April 2018:

**Anaphylaxis/Allergic Reaction – Adult** in the EMT section:
- Epinephrine 1mg/mL: Administer 0.3 mg (0.3 mL) IM*.

**Anaphylaxis/Allergic Reaction – Pediatric** was updated in the EMT section with:
- If < 25 kg, epinephrine (1 mg/mL) 0.15 mg (0.15 mL) IM*,
- If > 25 kg, epinephrine (1 mg/mL) 0.3 mg (0.3 mL) IM*.
  - For additional dosing, contact Medical Control

*EMTs must have completed the Ready, Check & Inject training, click here.*
The EMTs will need to complete the online training and then practice with their Medical Director or designee.

**Nitronox**
In the Pain Protocol Adult & Pediatric, Nitronox may only be used if patient has not received an opiate. Ketamine was added to the opiates so the bullet now reads:
- Note: Nitronox may only be used if patient has not received an opiate or ketamine.

**Obstetrical Emergencies**
After the release of the protocols, it was recognized that in the presence of a prolapsed cord it did not matter if a pulse was present or not, the provider should place a gloved hand in the vagina and decompress the cord by elevating the presenting fetal part off of the cord. The protocol was changed to strike the words, “If umbilical cord pulse is absent”.

**TXA**
*Change the TXA dosing to, “Mix 1 gram of TXA in 50 – 100 mL of 0.9% NaCl”.*
# Anaphylaxis/Allergic Reaction

## Adult

### EMT STANDING ORDERS
- Routine Patient Care.
- For anaphylaxis, administer: (anterolateral thigh preferred administration site)
  - Adult epinephrine autoinjector 0.3 mg IM OR
  - Epinephrine 1mg/1mL: Administer 0.3 mg (0.3 mL) IM*.  
    - For additional dosing, contact Medical Control.

  *EMTs must have completed the Ready, Check & Inject training, click here.*
- For nausea or vomiting see Nausea/Vomiting Protocol 2.11.
- Do not delay transport.

### ADVANCED EMT STANDING ORDERS
- For anaphylaxis:
  - Repeat epinephrine every 5 minutes until signs and symptoms resolve
  - For respiratory symptoms / wheezing consider albuterol 2.5mg via nebulizer.
    Repeat albuterol 2.5 mg, every 5 minutes (4 doses total) via nebulizer.
  - For signs of shock consider fluid per Shock – Non-Traumatic Protocol 2.19.

### PARAMEDIC STANDING ORDERS
- After epinephrine has been administered or for isolated skin symptoms of allergic reaction consider:
  - Diphenhydramine 25 – 50 mg IM/IV/PO.
- For anaphylaxis refractory to 3 or more doses of IM epinephrine, (e.g., persistent hemodynamic compromise, bronchospasm), consider:
  - Epinephrine infusion 2 - 10 micrograms/minute until symptoms resolve, pump required

### EMT/ADVANCED EMT EXTENDED CARE ORDERS
- Diphenhydramine 25 – 50 mg by mouth. May repeat every 4-6 hours as needed; maximum dose of 300 mg in 24 hours.

### PARAMEDIC EXTENDED CARE ORDERS
- Dexamethasone 10 mg IV or by mouth OR
- Methylprednisolone 125 mg IV OR
- Prednisone 60 mg by mouth.

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**PEARLS:**
- Allergic reactions are commonly a response to an allergen involving the skin.
- Anaphylaxis: known/likely allergen exposure AND hypotension or respiratory compromise.
- Signs of anaphylaxis also include:
  - Angioedema: facial/lip/tongue swelling, throat tightening, voice change.
  - Breathing: shortness of breath, wheeze, stridor, cyanosis.
  - Poor perfusion: altered mental status, syncope, delayed capillary refill, hypotension.
  - Rash: Hives, itching, extremity swelling.
  - Gastrointestinal: vomiting, abdominal pain, diarrhea.

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**CAUTION:** Epinephrine is available in different routes and concentrations. Providers are advised to re-check the dosing and concentration prior to administration.

**In anaphylaxis, epinephrine should not be delayed by taking the time to administer second-line medications such as diphenhydramine.**
### Anaphylaxis/Allergic Reaction

**Pediatric 2.2P**

#### EMT STANDING ORDERS
- Routine Patient Care.
- For anaphylaxis administer: (anterolateral thigh preferred administration site)
  - Pediatric epinephrine autoinjector (EpiPen Jr) 0.15 mg IM for < 25 kg,
  - Adult epinephrine autoinjector (EpiPen) 0.3 mg IM if > 25 kg OR
  - If < 25 kg, epinephrine (1 mg/mL) 0.15 mg (0.15 mL) IM*.
  - If > 25 kg, epinephrine (1 mg/mL) 0.3 mg (0.3 mL) IM*.
  - For additional dosing, contact Medical Control

*EMTs must have completed the Ready, Check & Inject training, click here.*
- For nausea or vomiting see Nausea/Vomiting Protocol 2.11
- Do not delay transport.

#### ADVANCED EMT STANDING ORDERS
- For anaphylaxis:
  - Repeat epinephrine every 5 minutes until signs and symptoms resolve.
  - For respiratory symptoms / wheezing consider albuterol 2.5 mg via nebulizer.
    Repeat albuterol 2.5 mg, every 5 minutes (4 doses total) via nebulizer.
  - For signs of shock consider fluid per Shock – Non-Traumatic Protocol 2.19.

#### PARAMEDIC STANDING ORDERS
- After epinephrine has been administered or for isolated skin symptoms of allergic reaction consider:
  - Diphenhydramine 1.25 mg/kg PO OR
  - Diphenhydramine 1 mg/kg IV/IM (maximum dose 50 mg).
- For anaphylaxis refractory to 3 or more doses of IM epinephrine, (e.g., persistent hemodynamic compromise, bronchospasm) consider:
  - Epinephrine Infusion 0.1 - 2 micrograms/kg/minute (maximum 10 micrograms/min) via pump until symptoms resolve.

#### EMT/ADVANCED EMT EXTENDED CARE ORDERS
- Diphenhydramine:
  - Ages 6 to 11 years: 12.5 – 25 mg by mouth. May repeat every 4-6 hours as needed; maximum dose of 150 mg in 24 hours.
  - Ages 2 to 5 years: 6.25 mg by mouth. May repeat every 4-6 hours as needed; maximum dose of 37.5 mg in 24 hours.

#### PARAMEDIC EXTENDED CARE ORDERS
- Dexamethasone 0.6 mg/kg PO/IM/IV (PO preferred) maximum 10 mg OR
- Methylprednisolone 1 mg/kg IV (maximum dose 125 mg).

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**CAUTION:** Epinephrine is available in different routes and concentrations. Providers are advised to re-check the dosing and concentration prior to administration.

**In anaphylaxis, epinephrine should not be delayed by taking the time to administer second-line medications such as diphenhydramine.**

**PEARLS:**

- Allergic reactions are commonly a response to an allergen involving the skin.
- Anaphylaxis: known/likely allergen exposure AND hypotension or respiratory compromise.
- Signs of anaphylaxis also include:
  - Angioedema: facial/lip/tongue swelling, throat tightening, voice change.
  - Breathing: shortness of breath, wheeze, stridor, cyanosis.
  - Poor perfusion: altered mental status, syncope, delayed capillary refill, hypotension.
  - Rash: Hives, itching, extremity swelling.
  - Gastrointestinal: vomiting, abdominal pain, diarrhea.

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The New Hampshire Bureau of EMS has taken extreme caution to ensure all information is accurate and in accordance with professional standards in effect at the time of publication. These protocols, policies, or procedures MAY NOT BE altered or modified.
READY, CHECK, INJECT
Protocol for Administering Epinephrine for Acute Anaphylaxis

1. READY
   * Adult Dose: 0.3 mL
   ** Pediatric Dose (<55 lbs/<25 kg): 0.15 mL
   - Wear gloves
   - Use 1mL syringe with 1” needle
   - Use only 1mg/1mL epinephrine

   ![Diagram](SEE REVERSE)

2. CHECK
   Check volume of medication in syringe by comparing to diagram below. (Diagram to scale)
   Use Cross Check, with another person if possible, to confirm the proper dose. (SEE REVERSE)

   ** Pediatric Dose: 0.15 mL
   Align plunger here

   ** Adult Dose: 0.3 mL
   Align plunger here

3. INJECT
   * Inject medication intramuscularly only.

   ![Diagram](SEE REVERSE)
- This protocol is designed to be performed by two people.
- If a second person is not available, pause at each step, think and confirm before moving to next step.
- All steps should be confirmed prior to administering the injection.

**PERSON 1**

Correct Medication:
Epinephrine 1 mg / 1 mL

**CONFIRM**

Correct Dose:
- Adult 0.3 mL
- Pediatric 0.15 mL

**CONFIRM**

Inspect Syringe:
Compare against visual reference (SEE REVERSE)

**CONFIRM**

**IF CONFIRMATION COMPLETE**

**INJECT**

**PERSON 2**

Visually inspects vial
Confirms correct medication

**IF CONFIRMED**

Confirms correct dose

**IF CONFIRMED**

Visually inspects and confirms correct volume
2.14 Obstetrical Emergencies

Recognition:
- 3rd trimester bleeding: vaginal bleeding occurring ≥ 28 weeks of gestation.
- Preterm labor: onset of labor/contractions prior to the 37th week of gestation
- Malpresentation: presentation of the fetal buttocks or limbs.
- Prolapsed umbilical cord: umbilical cord precedes the fetus.
- Shoulder dystocia: failure of the fetal shoulder to deliver shortly after delivery of the head.
- Postpartum hemorrhage: >500 ml estimated blood loss or blood loss with hemodynamic instability.
- Pre-eclampsia/Eclampsia: BP > 160/100, severe headache, visual disturbances edema, RUQ pain, seizures

**EMR & EMT STANDING ORDERS**
- Routine Patient Care
- Do not delay transport for patients with obstetrical emergencies, provide early notification to the receiving facility.
- If gestational age is known to be < 20 weeks, transport to closest hospital.
- If gestational age is known to be > 20 weeks or fundus is palpable at or above the umbilicus, contact Medical Control and follow local OB diversion protocol, if available.

For third trimester bleeding
- Suspect placenta previa (placenta is implanted in the lower uterine segment)
- Suspect placental abruption (placenta is separated from the uterine wall before delivery); because hemorrhage may occur into the pelvic cavity, shock can develop despite relatively little vaginal bleeding.
- Do not perform digital examination
- Place patient in the left lateral position
- Monitor hemodynamic stability (see Shock Protocol 2.19)

For breech birth (presentation of buttock):
- Do not pull on newborn. Support newborn and allow delivery to proceed normally.
- If the legs have delivered, gently elevate the trunk and legs to aid delivery of the head.
- If the head is not delivered within 30 seconds of the legs, place two fingers into the vagina to locate the infant’s mouth. Press the vaginal wall away from the infant’s mouth to maintain the fetal airway.

For limb presentation:
- Place mother in knee-chest or Trendelenberg position.
- Do not attempt delivery; transport emergently as surgery is likely.

For prolapsed cord:
- Discourage pushing by the mother
- Place mother in knee-chest or Trendelenberg position.
- Place a gloved hand into the mother’s vagina and decompress the umbilical cord by elevating the presenting fetal part off of the cord.
- Wrap cord in warm, sterile saline soaked dressing.

For shoulder dystocia:
- Suspect if newborn’s head delivers normally and then retracts back into perineum because shoulders are trapped.
- Discourage pushing by the mother
- Support the baby’s head, do not pull on it.
- Suction the nasopharynx and oropharynx, as needed
- Position mother with buttocks dropped off end of stretcher and thighs flexed upward (Extreme knee-chest position/McRobert’s maneuver). Apply firm pressure with an open hand immediately above pubic symphysis.
- If the above method is unsuccessful, consider rolling the patient to the all fours position.
Pre-eclampsia/Eclampsia is most commonly seen in the last 10 weeks of gestation, during labor, or up to 48 hours post-partum. It also may occur up to several weeks post-partum.

**EMT ADVANCED STANDING ORDERS**
- Routine Patient Care.
- Ensure quiet environment / dim lights / limited use of siren.
- If pregnant, place patient in left lateral recumbent position.

**ADVANCED EMT STANDING ORDERS**
- Establish vascular access.

**PARAMEDIC STANDING ORDERS**
- For patients in the third trimester of pregnancy or post-partum who are seizing or who are post-ictal:
  - Magnesium sulfate, 4 grams IV (mix in 100 mL 0.9% NaCl) bolus over 10 minutes, then consider 1 gram/hr continuous infusion see Seizure Protocol 2.17A.
  - Contact Medical Control and follow local OB Diversion Protocol.

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PEARL:
The amount of bleeding is difficult to estimate. Menstrual pad holds between 5 - 15 mL depending on type of pad. Maternity pad holds 100 mL when completely saturated. Chux pad holds 500 mL. Estimate the amount of bleeding by number of saturated pads in last 6 hours. Consider transporting the soiled linen to the hospital to help estimate blood loss.
**2.15A Pain Management – Adult**

**EMT STANDING ORDERS**
- Routine Patient Care.
- Use ample padding when splinting musculoskeletal injuries.
- Consider the application of a cold pack for 30 minutes.
- Have the patient rate his/her pain from 0 to 10, or use another appropriate pain scale. If there is a language barrier, use self report scale, see Pain – Pediatric Protocol 2.15P.
- If not contraindicated, consider acetaminophen:
  - 325 – 1000 mg PO, no repeat
- For moderate to severe pain consider paramedic intercept

**ADVANCED EMT STANDING ORDERS**
- Nitronox: The patient must be able to self-administer this medication.
- Nitronox is contraindicated in patients with abdominal pain, pneumothorax, head-injured, or diving-emergency patients.
  - Note: Nitronox may only be used if patient has not received an opiate or ketamine.

**PARAMEDIC STANDING ORDERS**
For mild or moderate pain consider:
- Ketorolac 15 mg IV/IM (no repeat)
  - Consider as first line in renal colic.
For severe pain or pain refractory to above, consider one of the following opiates:
- Fentanyl:
  - 25 – 100 micrograms IV, every 2 – 5 minutes to a total of 300 micrograms titrated to pain relief;
  - 50 – 100 micrograms IM/IN, every 5 minutes to a total of 300 micrograms titrated to pain relief, OR
- Hydromorphone
  - 0.5 – 1 mg IV, every 10 minutes to a total of 4 mg titrated to pain relief and if systolic BP is >100 mmHg, OR
- Morphine:
  - 2 – 10 mg IV/IM every 10 minutes to a total of 20 mg titrated to pain relief and if systolic BP is >100 mmHg.

**Antidote:** For hypoventilation from opiate administration by EMS personnel, assist ventilations and administer naloxone as directed in the Poisoning/Substance Abuse/Overdose Protocol 2.16A.

**AND/OR**
- Ketamine:
  - 10 – 20 mg IV diluted in 50 – 100 mL 0.9% NaCl or D5W over 10 minutes (no IV pump needed) may repeat every 5 minutes to a total of 40 mg, as tolerated, OR
  - 25 – 50 mg IM may repeat every 30 minutes, as tolerated
    - To minimize chance of dysphoric reaction consider starting at lower doses and increasing if needed for analgesia.

**Antidote:** For dysphoria (emergency reaction) caused by ketamine administer midazolam 1 - 2 mg IV/IM every 5 minutes as needed.

For nausea: see Nausea/Vomiting 2.11 Protocol.

**Contact Medical Control for guidance in patients with:**
- Altered mental status or
- Additional doses of a medication, or
- Benzodiazepines administration in conjunction with narcotic administration for patients with musculoskeletal spasms.
Pain Management – Adult 2.15A

PEARLS:
- Ketamine should be considered in patients with severe pain, hemodynamic compromise, pain refractory to opiates, patients on chronic opiate treatment, and patients with history of substance use disorder and receiving medication assisted treatment (e.g. methadone, buprenorphine).
- Ketamine may cause appearance of intoxication at higher doses. Dysphoria (emergence reaction) may occur as the medication effects wear off.
- Place the patient in a position of comfort, if possible.
- Give reassurance, psychological support, and distraction.
- Avoid coaching the patient; simply ask them to rate his/her pain on a scale from 0 – 10, where 0 is no pain at all and 10 is the worst pain they have ever experienced.
- Reassess the patient’s pain level and vital signs every 5 minutes.
- Narcotics are not recommended for first line treatment of headache and should be reserved for severe headaches only.

- Avoid acetaminophen in patients who have taken medications containing acetaminophen within the past 4 hours.
- Avoid ketorolac in patients with NSAID allergy, aspirin-sensitive asthma, renal insufficiency, pregnancy, or known peptic ulcer disease.
- Medications should be administered cautiously in frail, debilitated, or patients over 65 years of age; lower doses should be considered.
- Use caution for altered mental status, hypoventilation, hypotension, or allergy.
- A scavenger and ventilation fan should be used while administering Nitronox.

Ketamine contraindicated in patients unable to tolerate hyperdynamic states such as those with known or suspected aortic dissection, myocardial infarction, and aortic aneurysm.
**EMT STANDING ORDERS**

- Routine Patient Care.
- Use ample padding when splinting musculoskeletal injuries.
- Consider the application of a cold pack for 30 minutes.
- Rate the patient’s pain:
  - Children greater than 8 years of age:
    - Ask the patient to rate pain on a scale from 0 – 10, where 0 is no pain and 10 is the worst pain ever experienced by the patient.
  - Children 3 – 8 years of age:
    - Use the Wong-Bakers FACES Scale see Pain Management - Pediatric Protocol 2.15P Page 2.
  - Children less than 3 years of age or non-verbal:
    - Use the FLACC Pain Scale, see Pain Management - Pediatric Protocol 2.15P Page 2.

**ADVANCED EMT STANDING ORDERS**

- Nitronox: Patient must be able to self-administer this medication. Nitronox is contraindicated in patients with abdominal pain, pneumothorax, head injury, or diving-emergency patients.
  - Note: Nitronox may only be used if the patient has not received an opiate or ketamine.

**PARAMEDIC STANDING ORDERS**

Unless the patient has altered mental status consider one of the following for pain control:

- Fentanyl 1.0 micrograms/kg IV/IM/IN (maximum dose 100 micrograms) may repeat 0.5 micrograms/kg (Maximum dose 50 micrograms) every 5 minutes. May be repeated to a total of 3 doses, OR
- Morphine 0.1 mg/kg IV (maximum dose 5 mg) may repeat 0.05 mg/kg (maximum dose 2.5 mg) every 5 minutes. May be repeated to a total of 3 doses.

**Antidote:** For hypoventilation from opiate administration by EMS personnel, assist ventilations and administer as directed in the Poisoning/Substance Abuse/Overdose Protocol 2.16P.

**AND/OR**

- Ketamine for patient > 3 months:
  - 0.5 – 1 mg/kg IN OR
  - 0.1 – 0.25 mg/kg IV diluted in 50 – 100 mL 0.9% NaCl or D5W over 10 minutes (no IV pump needed)
    - To minimize chance of dysphoric reaction consider starting at lower doses and increasing if needed for analgesia.

**Antidote:** For dysphoria (emergence reaction) caused by ketamine administer midazolam 0.05 mg/kg IV/IM (max single dose of 2 mg) every 5 minutes as needed.

- For nausea: See Nausea/Vomiting 2.11 Protocol
- Contact Medical Control for guidance regarding:
  - Altered mental status or
  - Requests to provide additional doses of a medication.

Ketamine contraindicated in patients unable to tolerate hyperdynamic states such as those with known or suspected aortic dissection, myocardial infarction, and aortic aneurysm.

**Policy Continues**
Each of the five categories (F) Face; (L) Legs; (A) Activity; (C) Cry; (C) Consolability is scored from 0-2, which results in a total score between zero and ten.

**PEARLS:**
- Ketamine should be considered in patients with severe pain, hemodynamic compromise, pain refractory to opioids, patients on chronic opiate treatment, and patients with history of substance use disorder and receiving medication assisted treatment (e.g. methadone, buprenorphine).
- Ketamine dosing is based on IDEAL body weight or Pediatric Color Coded Appendix.
- Ketamine may cause appearance of intoxication at higher doses. Dysphoria may occur as the medication effects wear off.
- Avoid coaching the patient; simply ask him/her to rate his/her pain on a scale from 0 – 10, where 0 is no pain at all and 10 is the worst pain the patient has ever experienced. Place the patient in a position of comfort, if possible.
- Give reassurance, psychological support, and distraction.
- Reassess the patient’s pain level and vital signs every 5 minutes.

Each of the five categories (F) Face; (L) Legs; (A) Activity; (C) Cry; (C) Consolability is scored from 0-2, which results in a total score between zero and ten.

**Patients who are awake:** Observe for at least 1-2 minutes. Observe legs and body uncovered. Reposition patient or observe activity, assess body for tenseness and tone. Initiate consoling interventions if needed.

**Patients who are asleep:** Observe for at least 2 minutes or longer. Observe body and legs uncovered. If possible reposition the patient. Touch the body and assess for tenseness and tone.

The revised-FLACC can be used for all non-verbal children. The additional descriptors (in bold) are descriptors validated in children with cognitive impairment. The nurse can review with parents the descriptors within each category. Ask them if there are additional behaviors that are better indicators of pain in their child. Add these behaviors to the tool in the appropriate category.

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4.8 Tranexamic Acid (TXA) - Adult

PARAMEDIC STANDING ORDERS – ADULT

INDICATIONS:
- Evidence of significant blunt or penetrating trauma (e.g. ejection from automobile, fall > 20 feet, pedestrian struck, penetrating injury to neck, torso, etc.).
- Evidence or concern for severe external and/or internal hemorrhage (bleeding requiring tourniquet, amputation proximal to wrist or ankle, unstable pelvis, two or more long bone fractures, concern for significant intra-thoracic or intra-abdominal injury, etc.).
- Presence of one or more markers of hemodynamic instability.
  - Sustained systolic blood pressure < 90 mmHg.
  - Sustained heart rate > 110 after pain adequately treated.
- Injury must have occurred within the past 3 hours.

CONTRAINDICATION:
- < 15 years old.
- Previous allergic reaction to TXA.
- Isolated head injury.
- Injury > 3 hours old.
- Patients who have received or will receive prothrombin complex concentrate (PCCs), factor VIIa, or factor IX complex concentrates.
- Women who are known or suspected to be pregnant with a fetus of viable gestational age (> 24 weeks).

PROCEDURE:
- Mix 1 gram of TXA in 50 - 100 ml of 0.9% NaCl
- Infuse over approximately 10 minutes IV or IO
- Notify receiving facility of TXA administration prior to arriving.

PEARLS
- The greatest benefit is seen when TXA is administered to patients within 1 hour of injury.
- Rapid IV push may cause hypotension.
- If there is a new onset of hypotension, slow the TXA infusion.
- Protect patient from extremes in temperatures.
- Do not administer in the same line as blood products, rFVIIa, or PCN.
- Good documentation of time of injury, time of TXA administration is necessary.