment
4. ~~2.~~ ~~for patients receiving~~ ~~electrical therapy~~
5. ~~3. Excited delirium or severe agitation to enable assessment and/or treatment~~
6.

Contraindications:

1. Hypersensitivity to midazolam
2. Shock

Dosing:

1. Seizures[KK(C2)] ~~(Double check seizure)~~
    a. Adults
        i. 10 mg IM prior to IV start
        ii. 5 mg IN prior to IV start
        iii. 5 mg IV/IO (if IM or IN was not administered first)
        iv. May repeat 5 mg IV/IO/IM/IN if seizure persists ~~with medical direction~~
    b. Pediatrics- Tonic Clonic Seizure only[KK(C3)]
        i. ~~0.1 mg/kg~~ 5 mg IM/IN prior to IV start
        ii. OR 0.2 mg/kg IM/IN if MI-MEDIC cards are not available (maximum dose 10 mg)
        ~~i. 0.1 mg/kg IN prior to IV start~~
        ~~ii. 0.05 mg/kg IV/IO (maximum dose 5 mg) if IM or IN was not administered first~~
        ~~iii. May repeat 0.05 mg/kg IV/IO/IM with medical direction~~
        iii. If seizures persist after single dose (IM/IN/IV/IO) repeat additional full dose of **Midazolam** (IM/IN/IV/IO) one time per MCA selection

~~Excited DeliriumAcute Extreme Agitation and Patient Restrain (Adults ONLY)~~[KK(C4)]

2. ~~5-Excited Delirium and Patient Chemical Restraint **(Adults ONLY)**~~
    ~~a. 10 mg IM **or**~~
    ~~b. 5 mg IN~~
3. ~~3.~~2. Patient Procedural 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 IV/IO
    b. Pediatrics administer no more than 1 mg in a single dose IV/IM
2. May repeat
    a. Adults total dose may not exceed of 20 mg
    b. Pediatrics total dose may not exceed 5 mg

Expected Effects:
1. Decreased pain

Side Effects:
1. Respiratory depression
2. Hypotension

Morphine

Protocols:
1. Pain Management (MCA Selection)
2. Medication Substitution[KK(C1]

Indications:
1. Severe pain

Contraindications:
1. Hypersensitivity to morphine
2. Hypotension

Dosing:
1. 0.1 mg/kg
    a. Adults max single dose 10 mg IV/IO [KK(C2]
    b. Pediatrics administer no more than 1 mg in a single dose IV/IM
2. May repeat
    a. Adults total dose may not exceed ~~maxium total dose of~~ ~~up to~~ 20 mg
    b. Pediatrics total dose may not exceed ~~maximum total dose~~ ~~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. Opioid Overdose Treatment and Prevention

Indications for administration:

1. Known opioid overdose WITH respiratory depression
2. Respiratory depression or arrest of unknown ~~or suspicious~~ origin
3. Indications for Leave Behind Naloxone
    a. Substance Use Disorder

Contraindications:

1. Hypersensitivity to naloxone

Dosing:

1. Pre-filled syringe (2mg/2ml)- titrate to respiratory response
    a. Single Dose 2 mg - IV/IO/IM up to 2 mg
    b. Single Dose with atomizer up to 2 mg (1 ml each nostril)
2. Pre-filled 4.0 mg nasal spray – give IN – must give all at once (Adults Only).
3. Draw up (10 ml vial of .4mg/ ml) – titrate to respiratory response
    a. Single Dose 0.4 mg - 2mg IV/IO/IM
    b. Single Dose with atomizer IN – give up to 2mg
4. Auto injector Single Dose – 0.4 mg –must give all at once
5. For MFR and EMT-Basic (Per MCA selection) ADULTS
    a. 0.4 mg IM per auto-injector
    b. 2.0 mg pre-filled syringe IN with atomizer
    c. 4.0 mg intranasal spray
6. For MFR and EMT-Basic (Per MCA Selection) Pediatrics
    a. Naloxone prefilled syringe with atomizer
        i. Up to 3 months 0.5 mL
        ii. 3 months to 18 months 1 mL
        iii. 19-35 months 1.5 mL
7. Additional for Specialist and Paramedic
    a. 0.4 mg IN/IM/IV/IO
    b. Repeat as needed
    c. May need larger doses dependent on substance
    d. 0.1 mg/kg IV/IO/IM
    e. Max dose 2 mg

Expected Effects:

1. Increased mental status
2. Increased respiratory drive

Side Effects:

1. Agitation
2. Nausea/vomiting

Naloxone (Narcan ®)

Protocols:

1. Adult and Pediatric Altered Mental Status
2. Pediatric Respiratory Distress, Failure, or Arrest
3. Poisoning/Overdose
4. Opioid Overdose Treatment and Prevention ~~Naloxone Administration~~

Indications for administration:

1. Known opioid overdose WITH ~~with~~ respiratory depression
2. Respiratory depression or arrest of unknown ~~or suspicious~~ origin
3. Indications for Leave Behind Naloxone
    ~~2.~~a. Substance Use Disorder

Contraindications:

1. Hypersensitivity to naloxone

Dosing[KK(C1])**:**

1. **Pre-filled syringe (2mg/2ml)- titrate to respiratory response**
    a. **Single Dose 2 mg - IV/IO/IM up to 2 mg**
    b. **Single Dose with ~~Add an~~ aatomizer up to 2 mg (~~– dose 2mg – give IN~~1 ml each nostril)**
2. **Pre-filled 4.0 mg nasal spray – give IN – must give all at once (Adults Only).**
3. **Draw up (10 ml vial of .4mg/ ml) – titrate to respiratory response**
    a. **Single Dose 0.4 mg - 2mg IV/IO/IM**
    b. **Single Dose with ~~Add an~~ atomizer IN – give up to 2mg ~~IN~~**
4. **Auto injector Single Dose – 0.4 mg –must give all at once**

~~1.~~5. For MFR and EMT-Basic (Per MCA selection) ADULTS
    a. 0.4 mg IM per auto-injector~~N~~
    b. 2.0 mg pre-filled syringe IN with atomizer
    c. 4.0 mg intranasal spray

6. For MFR and EMT-Basic (Per MCA Selection) Pediatrics
    a. Naloxone prefilled syringe with atomizer
        i. Up to 3 months 0.5 mL
        ii. 3 months to 18 months 1 mL
        iii. 19-35 months 1.5 mL

~~c.~~

~~2.~~7. Additional ~~F~~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.~~d. 0.1 mg/kg IV/IO/IM

e. Max dose 2 mg

~~b.~~

Expected Effects:

1. Increased mental status
2. Increased respiratory drive

Side Effects:

1. Agitation
2. Nausea/vomiting

Nitroglycerin

Protocols:

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

Indications:

1. 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 in previous 48 hours.
2. Use of medication to treat pulmonary hypertension in 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 at or above 100 mm/Hg (Max 3 doses)
    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

Nitroglycerin

Protocols:

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

Indications:

1. ~~Chest, arm, or neck~~ ~~p~~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 in previous 48 hours.
2. ~~1.~~ Use of medication to treat pulmonary hypertension ~~within the~~ in 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 at or above 100 mm/Hg (Max[KK(C1)] 3 doses)[KK(C2)]
    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

Contraindications:
1. Hypersensitivity to ondansetron (or similar)
2. Patients with Phenylketonuria (PKU)

Dosing:
1. Adult
    a. 4 mg ODT (oral disintegrating tablet) (as approved my MCA?)
    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

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)
2. Patients with Phenylketonuria (PKU)

Dosing:
1. Adult
    a. 4 mg ODT (oral disintegrating~~solving~~ tablet) (as approved my MCA?)
    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: (As selected by MCA)
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

Prednisone

Protocols:
1. Anaphylaxis/Allergic Reaction
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Expected Effects:
1. Decreased inflammation

Side Effects:
1. Retention of fluids

Sodium Bicarbonate (NaHCO3)

Protocols:

1. Adult and Pediatric Cardiac Arrest – General
2. Poisoning/Overdose
3. Crush Injury

Indications:

1. Cardiac arrest in dialysis patient with suspected hyperkalemia
2. Tricyclic antidepressant (TCA)
3. To cause alkalization in significant acidosis (i.e. crush injury)
4. Hyperkalemia

Contraindications:

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

Dosing:

1. Adults in Excited Delirium: 50 mEq IV/IO
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
    a. Neither Calcium nor Epinephrine are compatible with sodium bicarbonate
2. Administer slowly

Sodium Bicarbonate (NaHCO3)

Protocols:

~~1. Excited Delirium~~[KK(C1]
~~2.~~1. Adult and Pediatric Cardiac Arrest – General
~~3.~~2. Poisoning/Overdose
~~4.~~3. Crush Injury

Indications:

1. Cardiac arrest in dialysis patient with suspected hyperkalemia[KK(C2][KK(C3]
2. Tricyclic antidepressant (TCA)[KK(C4]
3. To cause alkalization in significant acidosis (i.e. crush injury)
~~3.~~4. Hyperkalemia[KK(C5] a

Contraindications:

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

Dosing:

1. Adults in Excited Delirium: 50 mEq IV/IO
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
    a. Neither Calcium nor ~~and e~~Epinephrine are compatible with sodium bicarbonate
~~1.~~2. Administer slowly
~~3. Only given if acidosis is suspected~~[KK(C6]
~~2. Do not administer with calcium or epinephrine~~

Tetracaine Hydrochloride

Protocols:
1. Poisoning/Overdose/Environmental Exposure
2. Chemical Exposure

Indications: (MCA Optional)
1. Used before/after eye irrigation for pain
2. Chemical exposure to eyes

Contraindications:
1. Hypersensitivity to anesthetics
2. Large area application
3. Infants less than 1 year

Dosing:
1. Adults and Pediatrics great than 1 year old
2. 1 to 2 drops per eye every 5-10 minutes maximum of 3 doses. May be used before/after flushing eye

Expected Effects:
1. Numbing of eye

Side Effects:
1. Burning
2. Irritation
3. Rash

Tetracaine Hydrochloride

Protocols:

1. Poisoning/Overdose/Environmental Exposure
2. Chemical Exposure

Indications: (MCA Optional)

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Contraindications:

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1. Adults and Pediatrics great than 1 year ~~od~~old
    a. ~~-~~1 to 2 drops per eye every 5-10 minutes maximum of 3 doses
2. May be used before/after flushing eye

Expected Effects:

1. Numbing of eye

Side Effects:

1. Burning
2. Irritation
3. Rash

Tranexamic Acid (TXA)

Protocols:

1. Hemorrhagic Shock (per MCA selection)

Indications:

1. Massive uncontrolled hemorrhage internal or external

Contraindications:

1. Intracranial bleeding
2. Less than 18 years of age
3. Injury time greater than 3 hours
4. Gastrointestinal bleeding
5. Known allergy to TXA
6. Spinal, cardiogenic, and septic shock.

Dosing:

1. Adults
    a. 1 g of TXA mixed in 100 ml of normal saline
    b. Administered over 10 minutes
2. Pediatrics (only appropriate inside a formal research study)
    a. 15 mg/kg TXA (max of 1 gram)
    b. Administered over 10 minutes

Precautions:

1. Transport to hospital that will continue TXA
    a. TXA delivered in the field is FIRST DOSE
    b. NOT effective if a SECOND DOSE is not given at the appropriate time in the hospital
    c. Ensure receiving facility is aware of exact time of first dose prior to arrival, upon arrival and that it is documented in the EPCR.
2. Do not delay transport for administration of TXA

Tranexamic Acid (TXA) ~~***(Optional)***~~

Protocols:

1. Hemorrhagic Shock (per MCA selection)
   ~~1.~~

Indications ~~**(TRAUMATIC CAUSE ONLY):**~~

1. **Massive uncontrolled hemorrhage internal or external**
2. ~~Evidence of marked blood loss~~
3. ~~Sustained tachycardia (>110/Min, despite a 500 ml bolus of IVFs)~~
4. ~~Initial systolic BP < 90~~
5. ~~Sustained hypotension (<100 systolic, despite a 500 ml bolus of IVFs)~~
6. ~~Major trauma with suspicion for pelvic and/or abdominal injury~~
7. ~~Major arterial bleeding not controlled with tourniquet~~

Contraindications:

1. **Intracranial bleeding**
2. **Less than 18 years of age**
3. **Injury time greater than 3 hours**
4. ~~Hemorrhagic shock from a non-traumatic cause (massive~~ Gastrointestinal ~~or Gynecological~~ bleeding)
5. Known allergy to TXA
6. Spinal, cardiogenic, and septic shock.
   ~~1.~~

Dosing:

1. Adults
   a. 1 g of TXA mixed in 100 ml of normal saline
   b. Administered over 10 minutes
2. Pediatrics (only appropriate inside a formal research study)
   a. 15 mg/kg TXA (max of 1 gram)
   b. Administered over 10 minutes

Precautions:

1. **Transport to hospital that will continue TXA**
   a. TXA delivered in the field is FIRST DOSE~~a loading dose~~
   ~~b.~~
   c. NOT~~It is not~~ effective if a SECOND DOSE~~second dose~~ is not given at the appropriate time in the hospital
   ~~d.~~ Ensure receiving facility is aware of exact time of first dose prior to arrival, upon arrival and that it is documented in the EPCR. ~~It is very important that the administering provider make note of the time that the loading dose is given~~

~~1.~~2. ~~Must be administered within 3 hours of injury~~

~~2.~~3. Do not delay transport for administration of TXA

~~3.1. TXA delivered in the field is a loading dose~~

~~a. It is not effective if a second dose is not given at the appropriate time in the hospital~~

~~b.~~a. ~~It is very important that the administering provider make note of the time that the loading dose is given~~