General Treatment Guidelines

G1 — Allergy and Anaphylaxis
G2 — Altered Level of Consciousness
G3 — Behavioral Emergency
G4 — Burns
G5 — Childbirth
G6 — Dystonic Reaction
G7 — Envenomation
G8 — Heat Illness/Hyperthermia

G9 — Hypothermia
G10 — Pain Management
G11 — Poisoning/Overdose
G12 — Respiratory Repression or Apnea
G13 — Respiratory Distress
G14 — Seizure
G15 — Stroke
G16 — Trauma
G17 — Vomiting and Severe Nausea
## ANAPHYLAXIS / ALLERGY

- **Systemic reactions (anaphylaxis)** include upper and lower respiratory tracts, gastrointestinal or vascular system. Symptoms include dyspnea, stridor, change in voice, wheezing, anxiety, tachycardia, tightness in chest, vomiting, diarrhea, abdominal pain, dizziness or hypotension.
- **Skin and mucous membrane reactions** (swelling of face, lip, tongue, palate), may be seen in either uncomplicated allergic reactions or in anaphylaxis.

### OXYGEN

- **BLS:** Low flow unless ALOC / respiratory distress / shock
- **ALS:** Titrate to sPO$_2$ of at least 94%

### EPI-PEN

- May assist with administration of patient’s auto-injector

### CARDIAC MONITOR

- If systemic reaction (anaphylaxis):
  - **EPINEPHRINE 1:1000 IM**
    - Adult – 0.3-0.5 mg IM (use 0.3 mg in elderly, small patients or mild symptoms)
    - Pediatric – 0.01 mg/kg IM – maximum dose 0.3 mg
      - May repeat in 15 minutes if systemic symptoms persist
  - **ALBUTEROL**
    - Adult and pediatric - 5 mg/6 ml saline via nebulizer – may repeat as needed
  - **IV**
    - TKO
  - **CONSIDER FLUID BOLUS**
    - Adult – wide-open NS if hypotensive. Recheck vitals after every 250 ml
    - Pediatric - 20 ml/kg NS bolus if hypotensive, may repeat X 2

### CONSIDER

- **DIPHENHYDRAMINE**
  - Adult - 50 mg slow IV or IM
  - Consider 25 mg dose if patient has taken po diphenhydramine
  - Pediatric – 1 mg/kg IV or IM – Maximum dose 50 mg
    - Consider 0.5 mg/kg dose if patient has taken po diphenhydramine
If serious progression of symptoms after treatment with IM epinephrine:

- Includes profound hypotension, absence of palpable pulses, unconsciousness, cyanosis, severe respiratory distress or respiratory arrest

<table>
<thead>
<tr>
<th>CONSIDER IO</th>
<th>If IV access not immediately available</th>
</tr>
</thead>
</table>

| FLUID BOLUS  | • Adult - wide open NS. Recheck vitals after every 250 ml  
|              | ✳ Pediatric - 20 ml/kg NS bolus, may repeat X 2 |

| CONSIDER EPINEPHRINE 1:10,000 IV | If patient not responsive to IM epinephrine treatment in 5-10 minutes:  
|                                 | • Adult - titrate in 0.1 mg doses slow IV or IO to a maximum dose of 0.5 mg  
|                                 | Use extreme caution with patients with cardiac history, angina, hypertension  
|                                 | ✳ Pediatric-titrate in up to 0.1 mg doses slow IV or IO to a maximum of 0.01 mg/kg |

**Key Treatment Considerations**

- Epinephrine IM administered early is the cornerstone of treatment in anaphylaxis  
  - Epinephrine is well tolerated in pediatric patients and healthy young adults  
  - In patients with prior history of coronary artery disease (angina, MI, stent placement), use of epinephrine IM is still indicated if symptoms are moderate to severe. If symptoms mild, careful observation is prudent. Consider base contact if any questions
- Diphenhydramine and albuterol are secondary considerations in anaphylaxis  
- Up to 20% of anaphylaxis patients may present without any skin findings (e.g. hives)  
- Gastrointestinal symptoms may predominate in some patients, especially with serious reactions to food  
- In pediatric patients, hypotension is late sign of shock  
- Use length-based tape for pediatric weight determination. See Pediatric Drug Chart for dose.
### G2–GENERAL

#### ALTERED LEVEL OF CONSCIOUSNESS

**Glasgow Coma Scale less than 15 – uncertain etiology. Consider AEIOU/TIPPS**

<table>
<thead>
<tr>
<th>OXYGEN</th>
<th><strong>BLS:</strong> High flow initially. <strong>ALS:</strong> Titrate to sPO$_2$ of at least 94%. Be prepared to support ventilations as needed.</th>
</tr>
</thead>
</table>
| **ORAL GLUCOSE**      | Consider if known diabetic, conscious, able to sit upright, able to self-administer  
| **Adult** – 30 g po   |  
| **Pediatric – 15-30 g po** |  
| **CARDIAC MONITOR**  |                                                                                                                                  |
| **BLOOD GLUCOSE**     | Check level                                                                                                                     |
| **EARLY TRANSPORT**   | In patients with ALOC without low blood sugar                                                                                 |
| **IV**                | TKO NS                                                                                                                           |
| **DEXTROSE 10%**      | If glucose 60 or less:  
| **Adult** – DEXTROSE 10% 100 ml IV |  
| **Pediatric – DEXTROSE 10% 0.5 g/kg IV (5 ml/kg)** |  
| **GLUCAGON**          | If unable to establish IV (at least 2 attempts or if unable to find suitable site):  
| **Adult** – 1 mg IM     |  
| **Pediatric – 24 kg or more – 1 mg IM** |  
| **Pediatric – Less than 24 kg – 0.5 mg IM** |  
| **BLOOD GLUCOSE**     | Recheck if symptoms not resolved. If GLUCAGON has been administered, change in glucose/mentation may require 15 minutes or more. |
| **DEXTROSE 10%**      | Repeat additional DEXTROSE 10% 150 ml IV if glucose remains 60 or less. |
| **DEXTROSE 50%**      | Administer DEXTROSE 50% 25 g IV if glucose remains 60 or less after full Dextrose 10% dose given (250 ml)                            |

Related guideline: Respiratory Depression or Apnea (G12)
**Key Treatment Considerations**

<table>
<thead>
<tr>
<th>Consideration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Naloxone <strong>should not</strong> be given as treatment for altered level of consciousness in the absence of respiratory depression (respiratory depression = rate of less than 12 breaths per minute)</td>
</tr>
<tr>
<td>After treatment(s) for hypoglycemia, recheck glucose before considering repeat treatment. Mental status improvement may lag behind improved glucose levels (especially in elderly patients or prolonged hypoglycemia). Further treatment when glucose is 60 or above is not indicated.</td>
</tr>
<tr>
<td>Oral glucose is the preferred treatment when patient is able to take medication orally</td>
</tr>
<tr>
<td>Dextrose 10% is the preferred treatment when patient is unable to take oral medication</td>
</tr>
<tr>
<td>Glucagon should not be administered if patient able to take oral glucose and should be administered only if IV starts are unsuccessful or no suitable IV sites found. It may not be effective in patients with starvation, poor oral intake, alcoholism or alcohol intoxication.</td>
</tr>
<tr>
<td>Glucagon may take 10-15 minutes or longer to increase glucose level (peak effects in 45-60 minutes) Wait for 10-15 minutes for recheck glucose before considering additional treatment</td>
</tr>
<tr>
<td>For diabetics with insulin pumps, the amount of insulin administered by the pump is very small and should not impede treatment of hypoglycemia. Insulin pumps should not be discontinued because of the development of hypoglycemia.</td>
</tr>
<tr>
<td>The presence of the pump should be identified during patient report at the hospital.</td>
</tr>
<tr>
<td>Transport is highly recommended in patients with hypoglycemia as a result of oral diabetic medications and patients over 65 years of age (higher risk of recurrent hypoglycemia).</td>
</tr>
<tr>
<td>Transport is also highly recommended for any hypoglycemic patient who is not a diabetic (may occur with renal failure, starvation, alcohol intoxication, sepsis, rare metabolic disorders, aspirin overdoses and sulfa drugs or following bariatric surgery).</td>
</tr>
<tr>
<td>Consider transport earlier in patients with poor vascular access who are not responding to glucagon or have reasons listed above for possible impaired response to glucagon</td>
</tr>
</tbody>
</table>

* Use length-based tape for pediatric weight determination. **See Pediatric Drug Chart for D10 dose.**
A behavioral emergency is defined as combative or irrational behavior not caused by medical illnesses such as hypoxia, shock, hypoglycemia, head trauma, drug withdrawal, intoxicated states or other conditions.

Combative or irrational behavior may be caused by psychiatric or other behavioral disorder.

History of event and past history are important in patient evaluation.

Past history of psychiatric condition does not eliminate need to assess for other illnesses.

<table>
<thead>
<tr>
<th>SCENE SAFETY</th>
<th>Many patients merit a weapons search by law enforcement</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Physical restraints may be needed if patient exhibits behavior that presents a danger to him/herself or others</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>ASSESS PATIENT</th>
<th>Assess for evidence of hypoxia, hypoglycemia, trauma</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Consider other medical causes for behavioral symptoms</td>
</tr>
</tbody>
</table>

VITAL SIGNS

Obtain vital signs as possible

CONSIDER OXYGEN

**BLS:** Low flow unless ALOC / respiratory distress / shock

**ALS:** Titrate to sPO$_2$ of at least 94%

CARDIAC MONITOR

Place as possible / safe

CONSIDER BLOOD GLUCOSE

Obtain as possible / safe
**CONSIDER CHEMICAL RESTRAINT**

<table>
<thead>
<tr>
<th>BASE ORDER REQUIRED</th>
</tr>
</thead>
<tbody>
<tr>
<td>Despite verbal de-escalation and physical restraint, if adult patient (15 years or older) remains extremely combative and struggling against restraints, consider:</td>
</tr>
<tr>
<td>• <strong>MIDAZOLAM</strong> 5 mg IM. Lower doses should be considered in elderly or small patients (under 50 kg).</td>
</tr>
<tr>
<td>• <strong>MIDAZOLAM</strong> 1-5 IV mg in 1 mg increments if IV established and patent</td>
</tr>
</tbody>
</table>

**MONITOR PATIENT**

| Monitor closely for respiratory compromise. Assess and document mental status, vital signs, and extremity exams (if restrained) at least every 15 minutes. |

Related guidelines: Altered Level of Consciousness (G2), Trauma (G16)

### Key Treatment Considerations

- Calming measures may be effective and may preclude need for restraint in some circumstances
- Utilize a single person to establish rapport. Separate patient from crowd and seek quiet environment if possible, but maintain contact with other personnel and ability to exit rapidly.
- Avoid violating patient’s personal space, making direct eye contact or sudden movements. Frequent reassurance and calm demeanor of personnel are important.
- Enlist assistance of law enforcement if restraint needed. Never transport patient in prone position.
- Assure adequate resources available to manage patient’s needs. Restraint may require up to five persons to safely control patient.
- Patients with past history of violent behavior are more likely to exhibit recurrent violent behavior
- In pediatric patients, consider child’s developmental level when providing care
- Sedation with Midazolam intended for adult patients only (age 15 and over)
- Not all patients will respond to Midazolam. Repeat dosage is not recommended.
### G4–GENERAL

**BURNS**

- *Damage to the skin caused by contact with caustic material, electricity, or fire*
- *Second or third degree burns involving 20% of the body surface area, or those associated with respiratory involvement are considered major burns*

| SCENE SAFETY | Move patient to safe area |
| STOP BURNING PROCESS | • Remove contact with agent, unless adhered to skin  
• Brush off chemical powders  
• Flush with water to stop burning process or to decontaminate |
| OXYGEN | BLS: Low flow unless ALOC / respiratory distress / shock  
ALS: Titrate to sPO₂ of at least 94% |
| BURN CARE | Protect the burned area. Do not break blisters, cover with clean dressings or sheets. Remove restrictive clothing/jewelry if possible. |
| ASSESS FOR INJURIES | Assess for associated injuries if other trauma suspected |
| CONSIDER IV OR IO | TKO |
| CONSIDER MORPHINE SULFATE IV | For pain relief in the absence of hypotension (systolic BP less than 90), significant other trauma, altered level of consciousness:  
• Adult – 2-20 mg IV or IO, titrated in 2 - 4 mg increments  
* Pediatric – 0.05-0.1 mg/kg IV – See Pediatric Drug Chart |
| CONSIDER MORPHINE SULFATE IM | If IV or IO access not available:  
• Adult – 5-20 mg IM  
* Pediatric – 0.1 mg/kg IM – See Pediatric Drug Chart |
## Key Treatment Considerations

- Airway burns may lead to rapid compromise of airway (soot around nares, mouth, visible burns or edematous mucosa in mouth are clues)

- Transport to closest receiving facility for advanced airway management if it cannot be done on scene in a timely manner. Do not wait for helicopter (air ambulance) if airway patency is a concern and care can be provided more rapidly at a receiving facility.

- Do not apply wet dressings, liquids or gels on burns. Cooling may lead to hypothermia.

- Refer to Rule of Nines to determine burn surface area (in Policy and Hospital Reference section)

- Use length-based tape for pediatric weight determination. **See Pediatric Drug Chart for dose.**
# CHILDBIRTH – ROUTINE OR COMPLICATED

**IMMINENT DELIVERY** - Regular contractions, bloody show, low back pain, feels like bearing down, crowning

<table>
<thead>
<tr>
<th>PREPARE FOR DELIVERY</th>
<th>Reassure mother, instruct during delivery</th>
</tr>
</thead>
<tbody>
<tr>
<td>CONSIDER IV</td>
<td>TKO if time allows</td>
</tr>
</tbody>
</table>
| DELIVER INFANT        | • As head is delivered, apply gentle pressure to prevent rapid delivery of the infant  
                         • Gently suction baby’s mouth, then nose, keeping the head dependent  
                         • If cord is wrapped around neck and can’t be slipped over the infant’s head, double-clamp and cut between clamps |
| CLAMP/CUT CORD        | Immediately double-clamp cord 6-8 inches from baby and cut between clamps (if not done before delivery) |
| WARMING MEASURES      | Dry baby and keep warm, placing baby on mother’s abdomen or breast |
| PLACENTAL DELIVERY    | If placenta delivers, save it and bring to the hospital with mother and child  
                         **DO NOT PULL ON UMBILICAL CORD TO DELIVER PLACENTA** |
| POST-DELIVERY OBSERVATION | Observe mother and infant frequently for complications. To decrease post-partum hemorrhage, perform firm fundal massage, put baby to mother’s breast. |
| TRANSPORT             | Prepare mother and infant for transport. Neonatal care or resuscitation as indicated. |
## COMPLICATED DELIVERY

### BREECH DELIVERY – Presentation of buttocks or feet

<table>
<thead>
<tr>
<th>OXYGEN</th>
<th>BLS/ALS: High flow</th>
</tr>
</thead>
</table>
| DELIVERY | - Allow delivery to proceed passively until the baby’s waist appears  
- Rotate baby to face-down position (DO NOT PULL)  
- If the head does not readily deliver in 4-6 minutes, insert a gloved hand into the vagina to create an air passage for the infant |
| TRANSPORT | Early transport if available – notify receiving hospital as soon as possible |

### PROLAPSED CORD - Cord presents first and is compressed, compromising infant circulation

<table>
<thead>
<tr>
<th>OXYGEN</th>
<th>BLS/ALS: High flow</th>
</tr>
</thead>
</table>
| MANAGE CORD | - Insert gloved hand into vagina and gently push presenting part off of the cord  
- Do not attempt to reposition the cord  
- Cover cord with saline soaked gauze |
| POSITION PATIENT | Place mother in trendelenburg position with hips elevated |
| TRANSPORT | Early transport if available – notify receiving hospital as soon as possible |
**DYSTONIC REACTIONS**

*History of ingestion of phenothiazine or related compounds, primarily anti-psychotic and anti-emetic medications (for nausea/vomiting). Symptoms include restlessness, muscle spasms of the neck, jaw, and back, oculogyric crisis.*

### CONSIDER OXYGEN

**BLS:** Low flow unless ALOC / respiratory distress / shock  
**ALS:** Titrate to $s\text{PO}_2$ of at least 94%

### IV

**TKO**

### DIPHENHYDRAMINE

- Adult – 25-50 mg IV or 50 mg IM if unable to establish IV access
- **Pediatric – 1 mg/kg IV or 1 mg/kg IM if unable to establish IV access**

### Key Treatment Considerations

Common drugs implicated in dystonic reactions include many anti-emetics and anti-psychotic medications:

- Prochlorperazine (Compazine)
- Haloperidol (Haldol)
- Metoclopramide (Reglan)
- Phenergan (Promethazine)
- Fluphenazine (Prolixin)
- Chlorpromazine (Thorazine)
- Many other antipsychotic and anti-depressant drugs

Rarely benzodiazepine drugs have been implicated as a cause of dystonic reaction

*Use length-based tape for pediatric weight determination. See Pediatric Drug Chart for dose.*
**G7–GENERAL**

**ENVENOMATIONS (Bites/Stings)**

**SNAKE BITES**
- *If the snake is positively identified as non-poisonous, treat with basic wound care*

**INSECT STINGS**
- *Symptoms of stings usually occur at the site of injury and have no specific treatment*
- *Allergic reactions can be severe, and may cause anaphylactic shock*

<table>
<thead>
<tr>
<th>CALM PATIENT</th>
<th>With snake bite, keep patient still and calm</th>
</tr>
</thead>
<tbody>
<tr>
<td>ASSESS EXTREMITIES</td>
<td>Remove rings, bracelets or other constricting items from affected extremity</td>
</tr>
</tbody>
</table>
| WOUND MANAGEMENT | **Snake bite**: Splint extremity and keep at level of heart  
**Insect Stings**: Flick stinger off – do not squeeze stinger. Apply cold pack.  |
| OXYGEN | **BLS**: Low flow unless ALOC / respiratory distress / shock  
**ALS**: Titrate to sPO$_2$ of at least 94%. Be prepared to support ventilation. |
| CONSIDER | **CARDIAC MONITOR**: Consider if patient potentially unstable |
| CONSIDER IV | TKO |

Related guidelines: Shock/Hypovolemia (A10, P8), Allergy / Anaphylaxis (G1)
HEAT ILLNESS / HYPERTHERMIA

**HEAT EXHAUSTION**
- Presentation: Flu-like symptoms, cramps, normal mental status

**HEAT STROKE**
- Presentation: Altered level of consciousness, absence of sweating, tachycardia, and hypotension

| **OXYGEN** | BLS: Low flow unless ALOC / respiratory distress / shock  
ALS: Titrate to $sPO_2$ of at least 94% |
|---|---|

| **COOLING MEASURES** |  
- Move patient to cool environment  
- Promote cooling by fanning  
- Remove clothing and splash / sponge with water  
- Place cold packs on neck, in axillary and inguinal areas  |
|---|---|

<table>
<thead>
<tr>
<th><strong>IV</strong></th>
<th>TKO. Perform if heat stroke or marked symptoms with heat exhaustion</th>
</tr>
</thead>
</table>

| **CONSIDER** | **FLUID BOLUS**  
If hypotensive or suspected heat stroke:  
- Adult – 500 ml NS bolus May repeat X 1  
- *Pediatric – 20 ml/kg NS bolus. May repeat X 1* |
|---|---|

| **CONSIDER** | **BLOOD GLUCOSE**  
Check level if altered level of consciousness, treat as indicated |
|---|---|

Related guidelines: Altered Level of Consciousness (G2), Seizure (G14)
Key Treatment Considerations

- Seizures may occur with heat stroke – treat as per treatment guideline for seizure

- Increasing symptoms merit more aggressive cooling measures. With mild symptoms of heat exhaustion, movement to cooler environment and fanning may suffice.

- Conditions that may lead to or worsen hyperthermia include:
  - Psychiatric Disorders
  - Heart Disease
  - Diabetes
  - Alcohol
  - Medications
  - Fever
  - Fatigue
  - Obesity
  - Pre-existent dehydration
  - Extremes of age (Elderly and pediatric)

* Use length-based tape for pediatric weight determination. See Pediatric Drug Chart for dose.
**Hypothermia**

- **Conscious and shivering but lethargic, skin pale and cold**

- **Stuporous or comatose, dilated pupils, hypotensive to pulseless, slowed to absent respirations**
  - Severe hypothermia patients may appear dead. When in doubt, begin resuscitation.

### Oxygen

| **Oxygen** | **BLS:** Low flow unless ALOC / respiratory distress / shock.  
**ALS:** Titrate to sPO$_2$ of at least 94%  
Use warm humidified oxygen if available |
|---|---|

### Spinal Precautions

For patients with possible trauma or submersion

### Warming Measures

- Gently move to sheltered area (warm environment)
- Minimize physical exertion or movement of the patient
- Cut away wet clothing and cover patient with warm, dry sheets or blankets

### Cardiac Monitor

**Consider Early Transport**

Do not delay transport if patient unconscious

### IV

**TKO**

### Blood Glucose

Check and treat if indicated

### Consider Naloxone

If respiratory rate less than 12 and narcotic overdose suspected

### Consider Advanced Airway

Only if unable to ventilate using BVM

Related guidelines: Altered Level of Consciousness (G2), Respiratory Depression or Apnea (G12)
### Key Treatment Considerations

- Avoidance of excess stimuli important in severe hypothermia as the heart is sensitive and interventions may induce arrhythmias. Needed interventions should be done as gently as possible.
  - Check for pulselessness for 30-45 seconds to avoid unnecessary chest compressions
  - Defer ACLS medications until patient warmed
  - If Ventricular Fibrillation or Pulseless Ventricular Tachycardia present, shock X 1 and defer further shocks

- Patients with prolonged hypoglycemia often become hypothermic – blood glucose check essential

- Patients with narcotic overdose may develop hypothermia
Patients of all ages expressing verbal or behavioral indicators of pain shall have an appropriate assessment and management of pain.

Morphine should be given in sufficient amount to manage pain but not necessarily to eliminate it.

<table>
<thead>
<tr>
<th>CONSIDER OXYGEN</th>
<th>BLS: Low flow unless ALOC / respiratory distress / shock</th>
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</tr>
</thead>
<tbody>
<tr>
<td>IV</td>
<td>TKO</td>
<td></td>
</tr>
</tbody>
</table>

**ASSESS PAIN**
- Assess and document the intensity of the pain using the visual analog scale.
- Reassess and document the intensity of the pain after any intervention that could affect pain intensity.

**PAIN RELIEF MEASURES**
- Psychological measures and BLS measures, including cold packs, repositioning, splinting, elevation, and/or traction splints, are important considerations for patients with pain.
- If pain cannot be managed using above measures, consider **MORPHINE SULFATE**, especially in patients reporting pain levels of 5 or greater.

**CONSIDER MORPHINE SULFATE IV**

See contraindications and cautions below:
For pain relief:
- Adult – 2-20 mg IV, titrated in 2-5 mg increments to pain relief
  - Pediatric – 0.05-0.1 mg/kg IV – See Pediatric Drug Chart

**CONSIDER MORPHINE SULFATE IM**
If no IV access:
- Adult - 5-10 mg IM
  - Pediatric – 0.1 mg/kg IM – See Pediatric Drug Chart
### Contraindications for Morphine Sulfate

#### Contraindications for Morphine:
- Closed head injury
- Altered level of consciousness
- Headache
- Respiratory failure or worsening respiratory status
- Childbirth or suspected active labor
- Hypotension
  - Adults - Systolic BP less than 90
  - Pediatric - Hypotension or impaired perfusion (e.g. capillary refill > 2 seconds)
    - Infants 1mo-1yr systolic BP < 60 mmHg
    - Toddler 1-4 yrs systolic BP < 75 mmHg
    - School age 5-13 yrs systolic BP < 85 mmHg
    - Adolescent >13 yrs systolic BP < 90 mmHg

#### Cautions for Morphine:
- Use with caution in patients with suspected drug or alcohol ingestion or with suspected hypovolemia
- Older patients may be more sensitive to morphine – consider 1-2 mg increments IV initially
- Patients with Inferior MI (STEMI with ST elevation in II, III, aVF) may develop hypotension with morphine
  - Give 1-2 mg increments IV and administer fluid bolus when indicated

#### Key Treatment Considerations
- Have Naloxone available to reverse respiratory depression should it occur
- Preferred route of administration for Morphine Sulfate is IV
- Use length-based tape for pediatric weight determination. **See Pediatric Drug Chart for dose.**
**G11–GENERAL**

**POISONING - OVERDOSE**

- **If possible, determine substance, amount ingested, time of ingestion. Bring in container or label.**
- **Be careful not to contaminate yourself and others**

| DECONTAMINATION | Remove contaminated clothing, brush off powders, wash off liquids
<table>
<thead>
<tr>
<th></th>
<th>Irrigate eyes if affected</th>
</tr>
</thead>
</table>
| OXYGEN          | BLS: Low flow unless ALOC / respiratory distress / shock
|                 | ALS: Titrate to sPO$_2$ of at least 94%. Be prepared to support ventilation. |
| CARDIAC MONITOR | TKO if unstable patient or suspected serious ingestion |

Related guidelines: Respiratory Depression or Apnea (G12), Altered Level of Consciousness (G2), Seizures (G14), Shock/Hypovolemia (A10, P8)

**TRICYCLIC ANTIDEPRESSANT OVERDOSE**

_Frequently associated with respiratory depression, usually tachycardia. Widened QRS complexes and associated ventricular arrhythmias are generally signs of a life-threatening ingestion._

<table>
<thead>
<tr>
<th>SODIUM BICARBONATE</th>
<th>For adults only: For life-threatening hemodynamically significant dysrhythms, 1 mEq/kg slow IV or IO</th>
</tr>
</thead>
</table>
## ORGANOPHOSPHATE POISONING

**Hypersalivation, sweating, bronchospasm, abdominal cramping, diarrhea, muscle weakness, small/pinpoint pupils, muscle twitching, and/or seizures may occur**

| **ATROPINE** | **For adults only:** 1-2 mg IV  
• Repeat every 3-5 minutes as necessary until relief of symptoms  
• Large doses of Atropine may be required |

## HYDROFLUORIC ACID EXPOSURE

| **CALCIUM CHLORIDE** | **For adults only:** For tetany or cardiac arrest, 500mg IV (5 ml of 10% solution) |
| **CONSIDER MORPHINE SULFATE IV** | **For adults only:** In the absence of hypotension, significant other trauma or altered level of consciousness:  
2-20 mg IV titrated in 2-5 mg increments to pain relief |
| **CONSIDER MORPHINE SULFATE IM** | **For adults only:** If no IV access, 5-10 mg IM |

### Key Treatment Considerations

- Few overdoses have specific antidotes. Supportive care is the mainstay of treatment.

- Contact Base Hospital if any questions concerning treatment of overdose in pediatric patients

- Contact Base Hospital for other suspected overdoses that may have specific treatment (e.g. Calcium Channel Blocker overdose)

- Poison Control Center can offer information but cannot provide medical direction to EMS
**RESPIRATORY DEPRESSION OR APNEA**

**Absence of spontaneous ventilations or respiratory rate less than 12 without cardiac arrest**

<table>
<thead>
<tr>
<th><strong>BVM VENTILATION</strong></th>
<th>Assist ventilation or provide ventilation if no spontaneous respirations</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>OXYGEN</strong></td>
<td><strong>BLS:</strong> High flow initially  <strong>ALS:</strong> Titrate to sPO$_2$ of at least 94%</td>
</tr>
<tr>
<td></td>
<td>Be prepared to support ventilations as needed</td>
</tr>
<tr>
<td><strong>ETCO2 MONITORING</strong></td>
<td>In borderline cases, non-invasive ETCO2 monitoring (when available) may be valuable in detection of hypoventilation and can help follow respiratory trend before and after treatment. ETCO2 monitoring is not reliable in patients with hypotension or poor perfusion.</td>
</tr>
<tr>
<td><strong>CARDIAC MONITOR</strong></td>
<td></td>
</tr>
<tr>
<td><strong>NALOXONE INTRANASAL OR IM</strong></td>
<td></td>
</tr>
<tr>
<td>• Adult not in shock: 2 mg IN (intranasal) if narcotic overdose suspected</td>
<td></td>
</tr>
<tr>
<td>• Adult not in shock but unsuitable for IN (copious secretions): 1-2 mg IM</td>
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</tr>
<tr>
<td>* Pediatric – 0.1 mg/kg IM - maximum dose 2 mg</td>
<td></td>
</tr>
<tr>
<td><strong>CONSIDER IV</strong></td>
<td>TKO if intravenous treatment indicated</td>
</tr>
<tr>
<td><strong>NALOXONE IV</strong></td>
<td>If patient in shock, if IN or IM routes ineffective (within 3 minutes), or if IV access already available for another reason:</td>
</tr>
<tr>
<td>• Adult – 1-2 mg IV</td>
<td></td>
</tr>
<tr>
<td>* Pediatric – 0.1 mg/kg IV – maximum dose 2 mg</td>
<td></td>
</tr>
<tr>
<td><strong>REPEAT NALOXONE</strong></td>
<td>IV or IM if no response and narcotic overdose suspected – maximum dose 10 mg</td>
</tr>
<tr>
<td><strong>CONSIDER TITRATION OF DILUTED NALOXONE IV</strong></td>
<td>Consider for patients with chronic narcotic use for terminal disease or chronic pain: Dilute 1:10 with normal saline and administer in 0.1 mg (1 ml) increments – titrate to increased respiratory rate</td>
</tr>
<tr>
<td><strong>ADVANCED AIRWAY</strong></td>
<td>Consider when indicated - only if naloxone ineffective and BVM ventilation not adequate</td>
</tr>
</tbody>
</table>

Related guidelines: Altered Level of Consciousness (G2), Respiratory Distress (G13)
SAFETY WARNING!

Naloxone will cause acute withdrawal symptoms in patients who are habituated users of narcotics (whether prescribed or from abuse)

- Use of diluted Naloxone IV and titration with small increments may help decrease adverse effects of naloxone in patients who have chronic narcotic usage for terminal disease or pain relief
- Naloxone treatment should only be given to patients with respiratory depression (rate less than 12)
- Patients who are maintaining adequate respirations with decreased level of consciousness do not generally require Naloxone for management

- Naloxone can cause cardiovascular side effects (chest pain, pulmonary edema) or seizures in a small number of patients (1-2%)
- Older patients are at higher risk for cardiovascular complications
- Be prepared for patient agitation or combativeness after naloxone reversal of narcotic overdose

In patients without hypotension or poor perfusion, ETCO2 readings below 45 generally do not require treatment with naloxone for respiratory depression. ETCO2 should be used to help monitor respiratory trend.

* Use length-based tape for pediatric weight determination. See Pediatric Drug Chart for dose.
# RESPIRATORY DISTRESS

- **Wheeze may be noted in asthma, COPD exacerbation, or pulmonary edema**
- **Rales may be present in pneumonia, pulmonary edema, and many other conditions**

## INITIAL THERAPY

| **OXYGEN** | BLS: Low flow unless ALOC / respiratory distress / shock  
ALS: Titrate to sPO$_2$ of at least 94% |
| **CARDIAC MONITOR** |  |
| **CONSIDER CPAP** | If respiratory rate greater than 25, accessory muscle use, pulse ox less than 94% |
| **CONSIDER IV** | TKO. Do not delay transport for vascular access if in extremis. |

### ASTHMA

**ALBUTEROL**  
Adult and Pediatric – 5 mg in 6 ml NS via nebulizer. Repeat as needed.

**CONSIDER EPINEPHRINE 1:1000 SC (SUBCUTANEOUSLY)**  
For use in asthma only: Use only if respiratory status deteriorating despite repeat treatment with Albuterol and transport time more than 10 minutes  
**Do not use** in patients with history of coronary artery disease or hypertension  
- Adult - 0.3 mg SC  
  - Pediatric - 0.01 mg/kg SC - max dose 0.3 mg

**EPINEPHRINE 1:1000 IM**  
If respiratory arrest from asthma or bronchospasm:  
- Adult - 0.3 mg IM  
  - Pediatric - 0.01 mg/kg IM - max dose 0.3 mg

### COPD EXACERBATION

**ALBUTEROL**  
5 mg in 6 ml NS via nebulizer. Repeat as needed.
**SUSPECTED PULMONARY EDEMA (ADULTS ONLY)**

**NITROGLYCERIN**
- 0.4 mg sublingual if systolic BP between 90 and 149
- 0.8 mg sublingual if systolic BP 150 or greater
- Repeat every 5 minutes until symptoms improve
- Maximum dose 4.8 mg (12 - 0.4 mg doses)
- Discontinue if hypotension develops

**Caution:** Do not administer if patient has taken erectile dysfunction medications Viagra, Levitra, Staxyn or Stendra within prior 24 hours or Cialis within 36 hours

**CONSIDER MORPHINE SULFATE**
- 2-5 mg IV in 1-2 mg increments for relief of anxiety. Do not administer if BP less than 90, if patient has altered mental status or decreased respiratory effort.

Related guidelines – Chest pain / Suspected ACS (A2), Shock (A10)

**Key Treatment Considerations**
- CPAP is not a ventilation device. Patients with inadequate respiratory rate or inadequate depth of respiration will need assistance with BVM.
- Patients with potential respiratory failure should be transported emergently
- Patients requiring advanced airway management in these situations are best handled in the hospital setting and CPAP may be a valuable “bridge” in care to potentially delay need for emergent intubation
- IV access should not delay transport
- For suspected pulmonary edema, re-evaluate blood pressure between each dose of nitroglycerin. If blood pressure initially over 150, then between 150 and 90 after treatment, lower dosage to 0.4 mg.
- Patients with suspected pulmonary edema and STEMI should receive nitroglycerin if no other contraindications (e.g. hypotension, bradycardia or use of erectile dysfunction drugs)
- Consider cardiac etiology for diabetic patients with respiratory distress
- Use length-based tape for pediatric weight determination. See Pediatric Drug Chart for dose.
**SEIZURE / STATUS EPILEPTICUS**

- **Tonic-clonic movements followed by a period of unconsciousness (post-ictal period)**
- **A continuous or recurrent seizure is defined as seizure activity greater than 10 minutes or recurrent seizures without patient regaining consciousness**

**OXYGEN**
- **BLS:** High flow initially
- **ALS:** Titrate to sPO$_2$ of at least 94%

**PROTECT PATIENT**
- Do not forcibly restrain but protect from injuring self

**CARDIAC MONITOR**

**CONSIDER IV**
- TKO

**BLOOD GLUCOSE**
- Check and treat if indicated

**CONSIDER MIDAZOLAM IV**
- For continuous or recurrent seizures:
  - Adult – initial dose 1 mg IV - titrate in 1-2 mg increments – max. dose 5 mg
  - **Pediatric** – titrate in up to 1 mg IV increments – up to 0.1 mg/kg

**CONSIDER MIDAZOLAM IM**
- If IV access unavailable:
  - Adult – 0.1 mg/kg IM - maximum dose 5 mg
  - **Pediatric** – 0.1 mg/kg IM - maximum dose 5 mg

**MONITOR PATIENT**
- Carefully observe vital signs, respiratory status – support ventilations as needed

Related guidelines: Altered Level of Consciousness (G2), Respiratory Depression or Apnea (G12)

**SAFETY WARNING:**
- Use caution when treating with Midazolam in pediatric patients previously treated by family or caretaker with rectal diazepam (Valium, Diastat) as a higher incidence of respiratory depression may occur
- Wait five (5) minutes after last rectal dose to determine effect and need for further treatment. Consider using reduced dosage of Midazolam.
<table>
<thead>
<tr>
<th>Key Treatment Considerations</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Most seizures are self-limiting and do not require prehospital medication</td>
</tr>
<tr>
<td>- Seizures may appear frightening to observers. Provide reassurance to parents/family.</td>
</tr>
<tr>
<td>- Consider spinal immobilization if history of fall or trauma</td>
</tr>
<tr>
<td>- Early administration of midazolam IM is preferable to IV route in smaller children and in other patients with potential difficult intravenous access</td>
</tr>
<tr>
<td>- Febrile seizures in children are generally self-limiting</td>
</tr>
<tr>
<td>- For febrile patients, remove or loosen clothing, remove blankets to address cooling measures</td>
</tr>
</tbody>
</table>

* Use length-based tape for pediatric weight determination. [See Pediatric Drug Chart for dose.](#)
- **Sudden onset of weakness, paralysis, confusion, speech disturbances, visual field deficit - may be associated with headache**
- **Determination of time of onset of symptoms is the most crucial historical information needed**
- **If patient awoke with symptoms, time patient last seen normal is the time that should be noted**

### OXYGEN

| BLS: Low flow unless ALOC / respiratory distress / shock |
| ALS: Titrate to $sPO_2$ of at least 94%. Be prepared to support ventilation. |

### CARDIAC MONITOR

- Note findings of stroke scale and time of onset of symptoms

### TRANSPORT

- Minimize scene time

### BLOOD GLUCOSE

- Check and treat if indicated

### IV

- TKO

### CONSIDER FLUID BOLUS

- 250-500 ml if hypotensive or poor perfusion – reassess

### CONTACT STROKE CENTER OR RECEIVING HOSPITAL

- Stroke Alert is indicated only when Cincinnati Stroke Scale (CSS) findings are abnormal and onset (time last seen normal) is **less than 4 hours** from time of patient contact. Report **time last seen normal** (clock time), ETA, physical exam and findings of CSS using SBAR format.

### ASSURE FAMILY/GUARDIAN COMMUNICATION

- If family member/patient guardian available, assure their availability by either transporting them in ambulance, telling them to go immediately to the hospital or obtain phone number to allow physician to contact them

Related guidelines: Altered Level of Consciousness (G2), Respiratory Depression or Apnea (G12), Seizure (G14)
**CINCINNATI STROKE SCALE**

If any one of the three tests are abnormal and is a new finding, the Stroke Scale is abnormal and may indicate an acute stroke

<table>
<thead>
<tr>
<th>Finding</th>
<th>Patient Activity</th>
<th>Interpretation</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Facial Droop</strong></td>
<td>Ask patient to smile and show teeth or grimace</td>
<td><strong>Normal:</strong> Symmetrical smile or face</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>Abnormal:</strong> Asymmetry (one side droops or does not move)</td>
</tr>
<tr>
<td><strong>Arm Weakness</strong></td>
<td>Ask patient to close both eyes and extend both arms out straight for 10 seconds</td>
<td><strong>Normal:</strong> Both arms move symmetrically or do not move</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>Abnormal:</strong> One arm drifts down or arms move asymmetrically</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Testing with patient holding palms upward is most sensitive way to check. Patients with arm weakness will tend to pronate (turn from palms up to sideways or palms down).</td>
</tr>
<tr>
<td><strong>Speech Abnormality</strong></td>
<td>Have the patient say the words, “The sky is blue in Cincinnati”</td>
<td><strong>Normal:</strong> The correct words are used and no slurring of words is noted</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>Abnormal:</strong> If the patient slurs words, uses the wrong words, or is unable to speak (aphasia)</td>
</tr>
<tr>
<td>SPINAL IMMobilization</td>
<td>As indicated</td>
<td></td>
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<tr>
<td>-----------------------</td>
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<td></td>
</tr>
</tbody>
</table>
| **Oxygen**            | **BLS**: Low flow unless ALOC / respiratory distress / shock  
**ALS**: Titrate to sPO$_2$ of at least 94% |
| **Early Transport**   | Limit scene time to less than 10 minutes when possible. **Load and go** if high risk. |
| **Wound / General Care** | Place splints, cold packs, dressings and pressure on bleeding sites as needed  
Keep patient warm – minimize exposure after assessment |
| **Consider Needle Thoracostomy** | Evaluate for and treat tension pneumothorax if indicated |
| **IV**                | **TKO. If patient critical, DO NOT DELAY ON-SCENE FOR IV OR IO ACCESS.** |
| **Consider Fluid Bolus** | Fluid resuscitation appropriate in **adults** if:  
- Head injury and hypotension (BP < 90 or unable to detect peripheral pulses)  
- No head injury but markedly hypotensive and unable to converse due to shock  
Administer 250-500 ml NS, recheck vitals. Titrate to presence of peripheral pulses.  
In **pediatric** patients with signs of poor perfusion or shock:  
* Pediatric – 20 ml/kg NS. If continued poor perfusion, may repeat X 2 |
| **Blood Glucose**     | Test if GCS less than 15. See Altered Level of Consciousness (G2). |
| **Cardiac Monitor**   | |
### INDICATIONS AND PRECAUTIONS FOR MORPHINE USE

Morphine may be used for relief of extremity pain in the absence of head or torso trauma, hypotension (age-specific), poor perfusion or ALOC. Use with caution in geriatric patients or in patients with drug or alcohol intoxication.

| MORPHINE SULFATE IV | See precautions above  
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Adult – 2-20 mg IV in 2-5 mg increments. Titrate to pain relief and systolic BP greater than 100.</td>
<td><strong>Pediatric – 0.05-0.1 mg/kg IV – See Pediatric Drug Chart</strong></td>
</tr>
</tbody>
</table>

| MORPHINE SULFATE IM | See precautions above  
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>When IV access not available (non-critical patients only):</td>
<td><strong>Pediatric – 0.1 mg/kg IM – See Pediatric Drug Chart</strong></td>
</tr>
<tr>
<td>Adult – 5-10 mg IM</td>
<td></td>
</tr>
</tbody>
</table>

**Related guidelines:** Altered Level of Consciousness (G2), Respiratory Depression or Apnea (G12)

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### Key Treatment Considerations

- ALS procedures in the field (IV or advanced airway) do not improve outcome in critical trauma patients
  - IV starts should be done en route on these patients
  - Advanced airway should only be done if patient is unable to be ventilated via BLS maneuvers
- Repeated IV attempts in non-critical pediatric patients should be avoided
- **Use length-based tape for pediatric weight determination. See Pediatric Drug Chart for dose.**
# G16–GENERAL
## TRAUMA – HEAD INJURY

### AIRWAY CONTROL
- Basic airway management is preferred unless unable to manage with BLS maneuvers. Utilize jaw thrust technique to open airway.
- Intubation in head injury patients is best addressed at the hospital or with RSI (aeromedical capability)
- King Airway should be used only in arrest unless no other method to ventilate

### VENTILATION
- Avoid hyperventilation if BVM used or patient with advanced airway.
- Support respiratory rate to 10-12 per minute if slow.
- Monitor patient with pulse oximetry and end-tidal CO2. Ideal ETCO2 is 35 mm Hg – may be unreliable if multiple system trauma or poor perfusion.
- In patients with a dilated pupil on one side or decerebrate/decorticate posturing indicating impending brainstem herniation, modest hyperventilation (increase in rate of 2-4 per minute) is appropriate (keep ETCO2 30 or above)

### CONTROL HEMORRHAGE
- Scalp hemorrhage can be life threatening. Treat with direct pressure and pressure dressing.

### TREAT HYPOTENSION
- In adult patients, in the setting of hypotension (systolic BP 90 or less or absence of peripheral pulses), administer NS 250-500 ml. Repeat if necessary.

- In pediatric patients with signs of poor perfusion or shock:
  - Pediatric – 20 ml/kg NS. If continued poor perfusion, may repeat X 2.

### PATIENT POSITION
- Elevate head of backboard 30 degrees unless contraindicated
- Position patient on side if needed for vomiting / airway protection

### CONSIDER ONDANSETRON
- Adults - for vomiting/nausea, 4 mg IV/IM. May repeat every 10 minutes to a total dose of 12 mg.

- Pediatric – Limited to patients 4 years of age or older – 4 mg IV/IM. For patients 40 kg and greater only, may repeat every 10 minutes to a total dose of 12 mg
## G16–GENERAL

### CONSIDER TOURNIQUET
If vigorous hemorrhage not controlled with elevation and direct pressure on wound. May be used in pediatric patients. May be appropriate for hemorrhage control in multi-casualty situations.

### DISLOCATION
If dislocation suspected or noted, splint in position found.

### AMPUTATIONS
For partial amputations, splint in anatomic location and elevate extremity. If complete amputation, place amputated part in a dry container or bag. Seal or tie off bag and place in second container or bag. DO NOT place amputated part directly on ice or in water. Elevated extremity and dress with dry gauze.

### PAIN RELIEF
Consider Morphine Sulfate as directed in G16 Trauma - General Guideline.

## TRAUMA - EXTREMITY

### CRUSH INJURY SYNDROME
- **Caused by muscle crush injury and cell death. Most patients have an extensive area of involvement such as a large muscle mass in a lower extremity and/or pelvis.**
- **May develop after 1 hour in severe crush, but usually requires at least 4 hours of compression**
- **Hypovolemia and hyperkalemia may occur, particularly in extended entrapments**
- **Hyperkalemia should be suspected if ECG monitor reveals peaked ‘T’ waves, absent ‘P’ waves or widened QRS complexes**

### FLUID BOLUS
20 ml/kg NS prior to release of compression.

### IF ECG CHANGES SUGGEST HYPERKALEMIA:
**ALBUTEROL** - 5 mg in 6 ml NS continuously via nebulizer

**CALCIUM CHLORIDE** - 1 gm slow IV over 60 seconds. Note: Flush tubing after administration of calcium chloride to avoid precipitation with sodium bicarbonate.

**SODIUM BICARBONATE** - 1 mEq/kg IV. Additionally, consider 1 mEq/kg added to IV 1L NS - use second IV line as other medications may not be compatible.
Vomiting or nausea may be due to viral illness (gastroenteritis) or other medical conditions including acute coronary syndrome, stroke, head injury, or toxic ingestion. It may be associated with a number of painful abdominal conditions, and may also occur as a result of treatment of pain with morphine.

| CONSIDER OXYGEN | BLS: Low flow unless ALOC / respiratory distress / shock  
| ALS: Titrate to sPO$_2$ of at least 94% |
| POSITION PATIENT | Position patient to avoid aspiration |
| NON-INVASIVE MEASURES | Fresh air, oxygen, and removal of noxious odors may lessen nausea |
| CONSIDER IV | TKO |
| CONSIDER FLUID BOLUS | Consider if patient has prolonged history of vomiting or poor intake, if vital signs or exam suggest volume depletion (rapid pulse, low blood pressure, dry mucous membranes, poor skin turgor, or capillary refill greater than 2 seconds)  
| • Adult – 250-500 ml. Recheck vitals – may repeat X 1  
| ∗ Pediatric – 20 ml/kg. Recheck vitals – may repeat X 1. |
**CONSIDER ONDANSETRON**

For severe nausea or persistent vomiting:
- **Adult** – 4 mg IV, IM, or po (oral disintegrating tablet - ODT). May repeat every 10 minutes to a total of 12 mg.
- **Pediatric** – limited to patients 4 years of age or older – 4 mg IV, IM, or po (ODT). For patients 40 kg and greater only, may repeat every 10 minutes to a total of 12 mg.

**NOTE:** Administer IV dosage over 1 minute. Ondansetron is contraindicated if patient has a history of hypersensitivity to other similar drugs (Dolasetron – (Anzemet), granisetron (Kytril), or Palonosetron (Aloxi))

| Related guidelines: Shock/Hypovolemia (A10), Pain Management (Non-Traumatic) (G10) |

**Key Treatment Considerations**

- Rapid administration of ondansetron has been associated with increased incidence of side effects – most notably syncope. Ondansetron must be administered intravenously over 1 minute.
- Rare side effects of ondansetron include headache, dizziness, tachycardia, sedation, hypotension, or syncope. Rarely QT prolongation has been seen (with higher doses and rapid administration).
- Ondansetron can be used in pregnancy and with breast-feeding mothers.
- May be co-administered with MORPHINE SULFATE when used for pain relief.
- Oral disintegrating tablets should be handled with care as moisture may cause premature breakdown of tablets before administration.
- Oral disintegrating tablets can be placed on tongue and do not need to be chewed. Medication will dissolve and be swallowed with saliva.
- Use length-based tape for pediatric weight determination. See Pediatric Drug Chart for dose.