Poisoning/Overdose #1

Call Poison Control (1-800-222-1222) to receive medical guidance on patient care and to ensure that information regarding the toxin can be sent to the receiving ED prior to patient arrival.

E

EMT

1. Administer O_2, as appropriate
2. Manage airway as needed, see **Blue 3**
3. Request ALS
4. If respirations less than 12/minute AND ***narcotic overdose*** suspected

*****NEVER GIVE NALOXONE TO A NEONATE*****

   a. **ADULT** and **PEDIATRIC** patients: naloxone 0.5 mg **IN**. Titrate to effect by providing 0.5 mg in one nostril:
      i. The desired outcome is effective oxygenation and ventilation with one important parameter being a respiratory rate of greater than 12 breaths/minute. Continue to manage the airway while assessing for effect.
      ii. If the patient remains apneic or continues to have ineffective oxygenation and ventilation 2-5 minutes after provision of the first dose of naloxone, provide a second dose of naloxone 0.5 mg in the other nostril.
      iii. Repeat 0.5 mg of naloxone **IN** every 2-5 minutes in alternating nostrils.
   b. **EMRs** and **EMTs** may use **IN** or **IM** naloxone via auto-injector at a dose available per commercially packaged product. Repeat dose (in opposite nostril if using **IN** route) if no response in 2-5 minutes. Lower dose strategies that allow titration of effect are preferred, whenever possible.
   c. NOTE: Patients abruptly and fully awakened from narcotic overdose may become combative or suffer acute narcotic withdrawal symptoms. Some drugs are longer acting opioids (or formulated to be so), such as buprenorphine, methadone, and the fentanyl patch, and may require many repeated doses of naloxone which could exceed a total of 4 mg.
5. For suspected cyanide or CO poisoning, see Cyanide/CO Exposure protocol **Yellow 8**
6. For hypoglycemia, see Diabetic/Hypoglycemic Emergencies protocol, **Gold 6**
7. For seizures, see Seizure protocol, **Gold 8**

A P

ADVANCED EMT/PARAMEDIC

8. Establish IV access
9. Alternative naloxone route of administration

   a. Naloxone 0.1 - 2 mg I**V/IO/IM**; titrate to improved respiratory drive
   b. **Pediatric** patients: 0.1 mg/kg naloxone if less than 20 kg; 0.1-2 mg **IV/IO/IM** if greater than 20 kg or 5 years or older**;** titrate to improved respiratory drive
10. Cardiac Monitor
11. If patient is hypotensive, administer a fluid bolus
12. Obtain ECG, if so trained

P

PARAMEDIC

13. Ingested Poison: the role of charcoal in EMS is of limited value and should be provided ONLY under OLMC guidance. Contact OLMC to consider:
   a. Activated charcoal withOUT sorbitol 1 gram/kg **PO**
   b. Do NOT provide charcoal under the following circumstances:
      i. Ingested caustic substance
      ii. Hydrocarbons
      iii. Seizures
      iv. Patient is unable to swallow/protect airway

Poisoning/Overdose #2

PARAMEDIC (cont.)

14. For absorbed toxins resulting in pain, see Universal Pain Management protocol, **Green 21** or analgesic for eye pain, see Ophthalmology protocol, **Green 28**
15. Suggested Treatments
    a. Symptomatic bradycardia (hypotension, altered mental status, syncope/pre-syncope, chest pain, dyspnea, acute heart failure, signs of shock, or cyanosis/pallor) due to beta- or calcium channel blocker overdose:
        i. **Adult**: Calcium gluconate 60 mg/kg **IV** over 5-10 minutes (MAX 3 gm/dose), may repeat every 10-20 min for 3-4 additional doses.
        ii. **Pediatric**: Calcium gluconate 60 mg/kg **IV** over 30-60 minutes (max 3 gm/dose), may repeat every 10-20 min for 3-4 additional doses

        iii. Refer to Bradycardia Protocol, **Red 20**
    b. Dystonic reaction:
        i. **Adult:** Diphenhydramine 25-50 mg **IV/IM**
        ii. **Pediatric:** Diphenhydramine 1-2 mg/kg **IV/IM** (MAX dose 50 mg)
    c. Organophosphates, see Nerve Agent/Organophosphate/Carbamate Poisoning protocol, **Yellow 3**
    d. Severe agitation, see Agitation/Excited Delirium protocol, **Orange 3**
    e. Tricyclic Antidepressant/sodium-channel blocker overdose with either hemodynamic instability or widened QRS complex on initial 12-lead ECG defined as:
        i. Tachycardia (Adult: heart rate greater than 100 bpm; Pediatric as defined by age, see **Pink** ***) **AND**,
            a. QRS greater than 120 msec**, OR**
            b. An increase in QRS of 10 msec over serial ECGs (repeat every 10 min, if feasible)
        ii. Repeat ECG after treatment and every 10 minutes, if feasible, if QRS is less than 120 msec, and every 5 minutes, if feasible, if QRS is greater than 120 msec. Treat as follows:
            1. Sodium bicarbonate:
                a. **Adult**: 1 mEq/kg **IV push**. May repeat as needed with goal of QRS complex less than 120 msec.
                b. **Pediatric**: 1 mEq/kg **IV push**. May repeat as needed with goal of QRS complex less than 120 msec. (8.4% sodium bicarbonate must be diluted with D5W to 4.2% [0.5 mEq/mL] prior to administration in patients less than 2 years of age.)

            2. Fluid bolus for hypotension

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            3. Contact **OLMC** to discuss additional fluid bolus versus initiating NOREPInephrine **IV infusion**. NOREPInephrine infusions must be administered via a Maine EMS approved medication pump.

                a. **Preparation** – mix NOREPInephrine 8 mg in 250 mL NS [32 mcg/mL]
                b. **Dosing** - Starting dose of NOREPInephrine is 0.03 mcg/kg/min. Titrate by 0.03 mcg/kg/min every 3-5 minutes. Usual dose is 0.03-0.25 mcg/kg/min. Usual MAX dose is 0.6 mcg/kg/min. Absolute MAX dose is 3 mcg/kg/min.
                c. **Titrate** to maintain SBP greater than 90 mmHg and/or MAP > 65 mmHg

continued

Poisoning/Overdose #3

P

Paramedic cont.

4. Refer to Seizure protocol, **Gold 8,** for TCA-induced seizure activity
5. Consider magnesium sulfate for arrhythmia that does not respond to sodium bicarbonate.
   a. **Adult**: 2 grams of magnesium sulfate **IV/IO** over 10 minutes
   b. **Pediatric**: 25-50 mg/kg **IV/IO** (diluted to 20% or 2 gm/10mL) infusion over 10 minutes (MAX dose 2 grams).
6. Contact OLMC if further direction needed for conditions such as arrhythmia

PEARLS

- If possible, bring container/bottles, MSDS sheets, placard info, shipping manifest, and/or contents and note the following:
  - Route, time, quantity and substance(s)
  - Reason, if known: intentional or accidental
  - What treatments were provided prior to your arrival
- Pulse oximetry may NOT be accurate for toxic inhalation patients

For management of opioid overdose:

- Recall, the patient suffering from opiate overdose requires immediate oxygenation and ventilation. This should be the priority for these patients and is accomplished by airway management. Naloxone may be administered, but only after initiation of airway management practices. **Do not** give naloxone to a patient who is in cardiac arrest. This practice is not helpful and may be harmful as it distracts from the best performance of tasks that are necessary for the successful resuscitation of cardiac arrest. Refer to the 2019 Naloxone White Paper for more information.
- Naloxone should be titrated to adequate respiratory drive and airway protection rather than a completely awakened state.
- Patients receiving naloxone should be transported to the hospital. Contact OLMC for patients refusing transport.

For tricyclic antidepressant/Sodium-channel blocker toxicity:

- The most common drugs requiring boluses of sodium bicarbonate are as follows:
  - For adults, TCAs
  - For pediatrics, antihistamines, though it is not common to get to the point of administering sodium bicarbonate for pediatric patients.
- There are several classes of medications that can cause sodium channel blockade when taken in an overdose, causing QRS prolongation and requiring sodium bicarbonate administration. The classes of these medications (with some examples) are listed below:
  - Antidepressants (amitriptyline, nortriptyline, imipramine, doxepin)
  - Antiarrhythmics (quinine/quinidine, propafenone, flecainide)
  - Anesthetics (cocaine, lidocaine, bupivacaine)
  - Muscle Relaxants (cyclobenzaprine)
  - Antihistamines (diphenhydramine)
- Gather as much detailed information about the drug as possible and monitor the QRS as per protocol
- Sodium bicarbonate increases extracellular sodium, thereby overcoming sodium channel blockade of the tricyclic antidepressant and other sodium-channel blocking medications. This effect is transient and may be difficult to notice at first. Some patients may need repeated doses of sodium bicarbonate to fully correct QRS duration (under 120 msec). If no change to the QRS occurs, please repeat immediately. While some patients may require additional doses of sodium bicarbonate, this should not delay transport.
- Consider the importance of alerting OLMC.

Naloxone Dispensation

E A P

Amendments to Maine Law in 2021 allow EMS Clinicians in the state of Maine to distribute naloxone to patients who are treated for opioid overdose, but refuse transport to the hospital. This protocol establishes the conditions for naloxone distribution (i.e., Naloxone "Leave Behind" Program).

Need to update the numbering of the Grey section and fill this in later

For patients refusing transportation, please refer to the Transport Protoc (Grey 14)

If a patient treated for opioid overdose refuses transport to the hospital, and:

1) The patient has decision making capacity (defined by **Maine EMS Transport Protocol** - Grey 14) , and

2) Responding EMS clinicians are trained to distribute naloxone, and

3) Maine EMS approved naloxone distribution kits are available, then:

a) Distribute one (1) Maine EMS approved naloxone kit for future use to either the patient, for the patient, their family or friends to use in the case of suspected opioid overdose.
b) Perform point of care training for use of the kit as described in Maine EMS naloxone distribution training.
c) In addition to the naloxone kit and point of care training, please also provide a list of local substance use disorder resources.

PEARLS :

Maine has disproportionately been affected by the national opioid epidemic. In an effort to address opioid overdoses, Maine EMS has worked with the legislation to create pathways for distribution of naloxone in the instance a patient is treated for opioid overdose in the pre-hospital environment AND refuses transport.

Please recognize, this protocol is specific to opiate use disorder AND the patient MUST meet the criteria for decision making capacity as described in the Maine EMS **Transport Protocol (Grey 14)**. For patients WITHOUT decision making capacity, please follow the steps in **Grey 14.**

The 130th Maine Legislature passed LD 1333, "An Act Concerning the Dispensation of Naloxone Hydrochloride by Emergency Medical Services Providers" which authorizes the practice of EMS clinicians leaving a medication with a non-transported patient for future use. Please recognize, this practice is authorized for naloxone ONLY.

Alcohol Intoxication/Severe Alcohol Withdrawal #1

E

EMT

1. Assess ABCs
2. Obtain vital signs
3. Assess level of consciousness. Consider alternative diagnosis. Refer to Altered Level of Consciousness Protocol, **Gold 5**.
4. If trained, perform finger stick blood glucose.
5. If blood glucose < 60 or clinical condition suggests hypoglycemia, request ALS and refer to Diabetic/Hypoglycemic Protocol, **Gold 6**
6. **In Acute Alcohol Intoxication** - If the patient has evidence of incapacitating intoxication or acute illness/injury, request ALS.
7. **With any concern for withdrawal** - Question the patient about past withdrawal symptoms. Any patient with a history of hospitalization for alcohol withdrawal, withdrawal seizures or delirium tremens (DTs) should be transported to the Emergency Department.
8. In either **Acute Alcohol Intoxication** or concern for **Alcohol Withdrawal,** ask the patient about the time and amount of their most recent alcohol ingestion, frequency and amount of routine alcohol use, and any co-ingestion such as ethylene glycol (found in antifreeze), ethyl alcohol (AKA ethanol, grain alcohol), methanol (AKA wood alcohol) or other substances.
8. If the patient refuses transport, refer to the Transport Protocol, **Grey 14**

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9. In either **Acute Alcohol Intoxication** or concern for **Alcohol Withdrawal** - for patients requiring transport, consider IV access and fluid bolus if clinically indicated

P

PARAMEDIC

10. For **Severe Alcohol Withdrawal** symptoms, contact OLMC for the option of Midazolam 2.5 mg IV or 5.0 mg IM. May repeat x 1 with max cumulative dose of 5 mg IV or 10 mg IM

    a. **Severe Alcohol Withdrawal** symptoms include hypertension/tachycardia AND **two or more** of the following:
        1. *Severe tremors*, even with arms not extended - tested by "arms extended and fingers spread apart"
        2. *Drenching sweats*
        3. *Continuous tactile disturbances* - ask "Have you any itching, pins and needles sensation, any burning, any numbness, or do you feel bugs crawling on or under your skin?"
        4. *Continuous auditory disturbances* - ask "Are you more aware of sounds around you? Are they harsh? Do they frighten you? are you hearing anything that is disturbing to you? are you hearing things you know are not there?"
        5. *Continuous visual disturbances* - ask "Does the light appear to be too bright? Is its color different? Does it hurt your eyes? Are you seeing anything that is disturbing to you? Are you seeing things you know are not there?"
11. If seizure, refer to Seizure Protocol, **Gold 8**

Continued

Alcohol Intoxication/Severe Alcohol Withdrawal #2

Continued from Previous Page

PEARLS For Alcohol Intoxication/Withdrawal/Delirium Tremens
Intoxicated patients with any of the following **MUST** be transported to the Emergency Department:

1) **Incapacitating Intoxication:** Inability to maintain airway**;** Inability to stand from seated position and ambulate with minimal assistance; At immediate risk of environmental exposure or trauma due to unsafe location
2) **Acute Illness/Injury:** Abnormal vital signs, Physical complaint that may indicate underlying illness/trauma**,**Seizure, Hypoglycemia, Trauma, Head Injury

Delirium tremens (DTs) is a severe form of alcohol withdrawal that can be life-threatening if not treated properly. DTs usually begin 48 hours after last alcohol consumption and is most severe 4-5 days after last alcohol consumption. Typical duration of DTs is 2-3 days but can last up to 8 days. Untreated DTs has a mortality rate of 37%. In contrast hospitalized patients with DTs have a mortality rate of 1-4%.

Nerve Agent/Organophosphate/Carbamate Poisoning

PEARLS :

WARNING: CONTACT WITH THESE TOXINS CAN BE FATAL TO RESCUERS. CONSIDER SCENE SAFETY AND DECONTAMINATION

- Assess for **SLUDGEM** symptoms (**S**alivation, **L**acrimation, **U**rination, **D**efecation, **G**I Distress, **E**mesis, **M**uscle twitching/**M**iosis [constricted pupils]) and the **Killer-B's** (**B**radycardia, **B**ronchorrhea, **B**ronchospasm)
- If you suspect a bioterrorism/WMD threat, see **Grey 21**
- Transport patients with all windows of ambulance open
- Decontaminate entire ambulance after patient transport
- All responders who contacted the patient require decontamination

E

In unstable patients with known organophosphate/carbamate poisoning:

EMT

1. Remove patient from contaminated area and consider decontamination as needed based on scene/call circumstances
2. O_2 as appropriate
3. Manage airway as appropriate, see **Blue 3**
   Ventilatory support may be critical in these poisonings
4. Vigorous suctioning may be necessary
5. Request ALS
6. Mark 1 kit (noted as **auto-injector** in table below)

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ADVANCED EMT

7. IV en route
8. Cardiac monitor
9. In all cases, continue to monitor closely for worsening symptoms

P

PARAMEDIC

10. If seizures are present, refer to Seizure protocol, **Gold 8**

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11. Contact OLMC for:
    a. Doses of medications beyond those listed in the chart below
    b. Administration of other selected antidotes

Symptoms	Dyspnea, twitching, nausea, vomiting. sweating, confusion, or pinpoint pupils	Apnea, seizure,unconsciousness, or flaccid paralysis
Pediatric < 1 year old	**EMR/EMT/AEMT/Paramedic** - 1 **pediatric** atropine auto-injector **IM** or **Paramedic -** Atropine 0.2 mg **IV/IO*, AND** Midazolam 0.2 mg/kg **IM** (MAX dose 10 mg) or 0.1 mg/kg **IV/IO** (MAX dose 5 mg) **	
Pediatric 1 year or older	**EMR/EMT/AEMT/Paramedic** - 1 **adult** atropine auto-injector **IM** or **Paramedic -** Atropine 2 mg **IV/IO*, AND** Midazolam 0.2 mg/kg **IM** (MAX dose 10 mg) or 0.1 mg/kg **IV/IO** (MAX dose 5 mg) **	
Adult	**EMR/EMT/AEMT/Paramedic** - 1 atropine auto-injector **IM** or **Paramedic -** Atropine 2 mg **IV/IO* AND** Midazolam 10 mg **IM** or 5 mg **IV/IO** **	**MR/EMT/AEMT/Paramedic** - 3 atropine auto-injectors **IM** or **Paramedic -** Atropine 5 mg **IV/IO* AND** Midazolam 10 mg **IM** or 5 mg **IV/IO** **
* Monitor and repeat dose every 5 minutes if patient remains symptomatic; if atropine is drawn up from a vial to administer **(Paramedic),** the concentration may require more than one injection site to achieve the full dose without exceeding the recommneded 3-5 mL max IM volume in adults and 0.5-2 mL max IM volume in peds.		
** Repeat Midazolam every 5 minutes until total of 3 doses have been provided		

Cyanide/CO Exposure #1

Don PPE if necessary, assess patient after evacuation
Remove patient from source of smoke/inhalation

Assessment
Vital Signs
Evidence of Major Trauma
Major Burns, Inhalation Injury

→ Proceed to Appropriate Trauma or Airway Management protocol

Severity of Exposure Definitions (CO, CN, or Combined)

Mild Exposure
Transient neuro changes
GCS 14 or 15
No cardiovascular symptoms

→ Do Step 1

Moderate Exposure
Ongoing neuro changes
Confusion
GCS 8-13
+/- Chest Pain/SOB

→ Do Step 1 and 2

Paramedic: If antidote considered, contact OLMC

Severe Exposure
Severe confusion/Coma
GCS < 8
+Hypotension (<90mmHg)
Apnea/OHCA

→ Do Step 1, 2,and 3

Treatments

Step 1
EMT/AEMT/P
1) Administer high flow O_2
2) Pulse Ox may be inaccurate in exposure to CO/CN or methemoglobinemia

AEMT/P
3) Monitor rhythm

Step 2
AEMT/P
1) Manage Airway as appropriate, see **Blue 3**
2) Collect rainbow blood sample tubes per local protocol
3) If hypotensive, administer IV bolus, may repeat x 1
4) 12-lead ECG, if trained

Step 3
Paramedic
In case of CN toxicity, either alone or in combination with CO exposure:
1) Adult: Hydroxocobalamin (Cyanokit) - 5 g **IV**. May repeat x 1 for partial response

2) Peds: Hydroxocobalamin (Cyanokit) - 70 mg/kg **IV**, 2.5 g for weight less than 30 kg

Known or Suspected Cyanide/CO Exposure #2

PEARLS for CO/Cyanide Exposure:

- Finger CO monitors may not accurately detect CO level and should not be relied upon to guide treatment or alter transport decision.
- There is no correlation between CO (Carboxyhemoglobin) level and ETCO2 (waveform capnography).
- Carbon monoxide (CO) and Hydrogen cyanide (HCN) gases are chemical asphyxiants that can kill rapidly. Carbon monoxide is odorless. Only 40% are able to detect the almond smell of CN. Cyanide is generated by combustion of synthetic materials present in many structural fires.
- Appropriate PPE includes self-provided air/oxygen source (i.e. SCBA). Scene safety is the top priority. No patient decontamination is required for victims evacuated from CN gas exposure.
- It is rare for viable CO-exposed patients to have persistent unconsciousness requiring intubation.
- Sources of CN: Structural fire (HCN), industrial cyanide salts*, unripe cassava, apricot pits, laetrile, etc.
- If injuries incompatible with life, DO NOT GIVE ANTIDOTE.

*may persist on skin, however water decontamination may liberate HCN gas.

Radiation Injuries

E A

EMT/AEMT

1. Ensure the scene is safe.
2. Don standard PPE capable of preventing skin exposure to liquids and solids (gown and gloves), mucous membrane exposure to liquids and particles (face mask and eye protection), and inhalational exposure to particles (N95 face mask or respirator).
3. Hazmat Trained Personnel to determine need for decontamination
4. For **Mass Casualty Incidents (MCI)**, if vomiting occurs:
   a. Within 1 hour of exposure, survival is unlikely. If providing care to patient will compromise other patients, tag patient **"Black".**
   b. Less than 4 hours after exposure, patient requires immediate decontamination and medical evaluation, tag patient **"Red".**
   c. 4 hours after exposure, re-evaluation can be delayed 24-72 hours, tag patient **"Yellow**".
5. Treat traumatic injuries per appropriate protocol (**Green Section**).
6. Use water-repellent dressings to cover wounds to prevent cross contamination.
7. Consider transport only after appropriate decontamination

P

PARAMEDIC

8. Consider anti-emetic per Nausea and Vomiting protocol, **Gold 19**. Document the time the GI symptoms started.
9. Consider pain management per Universal Pain Management protocol, **Green 21**.
10. Treat seizures per Seizure protocol, **Gold 8**. *Consider a primary medical cause or exposure to possible chemical agents unless indicators for a large whole body radiation dose (> 20 Gy), such as rapid onset of vomiting, are present.

Pearls

- In general, patients exposed or contaminated by radiation should be triaged and treated according to the severity of their conventional injuries.
- Patients contaminated with radioactive material (flecks embedded in clothing or skin), generally pose minimal exposure risk to medical personnel who use appropriate PPE.
- Irradiated patients pose no threat to medical providers.
- Time to nausea and vomiting is a reliable indicator of receiving a significant dose of ionizing radiation. The more rapid the onset of vomiting, the higher the whole-body dose of radiation.
- Tissue burns are a late finding (weeks following exposure) of ionizing radiation injury. If burns are present acutely, they are from a thermal or chemical mechanism.
- Seizures may suggest acute radiation syndrome if accompanied by early vomiting. If other clinical indicators do not suggest a whole-body dose of greater than 20 Gy, consider other causes of seizure.

Hypothermia #1

E

Classification	Core Temp	Clinical Presentation
Normal	>95° F / 35° C	**Cold sensation/shivering**
Mild	90 - 95° F 32 - 35° C	Loss of fine or gross motor skills inability to complete simple thoughts
Moderate	82 - 90° F 28 - 32° C	</= **90° F/32° C: Shivering stops** </=**86° F/30° C: AMS**
Severe	</= 82° F </= 28° C </= 77° F </= 24° C	Rigidity, vital signs reduced/absent. Severe risk of V-fib with mechanical simulation (rough handling) Spontaneous V-fib cardiac arrest

Bold indicates major thresholds between stages
Adapted from "State of Alaska Cold Injuries Guidelines" 2014

Treatment

SEVERE HYPOTHERMIA **WITH** SIGNS OF LIFE/**NOT** IN CARDIAC ARREST:

EMT
1. Prevent further heat loss by insulating from the ground and shielding from wind and water. Move to a warm environment, when possible. **Gently** remove wet clothing. Cover with warm blankets
2. Pack thorax with wrapped heat pack
3. Consider warmed AND humidified 100% O_2
4. High sugar oral fluids, if tolerated, and only in mild hypothermia
5. Handle gently; avoid rough movement and excess activity
6. Maintain supine position in moderate or severe hypothermia
7. Apply clean dressing to frostbitten extremities and between involved fingers and toes.

ADVANCED EMT/ PARAMEDIC
8. Consider one to two 500 mL (20 mL/kg for **pediatrics**) boluses of NS heated to 104 - 108° F (40 - 42° C)

A P

9. Contact OLMC for additional boluses

Hypothermia #2

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SEVERE HYPOTHERMIA **WITHOUT** SIGNS OF LIFE

Note: Assess for pulse and respirations for 1 minute

Note: Definitive treatment for severe hypothermia without signs of life is rewarming with cardiopulmonary bypass. Do not delay transport of these patients. Do not initiate CPR if it will delay transport.

*Do not initiate resuscitation if the patient meets any of the criteria in **Grey 1** Section II.A OR Rescuers are exhausted or in a dangerous situation. These patients are deceased.*

EMT

1. Initiate CPR after 1 minute pulse/respiration assessment
2. Attach AED and follow prompts.
3. Rewarm using techniques as listed under Treatment: Not in Cardiac Arrest (above)

4. If no ROSC after 20 minutes of CPR/rewarming, consider termination of resuscitation. Contact OLMC, if possible 

A P

ADVANCED EMT/PARAMEDIC

5. Consider one to two 500 mL (20 mL/ kg for pediatrics) boluses of NS heated to 104 - 108° F (40 - 42° C)

6. Contact OLMC for additional boluses 

7. Otherwise, treat as per normothermic cardiac arrest management for the patient's dysrhythmia, refer to Cardiac Arrest protocol, **Red 8**

PEARL

- Do not massage extremities in attempt to actively re-warm the patient; massaging the extremities will not significantly increase body temperature and it may worsen the damage caused by frostbite.
- Moderate-to-severe frostbite is defined as:
  - Frostbite involving hands, feet, face, or genitals,
  - Frostbite associated with cyanotic tissue, blisters (clear or hemorrhagic) or skin necrosis,
  - Frostbite associated with with loss of sensation or weakness in the involved area
- Follow your local trauma system transport destination protocols in cases of moderate-to-severe frostbite.
- Circum-rescue hemodynamic collapse can occur in these patients. The drop in catecholamines and mental relaxation that occurs just before, during, or after rescue may lead to life-threatening hypotension or arrhythmia (i.e. ventricular fibrillation).

Hyperthermia - Heat Exhaustion

E

HEAT EXHAUSTION — Volume depletion due to sweat loss

ASSESSMENT:
If core temperature is obtained, it will be variable but always below 105° F (40.6° C).
Clinical pattern is essentially that of compensated hypovolemic shock:

- Weakness and vomiting
- Skin is variable. Core-shell shunt to increase heat loss competes with shell-core shunt to protect volume. Skin is usually pale and moist with variable skin temperature
- Sweating
- Normal consciousness and CNS function

TREATMENT: Goal is to reduce sweating and to restore volume

EMT

1. Protect the patient from heat challenge. Stop exercise and put patient at rest in a cool, shady place
2. Use evaporation techniques and remove/loosen as much clothing as practical
3. Oral fluids can be effective if the patient is not vomiting. Use dilute (less than 5% sugar) fluids given in small sips. Appropriate fluids to use include the World Health Organization's Oral Rehydration Solution OR a "homemade" solution using 1 teaspoon of salt and 8 teaspoons of sugar per 1 liter of water

A P

ADVANCED EMT / PARAMEDIC

4. Establish IV
5. Perform fluid bolus

Hyperthermia - Heat Stroke

HEAT STROKE — A true medical emergency that requires radical field treatment, usually, but not always, associated with heat exhaustion. Heat stroke is characterized by multisystem organ injury and failure. CNS dysfunction characterized by alterations in mental status is a hallmark distinguishing between heat exhaustion and heat stroke.

ASSESSMENT:
If core temperature is obtained, it is 105° F (40.6° C) or greater. Abnormal consciousness and/or CNS function; seizures are common. Any acute change in consciousness/CNS function in the context of a significant heat challenge should be managed as heat stroke without delay. Skin and sweating are variable, depending on volume status. Note that red, dry skin is not a dependable sign of heat stroke.

TREATMENT:
Immediate radical cooling is the urgent priority, followed by volume replacement.

E

EMT

1. Cool the patient immediately by any means practical, such as:
   a. Initiate Radical Cooling when available (especially beneficial for exertional hyperthermia, i.e. athletes, laborers):
      i. Immerse patient up to their neck in ice water tub (if available).
      ii. TACO Method (Tarp-Assisted Cooling with Oscillation) (if available) with 4-5 people holding the patient in a tarp, add ice water at foot and up to the neck and continuously oscillate the tarp to avoid warming of water in contact with the patient.
   b. Also consider non-radical cooling which includes: ice packs applied to neck, axillae, groin, back; wet patient, apply cold wet sheets to patient, and air conditioning en route
   c. Consider moistening the skin and fan vigorously. This method is effective only at low ambient humidity and a large electric fan is more beneficial than manual fanning.
2. Discontinue radical cooling if:
   a. Shivering begins
   b. Core temperature falls to 102° F (38.8° C).

ADVANCED EMT / PARAMEDIC

3. Establish IV
4. Cardiac Monitor
5. Perform fluid bolus

A P

Pearl
If at a sporting or athletic event, it is important to discuss the cooling plan with other on-scene providers, i.e. sports medicine providers or athletic trainers prior to the start of the event to ensure that necessary equipment is available.

Drowning/Submersion Injuries

E

EMT

1. If C-spine injury suspected, manage C-spine per Spine Management protocol, **Green 7**
2. Obtain specific history including time, temperature, associated injury, etc.
3. Begin resuscitation efforts while removing patient from the water (e.g. rescue breaths) - follow ABC (rather than CAB) flow of resuscitation.
4. Consider hypothermia, refer to Hypothermia protocol, **Yellow 11**
5. Remove wet clothes and warm the patient
6. Conscious patients with submersion injuries should be transported to the hospital for further evaluation
7. If water temperature is estimated to be less than 43° F and submerged
   a. Less than 90 minutes - initiate full resuscitation
   b. Greater than 90 minutes - consider not initiating resuscitation or termination of resuscitation
8. If water temperature is estimated to be greater than 43° F and submerged
   a. Less than 30 minutes - initiate full resuscitation
   b. Greater than 30 minutes - consider not initiating resuscitation or termination of resuscitation

A P

ADVANCED EMT/PARAMEDIC

9. Consider CPAP to supplement the patient's own respiratory effort
10. If needed, refer to Anxiolysis in CPAP protocol , **Blue 10**
11. If near-drowning incident involves scuba diver, suggesting barotrauma, contact OLMC and consider hyperbaric treatment facility

PEARLS for Drowning:

- Fresh and salt water drowning are treated the same in the field; treatment must be directed toward correcting severe hypoxia.
- Factors affecting survival include the patient's age, length of time submerged, general health of the victim, type and cleanliness of liquid medium and water temperature that may contribute to the effectiveness of the mammalian diving reflex (decreased respirations, decreased heart rate, and vasoconstriction, with maintenance of blood flow to the brain, heart and kidneys).
- Circum-rescue hemodynamic collapse can occur in these patients. The drop in catecholamines and mental relaxation that occurs just before, during, or after rescue may lead to life-threatening hypotension or arrhythmia (i.e. ventricular fibrillation).
- All drowning/near-drowning victims with suspected barotrauma/decompression sickness should be transported in the left lateral Trendelenburg position to prevent any emboli in the ventricles from migrating to the arterial system.
- Even patients that are conscious and appear well after a submersion event require hospital-level evaluation and observation as they may develop delayed symptoms.

Brief Resolved Unexplained Event

PEARLS
Definition of Brief Resolved Unexplained Event (BRUE):
These are sudden, brief (less than 1 minute), now resolved (returned to baseline) episodes of at least one of the following in a child less than 1 years old:
1. Cyanosis or pallor
2. Absent, decreased, or irregular breathing
3. Marked change in tone (hyper- or hypotonia)
4. Altered level of responsiveness

NOTE: Most children who experience a BRUE have a normal physical exam, however, almost 50% will have an underlying condition requiring comprehensive medical care.

In many cases, details from the child's home may be important to downstream, health care providers. Please include details, such as the following, when providing report to the hospital:
1. Make note of the home environment: Medications, condition, caregiver's condition, possibility of toxic exposure, etc.
2. Are there any concerns for non-accidental trauma?

E A P

EMT/ADVANCED EMT /PARAMEDIC:
1. Obtain medical history
   a. Determine the severity, nature, and duration of the episode
   b. Was the patient awake or sleeping at the time of the episode?
   c. Include details of the resuscitation, if applicable
2. Keep the child warm and transport to the emergency department

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3. Contact OLMC for assistance if the parent/guardian refuses medical care and/or transport 

Pediatric Respiratory Distress with Inspiratory Stridor

E A

Inspiratory stridor may be due to many causes in the pediatric population, including croup, foreign body aspiration, or epiglottitis.

Stridor refers to upper airway obstruction as in laryngotracheitis/croup and is often accompanied by hoarseness and/or a barking cough (seal-like cough).

As stridor worsens in severity, the following may also be observed: tachypnea, retractions, accessory muscle use, nasal flaring, fatigue from respiratory effort, and cyanosis.

EMT / ADVANCED EMT

1. Humidified O_2, if available and as appropriate, with upright posture
2. If needed, assist ventilations with PPV using 100% O_2
3. Request ALS, if available

PARAMEDIC

4. Dexamethasone 0.6 mg/kg **PO/IV/IM/IO** x 1 (MAX dose 10 mg)
5. For signs of moderate to severe croup, administer Inhalation of **nebulized** solution of 1 mL 1mg/mL EPINEPHrine OR 0.5 mL racemic epinepherine mixed with 2 mL normal saline solution*. Signs of moderate/severe croup include stridor at rest AND one of the following: tachypnea, moderate intercostal retractions (including suprasternal retractions), agitation/restlessness/tired appearing, difficulty talking or feeding.

P

6. Contact OLMC for the second dose of nebulized EPINEPHRine if symptoms do not improve a consider alternate diagnosis such as aspiration of foreign body, bacterial tracheitis, epiglotitis

* Nebulized EPINEPHrine/racemic EPINEPHrine may be contraindicated in children with a history of congenital heart disease

PEARLS

A common challenge when working with the pediatric population is the administration of medication. If commercial products are unavailable, alternative measures are often undertaken, such as crushing and dissolving portions of a tablet, or extemporaneous compounding of oral products. In some cases, an extemporaneous liquid cannot be prepared easily from tablets or capsules and off-label oral use of an intravenous (IV) or intramuscular (IM) preparation is considered. An example of this is administering the *injectable* formulation of dexamethasone *orally* for the treatment of pediatric croup. This practice is followed in emergency departments around the country.

Please note that at this time, the only IV medication on the MEMS formulary that has been approved to be given orally is single-dose/one-time use dexamethasone, for this protocol only.

Neonatal and Young Infant Fever

PEARLS
Neonates and young infants have immature immune systems and are at high risk for serious bacterial infection despite appearing well. The rate of serious bacterial infection (SBI) is up to 20% in neonates. Often, fever may be the only sign of critical illness in these children. All febrile neonates and young infants should be transported to the emergency department for further evaluation.

Definitions:
- Neonates are children 0-28 days old
- Young infants are less than 90 days old.
- Fever is a temperature of greater than or equal to 38.0 °C or 100.4 °F measured by any method by either caregivers or EMS.
- Serious Bacterial Infections (SBI) in neonates and young infants may also present with hypothermia (temperature less than 35.0°C or 95.0 °F)

E A P

EMT/ADVANCED EMT/PARAMEDIC:

1. Obtain medical history
   a. What was the highest temperature? How was it recorded?
   b. Is the child still feeding normally? If not, are there signs of dehydration?
   c. Birth history: was the baby full-term or premature? Was the baby admitted to the NICU?
   d. Were there complications from the pregnancy/delivery?
2. Evaluate the neonate or young infant for the following:
   a. Appearance (tone, interactiveness, consolability, gaze, cry),
   b. Work of breathing (abnormal noises or position, retractions, flaring), and, Circulation (pallor, mottling, cyanosis) as well as,
   c. Evidence of dehydration.
3. Evaluate for shock due to severe sepsis. If present, treat per Medical Shock protocol, **Gold 14** and notify receiving hospital.
4. Transport to the emergency department for further evaluation.

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5. Contact OLMC for assistance if the caregiver/guardian refuses medical care and/or transport 

E A P

EMT/ADVANCED EMT/PARAMEDIC

1. Evaluate for crowning/imminent delivery
2. If crowning/imminent delivery, encourage mother to relax, breathe slowly, and let baby deliver
2. If hypotensive, roll patient onto left hip
3. If the presenting part is the cord, apply pressure to the baby with a sterile, gloved hand to keep pressure off the cord until cord pulsations are felt. Raise mother's hips onto pillows. Keep cord warm and moist. Do not clamp or cut cord
4. Request ALS, if available, and DO NOT DELAY TRANSPORT
5. If baby's head is delivering:
    a. Do not hurry or slow the birth
    b. Check to see if cord is wrapped around neck. If so, attempt to slip the cord over the baby's head, then repeat in case of double nuchal cord. Do not clamp and cut the cord unless it appears to obstruct the birth
    c. Immediately place baby skin-to-skin with the mother, unless resuscitation is required. Dry and stimulate the baby, examine and keep warm, next to mother's skin, covering mother and baby with warm blankets or aluminum foil blankets (i.e. "space blankets"). As soon as possible, enable child to nurse at mother's breast. In a stable newborn, remain on scene, as conditions permit for a minimum of 15 minutes to allow for skin-to-skin contact.
    d. Assess APGAR SCORE at 1 and 5 minutes, refer to APGAR Score, **Pink 5**
    e. Do not externally massage the uterus en route until placenta has delivered
    f. Do not forcibly remove placenta
    g. The cord may be left intact, or it may be double clamped and cut only when:
        1. the baby is breathing and all cord pulsations have stopped (usually within 3 to 5 minutes), or
        2. the baby must be moved to allow for advanced newborn resuscitation, or
        3. Once the placenta has delivered.
    h. If placenta is delivered, wrap and package with cord intact
6. If delivery has occurred prior to EMS arrival, start at #5b above.
7. During transport, the baby should be placed in an appropriate child passenger restraint system with the head supported. Maintain warmth during transport. Wrap the baby in warm blankets or aluminum foil blankets (i.e. "space blankets") and a warming hat to minimize heat loss. Consider using a Maine EMS approved infant warming pad during transport.
8. ***Monitor the baby's airway during transport. Hypothermia in the newborn may cause decreased LOC, hypoglycemia, bradycardia and hypotension.***

E A P

9. Most deliveries proceed without complications – If complications of delivery occur, the following steps are recommended:

a. **Shoulder dystocia** – if delivery fails to progress after head delivers, quickly attempt the following:
   i. Hyperflex mother's hips to severe supine knee-chest position
   ii. Apply firm suprapubic pressure to attempt to dislodge shoulder
   iii. Apply high-flow oxygen to mother
   iv. Transport as soon as possible
   v. Contact closest appropriate receiving facility

b. **Prolapsed umbilical cord**
   i. Placed gloved hand into vagina and gently lift head/body off of cord
      1. Assess for pulsations in cord
      2. Maintain until relieved by hospital staff.
   ii. Consider placing mother in prone knee-chest position or extreme Trendelenburg
   iii. Apply high-flow oxygen to mother
   iv. Transport as soon as possible
   v. Contact/transport to closest appropriate receiving facility

c. **Breech birth**
   i. Place mother supine, allow the buttocks and trunk to deliver spontaneously, then support the body while the head is delivered
   ii. If head fails to deliver, place gloved hand into vagina with fingers between infant's face and uterine wall to create an open airway
   iii. Apply high-flow oxygen to mother
   iv. Transport as soon as possible
   v. The presentation of an arm or leg through the vagina is an indication for immediate transport to hospital
   vi. Assess for presence of prolapsed cord and treat as above
   vii. Contact closest appropriate receiving facility

d. **Excessive bleeding** during active labor may occur with placenta previa
   i. Obtain history from patient
   ii. Placenta previa may prevent delivery of infant vaginally
   iii. C-Section needed – transport urgently
   iv. Contact closest appropriate receiving facility

e. **Maternal cardiac arrest**
   i. Apply manual pressure to displace uterus from right to left
   ii. Treat per Red 8, Cardiac Arrest - defibrillation and medications should be given for same indications and doses as if non-pregnant patient
   iii. Contact OLMC to discuss rapid transport if infant is estimated to be over 24 weeks gestation
      1. Perimortem Cesarean section at receiving facility is most successful if done within 5 minutes of maternal cardiac arrest

10. If any of the above conditions are present, the patient is best cared for at a hospital with Obstetric (OB) services. If the patient condition permits, transport to the nearest hospital with OB capabilities if total transport time is less than 45 minutes, otherwise go to the closest ED. For questions, contact OLMC.

APGAR Score

Assess the baby at 1 minute and again at 5 minutes

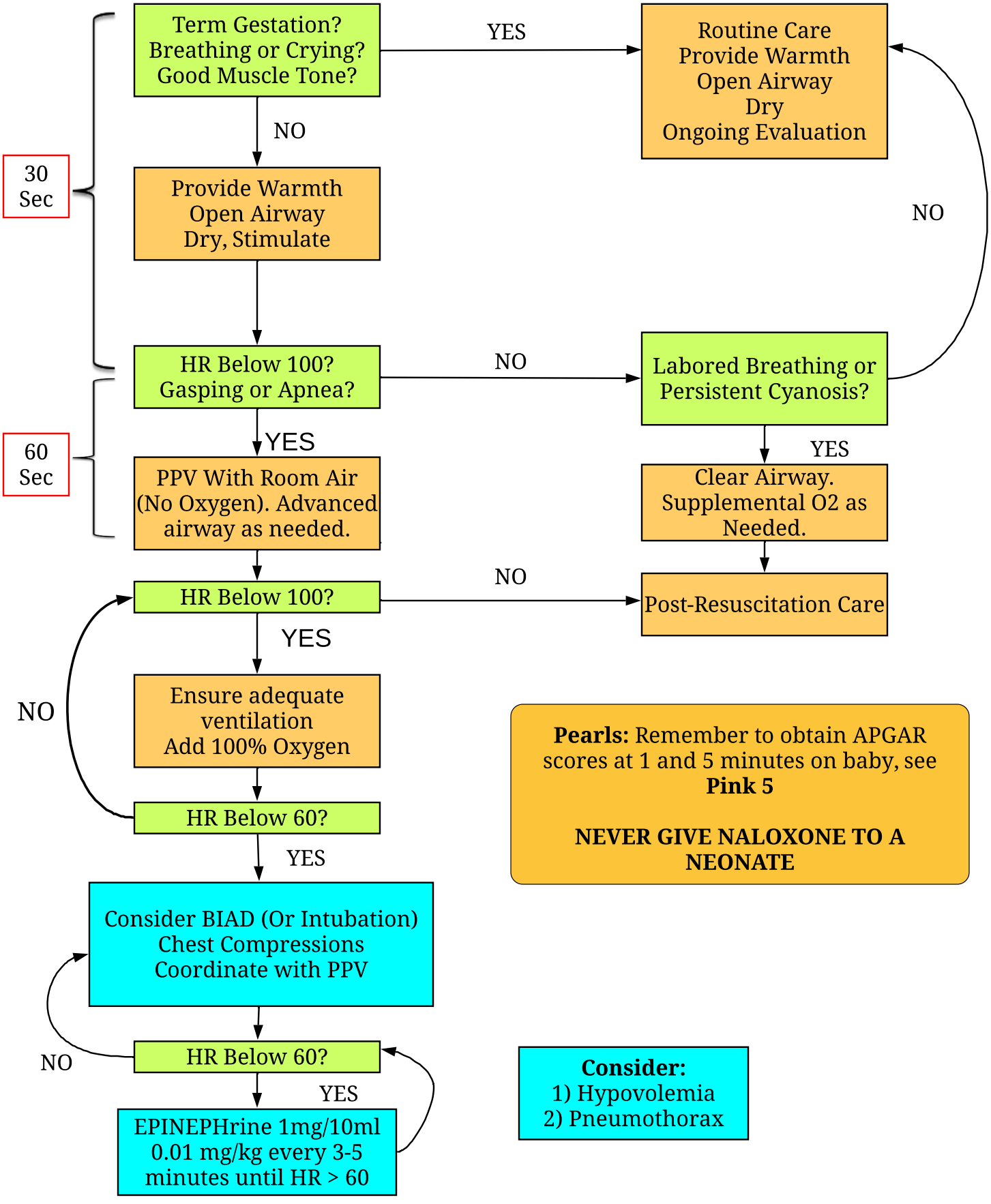
DO NOT DELAY RESUSCITATION to obtain APGAR Score

A score of less than 7 suggests need for resuscitation with suction, ventilation, and ALS back up

APGAR Score				
		0	**1**	**2**
A	Appearance	Blue or Pale	Body Pink/ Hands Blue	Pink
P	Pulse	Absent	less than 100	greater than 100
G	Grimace*	None	Grimace	Cough
A	Activity**	Flaccid	Some	Good
R	Respiration	Absent	Weak	Good

* Tested by a suction catheter or bulb syringe tip gently placed in the nose or mouth
** Amount of spontaneous flexion of extremities

Neonatal Resuscitation



Normal Pediatric Vital Signs, Part 1

Normal Pediatric Vital Signs					
Age	Approximate Weight (kg)	Pulse/Min	Resp/Min	Minimum Systolic BP	Glucose (mg/dl)
Newborn	3	100-160	30-60	60	45-120
6 months	7	100-160	30-60	70	
1 year	10	100-140	24-40	70	
2 years	12	80-130	24-40	70	
3	15	80-130	24-40		100-180
4	16	80-120	22-34		
5	18	80-120	22-34		
6-7	20	70-110	18-30		80-140
8-9	25	70-110	18-30	Multiply age x 2 and add 70	80-140
10-11	35	60-100	16-24		
12-13	40	60-100	16-24		70-120
14	50	60-100	16-24		
15	55+	60-100	14-20		

Note: Estimated weight in kilograms: [2 x (age in years)] + 8
* Typical Systolic BP in children 1-10 years of age: 90 + (age in years x 2)
* Lower Limits of Systolic BP for a child age 3-15 years: 70 + (age in years x 2)

Modified GCS for Infants and Children			
	Child	**Infant**	**Score**
EYE OPENING	Spontaneous	Spontaneous	4
	To speech	To speech	3
	To pain only	To pain only	2
	No response	No response	1
BEST VERBAL RESPONSE	Oriented/Appropriate	Coos and babbles	5
	Confused	Irritable, cries	4
	Inappropriate words	Cries to pain	3
	Incomprehensible sounds	Moans to pain	2
	No response	No response	1
BEST MOTOR RESPONSE	Obeys commands	Moves spontaneously/ purposefully	6
	Localizes painful stimuli	Withdraws to touch	5
	Withdraws in response to pain	Withdraws in response to pain	4
	Flexion in response to pain	Abnormal flexion in response to pain	3
	Extension in response to pain	Abnormal extension in response to pain	2
	No response	No response	1

Pediatric Specific Equipment Sizes

Equipment	GREY 3-5 kg	PINK Small Infant 6-7 kg	RED Infant 8-9 kg	PURPLE Toddler 10-11 kg	YELLOW Small Child 12-14 kg	WHITE Child 15-18 kg	BLUE Child 19-23 kg	ORANGE Large Child 24-29 kg	GREEN Adult 30-36 kg
BVM	Infant or child	Infant or child	Infant or child	Child	Child	Child	Child	Child	Adult
Oral Airway (mm)	50	50	50	60	60	60	70	80	80
Laryngo-scope Blade (size)	1 straight	1 straight	1 straight	1 straight	2 straight	2 straight	2 straight or curved	2 straight or curved	3 straight or curved
ET Tube	3.0 cuffed	3.0 cuffed	3.0 cuffed	3.5 cuffed	4.0 cuffed	4.5 cuffed	5.0 cuffed	6.0 cuffed	6.5 cuffed
ET Tube Insertion length (cm)	3 kg 9-9.5 4 kg 9.5-10 5 kg 10-10.5	10.5-11	10.5-11	11-12	13.5	14-15	16.5	17-18	18.5-19.5
Stylet	Pedi	Pedi	Pedi	Pedi	Pedi	Pedi	Adult	Adult	Adult
Suction Catheter (F)	8	8	8	10	10	10	10	10	10-12
BP Cuff	Neonate	Infant or child	Infant or child	Child	Child	Child	Child	Child	Small adult
IO (Ga)	18/15	18/15	18/15	15	15	15	15	15	15
NG Tube (F)	5-8	5-8	5-8	8-10	10	10	12-14	14-18	16-18
LMA	1	1.5	1.5	2	2	2	2.5	2.5	3
KING	0	1	1	1	2	2	2	2.5	2.5

For ET size, pinky finger diameter in a child affords an acceptable approximate of ET tube outer diameter. The formula for tube size is as follows: "Age (in years)/4 + 3.5 (cuffed)" and the length-based tape may be used for internal diameter determination. Using a tube one size larger or smaller than this guideline is also acceptable.

Pediatric Transportation

PEARLS
These guidelines apply to transporting pediatric patients who are of an age/weight that require a child safety seat. Pediatric patients that don't require a child safety seat should be transported following adult guidelines.

Maine Statute 29-A M.R.S.§2081(2) & (3) requires all children weighing less than 80 pounds, less than 57 inches in height and less than 8 years old to be properly restrained in a child safety seat when riding in a vehicle. Children between 40 and 80 pounds AND less than 8 years of age must be properly secured in a child restraint system in accordance with the child restraint system manufacturer's recommendations. An ill or injured child must be restrained in a manner that minimizes injury in an ambulance crash. The best location for transporting a pediatric patient is secured directly to the ambulance cot. Never allow anyone to hold an infant or child during transport.

TYPES OF RESTRAINTS:

1. Convertible (traditional) car seat with two belt paths (front and back) with four points for belt attachment to the cot is considered best practice for pediatric patients who can tolerate a semi-upright position.
   a. Position safety seat on cot facing foot-end with backrest elevated to meet back of child safety seat.
   b. Secure safety seat with 2 pairs of belts at both forward and rear points of seat.
   c. Place shoulder straps of the harness through slots just below child's shoulders and fasten snugly to child.
   d. Follow manufacturer's guidelines regarding child's weight.

Note: Non-convertible safety seats cannot be secured safely to cot. If child's personal safety seat is not a convertible seat, it cannot be used on the cot.

2. Stretcher harness device with 5-point harness (examples: Ferno Pedi-Mate, SafeGuard Transport, ACR)
   a. Attach securely to cot utilizing upper back strap behind cot and lower straps around cot's frame.
   b. 5-point harness must rest snugly against child. Secure belt at child's shoulder level so no gaps exists above shoulders.
   c. Adjust head portion of cot according to manufacturer's recommendation.
   d. Follow manufacturer guidelines for weight ratings.

Examples	Weight Range
Ferno Pedi-Mate	10-40 pounds
Ferno Pedi-Mate Plus	10-100 pounds
Quantum ACR4	4-99 pounds

3. Car bed with both a front and rear belt path (example: Dream Ride Infant Car Bed)
   a. For infants who cannot tolerate a semi-upright position or who must lie flat.
   b. Position car bed so infant lies perpendicular to cot, keeping infant's head toward center of patient compartment.
   c. Fully raise backrest and anchor car bed to cot with 2 belts, utilizing the 4 attachment sites supplied with car bed.
   d. Only appropriate for infants from 5 – 20 lbs.

E A P

4. Isolette/Incubator must be secured to ambulance according to manufacturer's guidelines.
   a. Secure infant using manufacturer's restraint. (Five-point harness restraint is preferred.)
   b. Blankets or towels may be used for additional stabilization

NON-PATIENT TRANSPORT
Best practice is to transport well children in a vehicle other than the ambulance, whenever possible, for safety.

If no other vehicle is available and circumstances dictate that the ambulance must transport a well child, he/she may be transported in the following locations:

1. Captain's chair in patient compartment using a size appropriate integrated seat or a convertible safety seat.
2. Passenger seat of the driver's compartment if child is large enough (according to manufacturer's guidelines) to ride forward-facing in a child safety seat or booster seat. Airbag should be turned off. If the air bag can be deactivated, an infant, restrained in a rear-facing infant seat, may be placed in the passenger seat of the driver's compartment.

USE OF PATIENT'S CHILD SAFETY SEAT AFTER INVOLVEMENT IN MOTOR VEHICLE CRASH
The patient's safety seat may be used to transport child to the hospital after involvement in a minor crash if ALL of the following apply:
1. It is a convertible seat with both front and rear belt paths.
2. Visual inspection, including under movable seat padding, does not reveal cracks or deformation.
3. Vehicle in which safety seat was installed was capable of being driven from the scene of the crash.
4. Vehicle door nearest the child safety seat was undamaged.
5. The air bags (if any) did not deploy.

MOTHER AND NEWBORN TRANSPORT
1. Secure and transport mother on the cot.
2. Consider transporting mother and newborn in separate ambulances to properly secure each patient to a cot.
3. Transport newborn secured to the rear-facing provider seat /captain's chair using a size-appropriate child restraint system. Either a convertible safety seat with a forward-facing belt path or an integrated child restraint system certified by the manufacturer to meet FMVSS No. 213 may be used to secure infant.
4. Do NOT use a rear-facing only safety seat in the rear-facing provider seat / captain's chair as this is dangerous and may lead to significant injuries.

Transport of Mentally Ill Patients

Maine EMS personnel are generally called to transport a mentally ill patient in one of two situations:

Emergency Transport
Safety for the patient and the crew is the primary concern in the transport of the mentally ill patient. Personnel should make sure they do a thorough evaluation of the patient to find and treat possible medical causes of the behavior. Refer to the Agitation/Excited Delirium protocol, **Orange 3**.

All diagnostic and therapeutic interventions administered by EMS providers are pursuant to the prescriptive authority of a physician. In certain limited situations, when a patient poses a significant danger to self or others, it may be appropriate to restrain the patient involuntarily. Providers are cautioned to use physical restraint as a last resort, preferably with the assistance of local law enforcement, refer to **Orange 2**. Once the decision is made to restrain a patient, the least restrictive restraint reasonable should be implemented and the patient should remain restrained until arrival at the emergency department, unless it interferes with the delivery of medical care. Only commercially available soft restraints are approved by Maine EMS.

Non-Emergency Transfer
Mentally ill patients who are being transferred usually fall into one of these categories:

Voluntary Committal – These patients have agreed to be transferred to a facility for evaluation and treatment of an underlying mental illness. It is important to get a thorough report on the patient prior to transport to avoid surprises en route. Voluntary committal patients can change their mind during transport. In this case, it is the responsibility of the EMS personnel to discharge the patient at a safe location, preferably at the originating facility. If it is not possible to return the patient to the originating facility, notify local law enforcement to meet you at your location.

Involuntary Committal – Patients who are being committed involuntarily must have committal papers (blue papers) completed prior to transport. Between the hours of 7 a.m. and 11 p.m. a judge has to sign the committal papers. After 11 p.m. and before 7 a.m. the papers do not have to be signed except for Riverview Psychiatric Center (formerly AMHI) – this is known as the “pajama clause”. Make sure that the transporting service is listed correctly on the papers. According to Maine law, the patient must be transported in the least restrictive form of transportation available. Make sure you get a thorough history to determine whether restraints will be necessary. *If the receiving facility refuses to accept the patient after evaluating them, the transporting service is required, by law, to transport the patient back to the originating facility.*

Depression/Suicidal Ideation

E A P

1. Ensure the scene is safe and request law enforcement for patients actively threatening/attempting suicide
2. Assess the patient for need of medical treatment and follow appropriate protocol
3. Establish rapport with the patient by listening carefully and speaking in a non-confrontational manner.
4. Assess the patient
   a. Has a suicide attempt been made? If yes, request ALS
   b. **SAD PERSONS** Scale (report score to receiving hospital)
      1 point for each of the following

      Sex:male
      Age <20 or >44
      Depression
      Previous suicide attempt
      Ethanol abuse
      Rational thinking loss
      Social supports lacking
      Organized suicide plan
      No spouse (divorced, widowed, single)
      Sickness (chronic, debilitating, or severe)

   c. Columbia Suicide Screening (if possible, discuss the following questions with the patient):
      i. Have you wished you were dead or wished you could go to sleep and not wake up?
      ii. Have you been thinking about how you might kill yourself?
      iii. Have you taken any steps towards making a suicide attempt or preparing to kill yourself (such as collecting pills, getting a gun, giving valuables away or writing a suicide note)?
5. Provide constant, 1:1 supervision for the patient
6. Collect items such as toxic substances, alcohol, drugs and medications that may have been taken and transport with patient to the hospital
7. Provide support for family and friends who are present.
8. Obtain information from family and friends and obtain their contact information should the hospital have any questions.
9. Transport the patient to the closest facility that can meet their medical and psychiatric needs

Refer to **Orange 1** for Transport of Mentally Ill Patients protocol
Refer to **Orange 3** for Restraint protocol
Refer to **Orange 4** for Agitation/Excited Delirium protocol

PEARL
A SAD PERSONS Score > 4 or a "yes" answer to any of the Columbia Suicide Screening questions may indicate that the patient requires psychiatric hospitalization. However, **all patients presenting with a psychiatric emergency should be transported to the hospital for evaluation.**

Restraints

In certain limited situations, when a patient poses a significant danger to self or others, it may be appropriate to restrain the patient involuntarily. Providers are cautioned to use physical restraint as a last resort, preferably with the assistance of local law enforcement. Once the decision is made to restrain a patient, the least restrictive restraint reasonable should be implemented and the patient should remain restrained until arrival at the emergency department, unless it interferes with the delivery of medical care. Only commercially available soft restraints are approved by Maine EMS.

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EMT/AEMT

1. Refer to Altered Level of Consciousness Protocol, Gold 5, to establish etiology of agitation.
2. Request law enforcement assistance
3. Request ALS
4. Attempt de-escalation techniques (speak in an honest, non-confrontational tone while avoiding eye contact).
5. Have appropriate personnel available prior to initiating restraints
6. Restrain patients in a lateral or supine position. NEVER leave patients restrained in a prone position. **NEVER** restrain a patient's hands and feet behind them (hog-tying). All applied restraints must be easy to remove should a medical emergency occur.
7. Never place objects on top of patients to restrain them.
8. Restrained patients require 1:1 observation by EMS personnel and require continuous cardiac, pulse oximetry and waveform capnography monitoring, if able to do so.
9. Contact **OLMC** as soon as logistically possible after securing the safety of the patient and providers.
10. Documentation: Document de-escalation techniques utilized prior to physical restraint. Document type of restraints used, how restraints applied, when restraints applied, why restraints applied (patient's behavior and mental status), the agency and individual that applied the restraints, frequent vital signs and CSM checks, education provided to patient and time **OLMC** notified.
11. Restraint devices applied by law enforcement require an officer's continued presence to ensure patient safety and allow for quick removal, if necessary. Law enforcement should accompany the patient in the ambulance.
12. Restrained patients should not be moved in a stair chair device as violent patients cannot properly be restrained in a stair chair and EMS personnel may be easily thrown off-balance by a resisting patient.
13. Restrained patients should be transported to the nearest emergency department that can safely accept the patient.

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PARAMEDIC

14. Refer to Agitation/Excited Delirium protocol, **Orange 3.** Physical restraint is both physically and mentally traumatizing to patients. Consider pharmacologic management, if required, once the patient is physically restrained.

Pearls for Restraints

In conjunction with and support of a joint statement released in October 2020 by the NAEMSP, NASEMSO, NEMSMA, NAEMT and APA, the MDPB strongly supports regular, continuing education focused on the management of behavioral emergencies, implementation of QA/QI processes dedicated to these situations, and fostering local relationships with key stakeholders that encourage local systems of care to support EMS clinicians caring for patients suffering from behavioral emergencies.

Agitation/Excited Delirium #1

E

EMT

1. Maintain crew safety; ask for law enforcement assistance, if available
2. Attempt verbal de-escalation using direct, empathetic and calm voice. Present clear limits and options. Respect the patient's personal space. Avoid direct eye contact and assume a non-confrontational posture
3. If altered mental status, check oxygen saturation and perform finger stick blood glucose, if so trained

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ADVANCED EMT

4. If blood glucose is less than 60 mg/dL, refer to Diabetic/Hypoglycemic Emergencies protocol, **Gold 6**

PARAMEDIC

5. Perform the Altered Mental Status Scale:

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Score	Responsiveness	Speech	Facial Expression	Eyes
+4	Combative, very violent, out of control	Loud outbursts	Agitated	Normal
+3	Very anxious, agitated, mild physical element of violence	Loud outbursts	Agitated	Normal
+2	Anxious, agitated	Loud outbursts	Normal	Normal
+1	Anxious, agitated	Normal	Normal	Normal
0	Responds to name in normal tone	Normal	Normal	Clear, no ptosis
-1	Lethargic response to name	Mild slowing or thickening	Mild relaxation	Glazed or mild ptosis (<half eye)
-2	Responds only if name is called loudly	Slurring or prominent slowing	Mild relaxation (slacked jaw)	Glazed or marked ptosis (<half eye)
-3	Responds only after mild prodding	Few recognizable words	Mild relaxation (slacked jaw)	Glazed or marked ptosis (<half eye)
-4	Does not respond to mild prodding or shaking	Few recognizable words	Mild relaxation (slacked jaw)	Glazed or marked ptosis (<half eye)

Procedure for AMSS Assessment	Score
1. Observe the patient - if alert, restless, agitated or combative	0 to + 4
2. Say the patient's name in a gentle tone of voice and ask patient to open eyes	-1
3. If no response to voice, continue with routine EMS	-2 to -4

Agitation/Excited Delirium #2

PARAMEDIC

7. If Altered Mental Status Score +1, +2 or +3, consider midazolam 4-10 mg **IM** for patient/EMS provider safety and patient comfort. First dose should be based on patient's size, age, and the circumstances causing agitation
8. If Altered Mental Status Score +4, consider either:
   * Midazolam 4-10 mg **IM** for patient/EMS provider safety and patient comfort. First dose should be based on patient's size, age, and the circumstances causing agitation

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-OR-

*contact OLMC for Ketamine 4 mg/kg **IM**. Ketamine may not be used in patients greater than 65 years old 

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9. Monitor and document the following every 5 minutes - ECG, O_2 sat, $ETCO_2$, AMSS, and vital signs

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10. Contact OLMC for dosing questions or if patient requires repeat dosing. 

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Pearls for Agitation/Excited Delirium

Agitation - is defined by excessive, purposeless cognitive and motor activity or restlessness, usually associated with a state of tension or anxiety

Excited Delirium - is a sub-category of agitation, with a potential for higher mortality and morbidity. It can be defined by a patient presenting with the following constellation of symptoms (based on the 2009 ACEP White Paper) with frequency in parenthesis:

- Exceptional/abnormal pain tolerance (100%)
- Tachypnea (100%)
- Tactile hyperthermia (95%)
- Unusual strength (90%)
- Police Noncompliance (90%)
- Lack of tiring against restraint (90%)
- Inappropriate clothing for environmental temperature (70%)
- Violent and paranoid behavior
- Rapid development of symptoms
- Rapidly and fluctuating periods of calm and then delirium

These symptoms may be caused by a number of intoxicants, including, but not limited to alcohol, sympathomimetics (cocaine, methamphetamine, MDMA), and dissociative agents (PCP, LSD, dextromethorphan, K2/Spice, Bath Salts, DMT, etc).

Early contact of OLMC is essential for proper preparation of the receiving facility and staff.

Agitation/Excited Delirium #3

Pearls

- Patient who are in a post-ictal state (i.e. have just suffered a seizure) are **NOT** considered to be in excited delirium and should **NOT** receive Ketamine
- Patients should **NOT** receive BOTH Midazolam and Ketamine due to concerns for potential additive affects and respiratory depression

Pearls for Midazolam/Ketamine

Midazolam

- Patients with underlying medical conditions (including COPD/CHF/CAD) as well as patients older than 60 are more likely to suffer adverse effects from midazolam. Consider lower doses in this population.
- WARNING: May cause respiratory depression, arrest, or apnea.
- Assess patients for signs and symptoms of respiratory depression and sedation.
- Administration: **IM** - Administer undiluted deep IM into large muscle.
- Administration: **IV** - Do not administer intra-arterially. Administer by **slow** IV injection over at least 2 minutes using a concentration of 1 mg/mL or a dilution of the 1 or 5 mg/mL concentrations.
- Concomitant use with opioids: **[US Boxed Warning]:** Concomitant use of benzodiazepines and opioids may result in profound sedation, respiratory depression, coma, and death.

Ketamine

- Document the patient's Altered Mental Status Score (AMSS) in the run report.
- Patients with an AMSS less than 4 may be more likely to require airway management when receiving Ketamine, therefore Ketamine is to be used ONLY if the patient is suffering from excited delirium, as measured by an AMSS score of 4.
- Maine EMS Services will be stocking the 100 mg/mL concentration to accommodate the wide dose ranges in the protocol. This is to avoid carrying two very different concentrations and the risk of a serious dose error.
- WARNING: Overdose may lead to panic attacks and aggressive behavior; rarely seizures, increased ICP, and cardiac arrest. Very similar in chemical makeup to PCP (phencyclidine), but it is shorter acting and less toxic.
- Administration: **IM** - Inject deep IM into large muscle mass.
- Administration: **IV** - According to the manufacturer, administer bolus/induction doses over 1 minute or at a rate of 0.5 mg/kg/minute; more rapid administration may result in respiratory depression and enhanced pressor response. Some experts suggest administration over 2 to 3 minutes (Miller 2010).
- **The 100 mg/mL concentration should not be administered IV unless properly diluted with, at minimum, an equal volume of Sterile Water for Injection, NS, or D_5W.**

E A P

EMT/ADVANCED EMT/PARAMEDIC

1. Approach patient in a non-threatening manner and establish rapport.
2. Patient may be wearing several layers of clothes. Avoid cutting clothes, if possible, as these may be the only clothes the patient has, however do not allow clothes to prevent a full examination of the patient. Be aware of the presence of sharp objects (ie: syringes, knives, weapons, etc.) in pockets and clothing.
3. Be cognizant of patient possessions and attempt to secure patient belongings with a trusted individual if it is not feasible to transport all belongings.
4. Homeless patients are at risk of exposure to environmental elements. Move the patient to a "safe" environment (ie: ambulance) early in the encounter, if feasible.
   a. Once the patient is physically in a private and safe location, consider inquiring about the patient's safety from physical or verbal threats.
5. Be aware of concurrent illnesses that may influence the chief complaint. Homeless individuals may lack access to routine medical care predisposing them to the risk for both chronic and acute illnesses.
   a. For example, the pregnancy rate of homeless women is estimated to be twice that of the general population
6. Mental illness and substance abuse occur frequently in the homeless population. Avoid attributing the current chief complaint to these underlying conditions.
7. Head injuries are common in the homeless population. For patient with altered mental status, refer to Altered Level of Consciousness Protocol, **Gold 5** or Head Injury, **Green 11**
8. Individuals suffering homelessness may have many barriers that limit their interest in transport to a hospital. Should the patient refuse transport, refer to the Transport Protocol, Grey *** and consider discussing with OLMC

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