<table>
<thead>
<tr>
<th>Treatment Guideline Number</th>
<th>Treatment Guideline Name</th>
<th>Change(s)</th>
</tr>
</thead>
</table>
| A02                        | Adult Airway             | Changes to guideline  
  o Definition of intubation attempt – An intubation attempt is defined as inserting the laryngoscope blade with the intent to intubate or inserting an advanced airway passed the teeth.  
  o Remove PEARL “This Treatment Guideline is only for use with patients >15 years of age.” It is the Adult Airway protocol.  
  o King Airway Removed  
  o Addition of i-Gel  
  o EMT’s may only use i-Gel in Adults defined as 15 y.o. or greater. |
| A03                        | Adult Behavioral         | o Public Comment - Change “Establish IV” to “Consider IV”. Risk to establishing an IV on combative patient, removal upon arrival to PES, risk of infection  
  o Changed to “Consider IV” |
| A4                         | Allergic Reaction        | o Added Epi Auto Injector for administration by EMTs |
| A9                         | Dyspnea (Excluding CHF)  | o **Considerable reworking of Field Treatment Guideline**  
  o Combined A09 and AC09 – CHF to create treatment guideline A09 – Shortness of Breath  
  o Uses lung sounds and assessment to determine which treatment pathway to take.  
  o New Field Treatment Guideline – **A09 – Shortness of Breath** |
| A13                        | Overdose                 | o Added Naloxone administration by EMT  
  o Added range to IN dose of Naloxone 2-4mg for Paramedic and EMT |
| A14                        | Adult Pain Control       | o Addition of Ketamine and Acetaminophen  
  o Mild pain arm removed. BLS measures such as splinting, ice, position of comfort should be attempted first for mild pain, patients in minimal distress. |
| A18                        | Stroke                   | o Expanded Stroke alert from 4 to 6 hours of time last known well/last seen normal  
  o Patients between 6-24 hours will transported to Primary Stroke Centers  
  o Patients over 24 hours, please follow Policy 4002 – Patient Destination  
  o Added Stanford – Valley Care as an out of county receiving center |
# Summary of Changes

## 2020 Field Treatment Guidelines

<table>
<thead>
<tr>
<th>Treatment Guideline Number</th>
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</tr>
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</table>
| AC09 CHF/Pulmonary Edema   | Field treatment guideline removed | o Field treatment guideline removed  
|                            |                         | o Integrated into A09 |
| P01 Pediatric Airway      | Added “Direct Laryngoscopy” under Complete Obstruction | o Added “Direct Laryngoscopy” under Complete Obstruction  
|                            | Added definition of intubation attempt – same as Adult | o Added definition of intubation attempt – same as Adult  
|                            | Please note!!!! I-Gel’s will not be used in children less than 40kg. |  
| P02 Pediatric Allergic Reaction | Added Epinephrine Auto injector for EMT | o Added Epinephrine Auto injector for EMT  
| P09 Pediatric Overdose/Toxicology | Changed to 2-4mg Narcan IN for patients greater than 22kg (50lbs) | o Changed to 2-4mg Narcan IN for patients greater than 22kg (50lbs)  
|                            | Removed PediaTape for EMT use. | o Removed PediaTape for EMT use.  
|                            | Paramedics continue to use PediaTape. | o Paramedics continue to use PediaTape.  
| T03 Burns                 | Removed PEARL “Contact Base for Burn Bed Availability” | o Removed PEARL “Contact Base for Burn Bed Availability”  
| Multiple                   | Blood Glucose Analysis by EMTs | o Blood Glucose Analysis by EMTs  
| Multiple                   | For clarification purposes, Base Hospital contact is only as needed and not to be done with every transport to the Base or a receiving hospital. | o For clarification purposes, Base Hospital contact is only as needed and not to be done with every transport to the Base or a receiving hospital.  
| G03, AC08, I01 End of Life Care Cardiac – Chest Pain: Suspected cardiac or STEMI Interfacility Transfer of STEMI | Ketamine should not be administered in this patient population. Fentanyl continues to be only appropriate medication. | o Ketamine should not be administered in this patient population. Fentanyl continues to be only appropriate medication.  

![Notify receiving facility. Contact Base Hospital for medical direction, as needed.](image)
Contra Costa County Emergency Medical Services

Adult Airway

Basic maneuvers first
- Open airway chin lift/jaw thrust
- Nasal or oral airway
- Bag-valve mask (BVM)

Spinal motion restriction if indicated

Supplement oxygen via BVM

E

Yes

Goal oxygen saturation ≥ 94%

Exit to appropriate TG

No

Airway patent?

Yes

Supplemental oxygen via BVM

E

No

Breathing/oxygenation support required?

Yes

Monitor/reassess supplemental oxygen if indicated

Exit to appropriate TG

No

Complete obstruction?

Yes

Abdominal thrusts (conscious)

P

Chest compression (unconscious)

Direct laryngoscopy

The maximum allowed attempts for an advanced airway placement is two (2).

If an attempt fails, reassess and approach with a different technique.

Reassess airway procedure and adjust if necessary

E

I-Gel, as indicated in cardiac arrest

O

I-Gel or intubation, as indicated

P

Consider, sedation if I-Gel or ET T in place

Midazolam IV/IO

Maximum 5 mg total

Notify receiving facility.

Contact Base Hospital for medical direction, as needed.

BVM effective?

Yes

Notify receiving facility.

Contact Base Hospital for medical direction, as needed.
Always weigh the risks and benefits of endotracheal intubation in the field against transport. All prehospital endotracheal intubations are considered high risk. If ventilation/oxygenation is adequate, transport may be the best and safest option. The most important airway device is the BVM, not the laryngoscope.

Cormack-Lehane Difficult Airway Assessment:

<table>
<thead>
<tr>
<th>Grade I</th>
<th>Grade II</th>
<th>Grade III</th>
<th>Grade IV</th>
</tr>
</thead>
<tbody>
<tr>
<td>Complete view of glottic opening and surrounding structures</td>
<td>Partial view of the glottic opening</td>
<td>Only the epiglottis is visible</td>
<td>No distinguishable anatomy is visible</td>
</tr>
</tbody>
</table>

Trauma: Utilize in-line cervical stabilization during intubation, BLS airway or BVM use. During intubation, the cervical collar front should be open or removed to facilitate translation of the mandible/mouth opening.

Pearls
- Continuous capnometry (EtCO₂) is mandatory with all methods of airway management. Document results.
- If an effective airway is being maintained with a BVM and a basic airway adjunct with continuous pulse oximetry values of ≥ 90% or values expected based on pathophysiologic condition with otherwise reassuring vital sign (e.g. pulse oximetry of 85% with otherwise normal vital signs in a post-drowning patient), it is acceptable to continue with basic airway measures rather than placing an advanced airway.
- For the purposes of this TG, a secure airway is achieved when the patient is receiving appropriate oxygenation and ventilation.
- An intubation attempt is defined as inserting the laryngoscope blade with the intent to intubate or inserting an advanced airway past the teeth.
- An appropriate ventilatory rate is one that maintains an EtCO₂ of 35 or greater. Avoid hyperventilation.
- A Bougie is strongly encouraged for all ET intubation attempts.
- Effective use of a BVM is best achieved with two (2) people.
- The airway should be reassessed with each patient move. Document findings and EtCO₂ readings for each.
- Maintain spinal motion restriction for patients with suspected spinal injury.
- Document visualization and grading scale in prehospital record.
- Hyperventilation in deteriorating head trauma should only be done to maintain an EtCO₂ of 30-35.
- It is important to secure the advanced airway well and consider c-collar use (in the absence of trauma) to better maintain advanced airway placement. Manual stabilization of advanced airway should be used during all patient moves/transfers.
**History**
- Situational crisis
- Psychiatric illness/medications
- Injury to self or threats to others
- Medical alert tag
- Substance abuse/overdose
- Diabetes

**History**

**Signs and Symptoms**
- Anxiety, agitation or confusion
- Affect change or hallucinations
- Delusional thoughts or bizarre behavior
- Combative or violent
- Expression of suicidal/homicidal thoughts

**Differential**
- Altered mental status
- Alcohol intoxication
- Toxin / substance abuse
- Medication effect/overdose
- Withdrawal symptoms
- Depression
- Bipolar (manic-depressive)
- Schizophrenia
- Anxiety disorders
- Hypoglycemia

---

**Aggressive or agitated, possible psychosis, possible danger to self, or others**

**Midazolam 5mg IM/IN or Midazolam 1-3mg IV in 1mg increments**
- Age ≥ 65 years of age

**Maximum 5mg**

**Consider restraints**

**Monitor restraints and PMS if indicated**

**Consider external cooling measures**

**Monitor and reassess**

**Blood glucose analysis**

**Consider IV**

**Cardiac monitor**

**Exit to appropriate TG, if indicated**

**Altered Mental Status TG**

**Overdose/Toxic Ingestion TG**

**Head Trauma TG**

Assume patient has medical cause of behavioral change

**Notify receiving facility. Contact Base Hospital for medical direction, as needed.**

**Midazolam**

**Contact Base Hospital Physician for additional order**

---

**Exited Delirium Syndrome**
- Paranoia, disorientation, extremely aggressive or violent, hallucinations, tachycardia, increased strength, hyperthermia, and clearly a danger to self or others

**Midazolam 5mg IM/IN**

May repeat 2.5mg every 5 minutes to effect.

**Maximum 10mg**

---

**Diabetic TG**

**if indicated**

---

**Effective Jan. 2020**
Excited Delirium Syndrome:

This is a medical emergency. The condition is a combination of delirium, psychomotor agitation, anxiety, hallucinations, speech disturbances, disorientation, violent/bizarre behavior, insensitivity to pain, hyperthermia and increased strength. The condition is life-threatening and is often associated with use of physical control measures, including physical restraints, and tasers. Most commonly seen in male patients with a history of serious mental illness or drug abuse, particularly stimulant drugs such as cocaine, crack cocaine, methamphetamine, amphetamines, bath salts, or similar agents. Alcohol withdrawal or head injury may also contribute to the condition.

Pearls

- Crew/responder safety is the main priority. See Policy 1008 – Managing Assaultive Behavior/Patient Restraint.
- Avoid using benzodiazepines for patients with alcohol intoxication.
- Limit IN administrations to ½ dose in each nare.
- All patients who receive either physical restraint or chemical sedation must be continuously observed by EMS personnel. This includes direct visualization of the patient as well as cardiac and pulse oximetry monitoring.
- Consider all possible medical/trauma causes for behavior (e.g. hypoglycemia, overdose, substance abuse, hypoxia, seizure, head injury, etc.).
- Use caution when considering the use of Midazolam with postictal patients.
- Do not irritate the patient with a prolonged exam. Be thorough but quick.
- Do not overlook the possibility of associated domestic violence or child abuse.
- If patient suspected of excited delirium and suffers cardiac arrest, consider fluid bolus and sodium bicarbonate early.
- Do not position or transport any restrained patient in a way that negatively affects the patient’s respiratory or circulatory status (e.g. hog-tied or prone positions). Do not place backboards, splints or other devices on top of the patient.
- If restrained, the extremities that are restrained will have a circulation check at least every 15 minutes. The first of these checks should occur as soon after placement of the restraints as possible. This shall be documented in the EHR.
**Contra Costa County Emergency Medical Services**

**Allergic Reaction/Anaphylaxis**

**History**
- Onset and location
- Insect sting or bite
- Food allergy / exposure
- Medication allergy / exposure
- New clothing, soap or detergent
- Past history of reactions
- Past medical history
- Medication history

**Signs and Symptoms**
- Itching or hives
- Coughing, wheezing or respiratory distress
- Chest or throat restriction
- Difficulty swallowing
- Hypotension or shock
- Edema
- Nausea or vomiting
- Feeling of impending doom

**Differential**
- Urticaria (rash only)
- Anaphylaxis (systemic effect)
- Shock (vascular effect)
- Angioedema (drug induced)
- Aspiration or airway obstruction
- Vasovagal event
- Asthma or COPD
- CHF

---

**Assess symptom severity**

**Systemic**

- Establish IV/IO

**Localized**

- Establish IV/IO
- Cardiac monitor
- **Consider**, Diphenhydramine 50mg IV/IO/IM

---

**Airway Procedure if indicated**

**Localized**

- Monitor and reassess
- Monitor for worsening signs and symptoms

---

**Notify receiving facility. Contact Base Hospital for medical direction, as needed.**
Pearls

• Anaphylaxis is an acute and potentially lethal multisystem allergic reaction.
• Epinephrine is the drug of choice and the first drug that should be administered in acute anaphylactic reactions with moderate or severe symptoms. IM Epinephrine should be administered as priority before or during attempts at IV or IO access.
• Anaphylaxis that is unresponsive to initial treatment of IM Epinephrine may require IV Epinephrine administration.
• Allergic reactions may occur with only respiratory and gastrointestinal symptoms and have no rash or skin involvement.
• Angioedema is seen in moderate to severe reactions and is swelling involving the face, lips, or airway structures. This can also be seen in patients taking ACE-inhibitor blood pressure medications such as Prinivil, Zesteril, or Lisinopril; medications typically ending in -il.
• Epinephrine may precipitate cardiac ischemia. The following patients should receive half the adult dose of Epinephrine (0.15mg Epinephrine 1:1,000) for the initial dose and any repeated doses:
  • Patients with a history of coronary artery disease, MI, stents, CHF, cardiac surgery; OR
  • Patients over 50 years of age.
  • EMTs use an EpiPen Junior.
• Adult patient who receive Epinephrine should receive a 12-Lead ECG at some point during their care, but this should NOT delay the administration of Epinephrine.
• All patients with respiratory symptoms must have continuous pulse oximetry and EtCO₂ measurement.
• The shorter the onset of symptoms from contact with an allergen, generally the more severe the reaction.
Contra Costa County Emergency Medical Services

Shortness of Breath

**History**
- Asthma; COPD – chronic bronchitis and emphysema
- Home treatment (e.g. oxygen or nebulizer)
- Medications (e.g. Theophylline, steroids, inhalers, digoxin, lasix, Viagra, Sildenafil, levitra, vardenafil, cialis, or tadalafil)
- Toxic exposure or smoke inhalation
- Cardiac History including MI

**Signs and Symptoms**
- Shortness of breath
- Increased respiratory rate and effort
- Diminished or abnormal lung sounds
- Tachycardia
- Pursed lip breathing
- Use of accessory muscles
- Peripheral edema or diaphoresis
- Pink, frothy sputum

**Differential**
- Asthma
- COPD
- Congestive Heart Failure
- Myocardial Infarction
- Aspiration
- Pneumonia
- Pulmonary embolus
- Hyperventilation
- Inhaled toxin

**Routine Care**
- Apply Oxygen maintain goal SpO₂ 93 to 95%
- Airway support
- Lung Sounds
- Cardiac monitor
- 12-Lead ECG
- EtCO₂ monitoring
- Consider IV/IO

**Peri-Arrest or Severe Distress?**
- Consider administering Epinephrine 1:1,000 0.3mg IM

- Albuterol nebulizer 5mg
  - Repeat as needed
  - Consider CPAP

- Improving?
  - Yes
  - No

- If no improvement, consider Epinephrine 1:1,000 0.3mg IM (Use 0.15mg for patients > 50 years of age)

**BP > 90**

- Nitroglycerin 0.4mg sublingual
  - If systolic BP > 150, double Nitroglycerin to 0.8mg sublingual
  - Repeat every 5 minutes as needed

**Improving?**
- Yes
- No

- Consider CPAP

**Hypotensive**
- Systolic < 90
- Remove CPAP

- Consider A12 Hypotension/Shock TG

**Consider A02 Adult Airway TG**

**Notify receiving facility. Contact Base Hospital for medical direction, as needed**

Effective Jan. 2020
Pearls

- If a patient is in CHF AND the 12 lead indicates STEMI, treat with nitroglycerine as on this treatment guideline. Nitro is withheld if the patient has a STEMI and CHF symptoms are not present.
- Patients receiving epinephrine should receive a 12-Lead ECG at some point in their care in the prehospital setting, but this should NOT delay the administration of Epinephrine.
- Epinephrine may precipitate cardiac ischemia. The following patients should receive half the adult dose of Epinephrine (0.15mg Epinephrine 1:1,000) for the initial dose and any repeated doses:
  1) Patients with a history of coronary artery disease, MI, stents, CHF, cardiac surgery; OR
  2) Patients over 50 years of age and has a heart rate ≥ 150.
- Pulse oximetry and continuous EtCO₂ monitoring is required for all respiratory patients.
- A silent chest in respiratory distress is a pre-respiratory arrest sign.
- CPAP is not a ventilation device. Patients with an inadequate respiratory rate or depth of respiration will need assistance with a BVM.
- Opioids have NOT been shown to improve the outcomes of EMS patients with pulmonary edema. Even though this has historically been a mainstay of EMS treatment, it is no longer routinely recommended.
- Avoid Nitroglycerin in any patient who has used Viagra (Sildenafil) or Levitra (Vardenafil) in the past 24 hours or Cialis (Tadalafil) in the past 36 hours due to potential for severe hypotension.
- Carefully monitor the patient’s level of consciousness, chest pain, and respiratory status with the above interventions.
- If a patient has taken their own nitroglycerin without relief, consider potency of medication. Provider maximum doses do not include patient administered doses.
- Consider MI in all of these patients: Diabetic, geriatric, and female patients often have atypical pain or only generalized complaints.
- Document CPAP application using the CPAP procedure in the EHR. Document the 12-Lead ECG in the EHR as a procedure along with the interpretation.
Contra Costa County Emergency Medical Services

Overdose/Toxic Ingestion

History
- Ingestion or suspected ingestion of a potentially toxic substance
- Substance ingested, route, and quantity
- Time of ingestion
- Reason (suicidal, accidental or criminal)
- Available medications in home
- Past medical history and medications

Signs and Symptoms
- Mental status changes
- Hypo or hypertension
- Decreased respiratory rate
- Tachycardia or dysrhythmias
- Seizures
- S.L.U.D.G.E.

Differential
- Tricyclic antidepressants (TCAs)
- Acetaminophen (Tylenol)
- Aspirin
- Depressants
- Stimulants
- Anticholinergics
- Cardiac medications
- Solvents, alcohols or cleaning agents
- Insecticides (organophosphates)

California Poison Control Center
(800) 222-1222

Blood glucose analysis
- Yes
  - Exit to Diabetic/Behavioral TGs as indicated
- No
  - Systolic BP < 90
    - Yes
      - Exit to Hypotension/Shock TG as indicated
    - No
      - Tricyclic Antidepressant OD
        - Yes
          - QRS ≥ 0.12 sec and BP < 90?
            - Yes
              - Atropine 1-2mg IV/IO
                - Repeat every 3-5 minutes until relief of symptoms achieved
            - No
              - Calcium Chloride
                - 500mg IV/IO (5ml of 10% solution)
                  - For tetany or cardiac arrest
                  - Consider Fentanyl 50-200mcg IV
                    - Titrated in 25-50mcg increments to pain relief
                    - OR
                    - Fentanyl 100mcg IN/IM if no IV access
                      - May repeat once in 15 minutes
        - No
          - Notify receiving facility.
            - Contact Base Hospital for medical direction, as needed.

Sodium Bicarbonate
1mEq/kg IV/IO

Notify receiving facility.
Contact Base Hospital for treatment or additional Fentanyl orders

Naloxone 2-4 mg IN or Auto Injector
- Naloxone is titrated to effect of adequate ventilation and oxygenation
- NOT ADMINISTERED TO RESTORE CONSCIOUSNESS

Exit to Airway TG as indicated

Exit to Symptomatic Bradycardia TG as indicated

Notify receiving facility.
Contact Base Hospital for medical direction, as needed.

Effective Jan. 2020
Pearls

- Overdose or toxic ingestion patients with significant ingestion/exposures should be monitored very closely and aggressively treated as indicated. Do not hesitate to contact the Base Hospital for advice as certain critically ill overdose patients may quickly overwhelm medication supplies. For example, a tricyclic overdose with a wide QRS and altered mental status may need to receive multiple Sodium Bicarbonate boluses until QRS narrowing and clinical improvement; patients with organophosphate toxicity with SLUDGE syndrome may require more Atropine than is usually available on an ambulance.
- Do not rely on patient history of ingestion, especially in suicide attempts. Make sure patient is still not carrying other medications or has any weapons.
- Bring medication bottles, contents, and emesis to the Emergency Department.
- S.L.U.D.G.E.: Salivation, Lacrimation, Urination, Defecation, GI distress, and Emesis
- Tricyclic: 4 major areas of toxicity include decreased mental status, dysrhythmias, seizures, hypotension then coma and death.
- Acetaminophen: Initially normal or with nausea/vomiting. If not detected and treated, causes irreversible liver failure.
- Aspirin: Early sign consist of abdominal pain and vomiting. Tachypnea and altered mental status may occur later. Renal dysfunction, liver failure or cerebral edema among other things can present later.
- Depressants: Decreased heart rate, blood pressure or temperature, decreased respirations, and non-specific pupils.
- Stimulants: Increased heart rate, blood pressure or temperature, dilated pupils, and seizures.
- Anticholinergics: Increased heart rate or temperature, dilated pupils, and mental status changes.
- Cardiac medications: Dysrhythmias and mental status changes.
- Solvents: Nausea, vomiting, coughing, and mental status changes.
- Insecticides: Increased or decreased heart rate, increased secretions, nausea, vomiting, diarrhea, and pinpoint pupils. Consider restraints if necessary for patient’s or personnel’s protection per Restraint Procedure.
- Consider contacting the California Poison Control Center for Guidance.
Contra Costa County Emergency Medical Services

Adult Pain Control

**History**
- Age
- Location and duration
- Severity (0 – 10 scale)
- Past medical history
- Pregnancy status
- Drug allergies and medications

**Signs and Symptoms**
- Severity (pain scale)
- Quality (e.g. sharp, dull, or stabbing)
- Radiation
- Relation to movement or respiration
- Increased with palpation of area

**Differential**
- Per the specific TG
- Musculoskeletal
- Visceral (abdominal)
- Cardiac
- Pleural/respiratory
- Neurogenic
- Renal (colic)

---

**Assess pain severity**
Use combination of pain scale, circumstances, MOI, injury, or illness severity

- Position of comfort
- Apply cold pack *if applicable*
- Monitor and reassess
- Consider IV/IO procedure
- Assess and monitor respiratory status
- Monitor continuous EtCO2
- Apply and monitor cardiac rhythm

**Moderate to severe pain**

**Fentanyl 25 – 50mcg IV/IO**
- Titrated in 25 – 50mcg increments to pain relief. Consider 25mcg increments in elderly patients

**Fentanyl 100mcg IN**
- If no IV access. May repeat once after 15 minutes

**Fentanyl 50 – 100mcg IM**
- If no IV access and IN route not advisable. May repeat once after 15 minutes

**Maximum of 200mcg total**
- Monitor and reassess every 5 minutes following administration

**Acetaminophen 1g IV/IO infusion over 15 minutes (single dose only)**
- Monitor and reassess every 5 minutes following administration

**Notify receiving facility. Contact Base Hospital for medical direction as needed**

**Ketamine IV/IO**
- 500mg/10ml = 50mg/ml
- Drawn in a tuberculin syringe
- Maximum of 30mg total
- Administer slowly over 2 minutes
- Monitor and reassess every 5 minutes following administration

**Fentanyl 500mcg/10ml = 50mg/ml**
- Weight: Dose: Volume
  - 50-69 kg: 15mg: 0.3 ml
  - 70-89 kg: 20mg: 0.4 ml
  - 90+ kg: 30mg: 0.6 ml

**DO NOT ADMINISTER FENTANYL AND KETAMINE TO THE SAME PATIENT.**

---

**Acetaminophen**
- 1g IV/IO infusion over 15 minutes (single dose only)
- Monitor and reassess every 5 minutes following administration

**Notify receiving facility. Contact Base Hospital for medical direction as needed**

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**Effective Jan. 2020**

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Contra Costa County Emergency Medical Services

Adult Medical Treatment Guidelines

Treatment Guideline A14
Page 1 of 2
Pearls

- **DO NOT ADMINISTER FENTANYL AND KETAMINE TO THE SAME PATIENT.**
- Pain severity (0 – 10 scale) is a vital sign to be recorded before and after all BLS pain control measures and ALS pain medication delivery. Monitor blood pressure and respirations closely as pain control medications may cause hypotension or respiratory distress.
- Patients may display a wide variation of response to opioid pain medication (Fentanyl). Consider the patient’s age, weight, clinical condition, other recent drugs, or alcohol and prior exposure to opiates when determining initial dosing. Minimal doses of opioids may cause respiratory depression in the elderly or those patients who weigh less.
- USE EXTREME CAUTION when administering opioids together with benzodiazepines; this combination results in a deeper level of anesthesia with a significant risk for airway and respiratory compromise.
- For patients who have a tolerance to opioids, non-narcotic therapies may be appropriate until evaluation at the receiving facility.
- Acetaminophen may be administered once in addition to Fentanyl or Ketamine for patients with severe pain.
- Do not administer Acetaminophen to patients with severe liver impairment or active liver disease.
- Contraindications of Fentanyl and Ketamine include:
  - Closed head injury
  - Hypotension (BP < 90)
  - Altered level of consciousness
  - Respiratory failure/worsening status
  - Headache
  - Childbirth/suspected active labor
  - Have Naloxone available to reverse respiratory depression should it occur.
  - Burn patients may require higher than usual opioid doses to achieve adequate pain control. **IF A PATIENT HAS SUFFERED BURNS THAT REQUIRE TRANSPORT TO A BURN CENTER, THE PATIENT MAY REQUIRE MORE THAN THE MAXIMUM TOTAL DOSE OF FENTANYL OR KETAMINE TO ACHIEVE PAIN CONTROL. CONTACT THE BASE HOSPITAL FOR ADDITIONAL ORDERS.**
**Suspected Stroke**

### History
- Previous stroke or TIA
- Previous cardiac or vascular surgery
- Associated diseases (diabetes, hypertension, CAD)
- Atrial fibrillation
- Medications (blood thinners)
- History of trauma

### Signs and Symptoms
- Altered mental status
- Weakness or paralysis
- Blindness or other sensory loss
- Aphasia or dysarthria
- Syncope
- Vertigo or dizziness
- Vomiting
- Headache
- Seizure
- Respiratory pattern change
- Hypertension/hypotension

### Differential
- See Altered Mental Status
- TIA
- Seizure
- Todd’s paralysis
- Hypoglycemia
- Stroke
  - Thrombotic or embolic (~85%)
  - Hemorrhagic (~15%)
- Tumor
- Trauma
- Dialysis or renal failure

---

**Recent signs and symptoms consistent with Stroke**

- Perform Cincinnati Stroke Screen
- If stroke Cincinnati stroke screening is positive, perform LAMS
- Blood glucose analysis
- Cardiac monitor
- 12-Lead ECG

**CINCINNATI STROKE SCREEN consistent with acute Stroke?**

- Time of onset OR last seen normal is < 6 hours

**INITIATE TRANSPORT**
- Keep scene time < 10 minutes
- If available, transport a family member or guardian with patient

**Declare a Stroke Alert**

- Establish IV
  - Consider one 20g or larger IV or saline lock in each AC
  - Transport to a Stroke Receiving Center

**Time of onset OR last seen normal is >= 6 hours but <= 24 hours**

- Consider other causes
  - Monitor and reassess

**Time of onset OR last seen normal is > 24 hours**

- Consider IV
  - Transport per Policy 4002

**Notify receiving facility. Contact Base Hospital for medical direction, as needed**

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**Approved Stroke Receiving Centers**
- John Muir – Concord
- John Muir – Walnut Creek
- Kaiser – Antioch
- Kaiser – Richmond
- Kaiser – Walnut Creek
- San Ramon Regional
- Eden – Castro Valley
- Kaiser – Oakland
- Kaiser – Vallejo
- Marin General
- Summit – Oakland
- Sutter – Solano
- Valley Care

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**Note:**
- Time of onset OR last seen normal is < 6 hours
- Time of onset OR last seen normal is >= 6 hours but <= 24 hours
- Time of onset OR last seen normal is > 24 hours

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Effective September 2019
A Stroke Alert is indicated when the Cincinnati Stroke Screen findings are abnormal and onset (time last seen normal) is less than 6 hours from time of patient contact. Report time last seen normal (clock time), the medical record number or name and birthdate, results of the Cincinnati Stroke Screen and the LAMS score, physical exam, and ETA using an approved report format.

If a family member or guardian is available, assure their availability by either transporting them in the ambulance or obtain their name and phone number to allow the receiving physician to contact them. Encourage a family member to be available to speak with hospital staff.

- If any portion of the Cincinnati Stroke Screen is abnormal and it is a new finding, the stroke screen is positive and may indicate an acute stroke.
- Pre-arrival information is necessary for the receiving hospital to make rapid treatment and potential transfer decisions.
- Because the patient may need to receive thrombolytic therapy, avoid multiple IV attempts.
- Avoid distal placement of IVs, if possible, as this is a preferred access site by Interventionalists.
- When turning over patient care to hospital staff, make sure to include common anticoagulants taken by the patient. Known use of these medications may affect the course of hospital treatment:
  - Warfarin (Coumadin)
  - Enoxaparin (Lovenox)
  - Apixaban (Eliquis)
  - Heparin
  - Dabigatran (Pradaxa)
  - Fondaparinux (Arixtra)
  - Rivaroxaban (Xarelto)

### Cincinnati Stroke Screen

<table>
<thead>
<tr>
<th>Finding</th>
<th>Interpretation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Facial Droop</td>
<td>Normal: Symmetrical smile or face</td>
</tr>
<tr>
<td></td>
<td>Abnormal: Asymmetry</td>
</tr>
<tr>
<td>Arm Weakness</td>
<td>Normal: Both arms move symmetrically</td>
</tr>
<tr>
<td></td>
<td>Abnormal: Asymmetrical arm movement</td>
</tr>
<tr>
<td>Speech Abnormality</td>
<td>Normal: Correct words; no slurring</td>
</tr>
<tr>
<td></td>
<td>Abnormal: Slurred or incorrect words</td>
</tr>
</tbody>
</table>

### LAMS Assessment

<table>
<thead>
<tr>
<th>Finding</th>
<th>Scoring</th>
<th>Interpretation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Facial Droop</td>
<td>Absent</td>
<td>Normal: Equal grip in both hands</td>
</tr>
<tr>
<td></td>
<td>Present</td>
<td>Abnormal: Unequal grip in one hand</td>
</tr>
<tr>
<td>Arm Weakness</td>
<td>Absent</td>
<td>Normal: Both arms move symmetrically</td>
</tr>
<tr>
<td></td>
<td>Present</td>
<td>Abnormal: Asymmetrical arm movement</td>
</tr>
<tr>
<td></td>
<td>Drifts</td>
<td>Falls rapidly: some or no effort</td>
</tr>
<tr>
<td></td>
<td>Falls</td>
<td>- 0 points</td>
</tr>
<tr>
<td></td>
<td>Rapidly</td>
<td>- 1 point</td>
</tr>
<tr>
<td>Grip</td>
<td>Normal</td>
<td>Normal: Equal grip in both hands</td>
</tr>
<tr>
<td></td>
<td>Weak</td>
<td>Abnormal: Unequal grip in one hand</td>
</tr>
<tr>
<td></td>
<td>No grip</td>
<td>No grip: no muscle strength or contraction</td>
</tr>
</tbody>
</table>

A LAMS score of ≥ 4 indicates a high likelihood of a LVO stroke.

### Pearls

- **Acute stroke care is evolving rapidly.**
- **Time last seen normal:** One of the most important items that prehospital providers can obtain, on which all treatment decisions are based. Be very precise in gathering data to establish the time of onset and report as an actual time (i.e. 13:45 NOT “about 45 minutes ago”). Without this information, patients may not be able to receive thrombolytics at the hospital. For patients with “woke up and noticed stroke symptoms,” time starts when the patient was last awake.
- The differential listed on the Altered Mental Status TG should also be considered.
- Be alert for airway problems (difficulty swallowing, vomiting and aspiration).
- Hypoglycemia can present as a LOCALIZED neurologic deficit, especially in the elderly.
- Document the Cincinnati Stroke Screen and LAMS in the EHR.

Contra Costa County Emergency Medical Services

Pediatric Airway

Assess respiratory rate, effort, oxygenation
Is airway/breathing adequate?

No

Basic maneuvers first
• Open airway chin lift/jaw thrust
• Nasal or oral airway
• Bag-valve mask (BVM)

Spinal motion restriction
if indicated

E

Airway foreign body obstruction procedure

No

Complete obstruction?

Yes

Abdominal thrusts
(conscious)
Chest compression
(unconscious)
P

Direct laryngoscopy

No

Airway patent?

Yes

Breathing/oxygenation support required?

Yes

Supplement oxygen via BVM

E

Supplemental oxygen via
BVM

P

Monitor continuous EtCO₂

P

Monitor/reassess supplemental oxygen
if indicated

Exit to appropriate TG

No

Transport to closest receiving facility

The maximum allowed attempts for an advanced airway placement is two (2).

If an attempt fails, reassess and approach with a different technique.

The maximum allowed attempts for an advanced airway placement is two (2).

If an attempt fails, reassess and approach with a different technique.

For patients > 15 years of age in cardiac arrest
Place i-Gel as appropriate

O

For patients > 40kg
Intubate with ETT as appropriate
or
Place i-Gel, refer to weight-based guide

P

Consider, sedation
if i-Gel or ETT in place

P

Midazolam IV/IM/IO
Use Pediatape and refer to dosing guide

Notify receiving facility. Contact Base Hospital for medical direction, as needed.

P

Notify receiving facility. Contact Base Hospital for medical direction, as needed.

P

BVM effective?

Yes

Supplement oxygen Goal oxygen saturation
≥ 94%

Exit to appropriate TG

Effective Jan. 2020
Pearls

• Placement of an advanced airway is not a priority during the first five minutes of resuscitation unless ventilation is unable to be maintained with basic maneuvers.
• Endotracheal intubation is only approved for patients over 40kg.
• Capnometry is mandatory with all methods of airway management. Document results.
• Continuous capnometry (EtCO₂) is mandatory for the monitoring of all respiratory patients.
• If an effective airway is being maintained with a BVM and a basic airway adjunct with continuous pulse oximetry values of ≥ 90% or values expected based on pathophysiologic condition with otherwise reassuring vital sign (e.g. pulse oximetry of 85% with otherwise normal vital signs in a post-drowning patient), it is expected to continue with basic airway measures.
• For the purposes of this TG, a secure airway is achieved when the patient is receiving appropriate oxygenation and ventilation.
• An intubation attempt is defined as inserting the laryngoscope blade with the intent to intubate or inserting advanced airway past the teeth.
• An appropriate ventilatory rate is one that maintains an EtCO₂ of 35 or greater. Avoid hyperventilation.
• Patients with perfusing pulses should be managed with a BLS airway unless unable to successfully ventilate.
• Contraindications for i_Gel:
  • Presence of gag reflex
  • Caustic ingestion
  • Known esophageal disease
  • Laryngectomy with stoma (alternatively place ET in stoma)
• Effective use of a BVM requires two (2) people.
• Airway is a more important intervention in pediatric arrests. This should be accomplished quickly with a BVM and appropriately sized mask. Patient survival is often dependent on proper ventilation and oxygenation.
• Maintain spinal immobilization for patients with suspected spinal injury.
• Hyperventilation in deteriorating head trauma should only be done to maintain an EtCO₂ of 30-35.
• It is important to secure the advanced airway well and consider c-collar (in the absence of trauma) to better maintain advanced airway placement. Manual stabilization of advanced airway should be used during all patient moves/transfers.
History
- Onset and location
- Insect sting or bite
- Food allergy / exposure
- Medication allergy / exposure
- New clothing, soap or detergent
- Past history of reactions
- Past medical history
- Medication history

Signs and Symptoms
- Itching or hives
- Coughing, wheezing or respiratory distress
- Chest or throat restriction
- Difficulty swallowing
- Hypotension or shock
- Edema
- Nausea or vomiting
- Feeling of impending doom

Differential
- Urticaria (rash only)
- Anaphylaxis (systemic effect)
- Shock (vascular effect)
- Angioedema (drug induced)
- Aspiration or airway obstruction
- Vasovagal event
- Asthma or COPD
- CHF

Assess symptom severity

Systemic
- Administer weight appropriate Epinephrine auto injector or assist patient with their prescribed auto injector
- Epinephrine 1:1,000 IM
  Use Pediatape and refer to dosing guide
  Establish IV/IO
  Cardiac monitor
  EtCO₂ monitoring
- Albuterol nebulizer 5mg
  Repeat as needed to Max of 3 doses if indicated
- Normal Saline bolus
  Use Pediatape and refer to dosing guide
  If hypotensive or no improvement, Epinephrine 1:10,000 slow IV/IO
  Use Pediatape and refer to dosing guide

Localized
- Consider IV/IO
- Cardiac monitor
- Consider Diphenhydramine IM/IV/IO
  Refer to weight-based dosing guide
- Monitor and reassess
  Monitor for worsening signs and symptoms

Auto injector use for pediatric patient
≤ 30 kg – Pediatric
>30 kg - Adult

Airway Procedure if indicated

Notify receiving facility.
Contact Base Hospital for medical direction, as needed.
Pearls

- Anaphylaxis is an acute and potentially lethal multisystem allergic reaction.
- Epinephrine is the drug of choice and the first drug that should be administered in acute anaphylaxis reactions with moderate or severe symptoms. IM Epinephrine should be administered as priority before or during attempts at IV or IO access.
- Anaphylaxis unresponsive to repeat doses of IM Epinephrine may require IV Epinephrine administration. Contact the Base Hospital for refractory anaphylaxis.
- Allergic reactions may occur with only respiratory and gastrointestinal symptoms and have no rash or skin involvement.
- All patients with respiratory symptoms must have continuous pulse oximetry and EtCO₂ measurement.
- The shorter the onset of symptoms from contact with an allergen, generally the more severe the reaction.
**History**
- Ingestion or suspected ingestion of a potentially toxic substance
- Substance ingested, route and quantity
- Time of ingestion
- Reason (suicidal, accidental or criminal)
- Available medications in home
- Past medical history and medications

**Signs and Symptoms**
- Mental status changes
- Hypo or hypertension
- Decreased respiratory rate
- Tachycardia or dysrhythmias
- Seizures
- S.L.U.D.G.E.

**Differential**
- Tricyclic antidepressants (TCAs)
- Acetaminophen (Tylenol)
- Aspirin
- Depressants
- Stimulants
- Anticholinergics
- Cardiac medications
- Solvents, alcohols or cleaning agents
- Insecticides (organophosphates)

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**California Poison Control Center**
(800) 222-1222
Advisory ONLY

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**Pearl**
- Do not rely on patient history of ingestion, especially in suicide attempts. Make sure the patient is still not carrying other medications or weapons. Bring bottles, contents, and emesis to ED.
Burns

History
- Type of exposure (heat, gas or chemical)
- Inhalation injury
- Time of injury
- Other trauma
- Past medical history
- Medications

Signs and Symptoms
- Burns, pain, or swelling
- Dizziness
- Loss of consciousness
- Hypotension/shock
- Airway compromise or distress could be presented as hoarseness or wheezing

Differential
- Superficial – red and painful (do not include in TBSA)
- Partial thickness – blistering
- Full thickness – painless with charred or leathery skin
- Chemical injury
- Thermal injury
- Radiation injury
- Blast injury

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Assess burn injury severity

Minor
- < 20% TBSA partial or full thickness burns
- No inhalation injury
- GCS > 13

Remove rings, bracelets, and constricting items
Apply clean dressing to burn area
Consider IV
Cardiac monitor

Trauma Triage TG if indicated
Pain Control TG if indicated
Transport to facility of choice. Consider transporting to Burn Center for burns to the face, hands, perineum, or feet and circumferential burns

Major
- ≥ 20% TBSA partial or full thickness burns
- Burns with suspected inhalation injury or high voltage electrical burns

Remove rings, bracelets, and constricting items
Apply clean dressing to burn area
Maintain airway
Establish IV/IO
Consider, one 20g or larger IV in each AC
Cardiac monitor
EtCO2 monitoring

Trauma Triage TG if indicated
Pain Control TG if indicated
Transport to appropriate facility
Burns with trauma to Trauma Center
Burns only to Burn Center

Notify receiving facility.
Contact Base Hospital for medical direction, as needed.

Approved Burn Receiving Centers
- St. Francis – San Francisco
- Valley Med. Center – San Jose
- UC Davis – Sacramento
**Pearls**

- Airway burns may lead to rapid compromise of the airway and can be identified by soot around the nares or mouth or visible burns or edematous mucosa in the mouth.
- Early intubation is required when the patient experiences significant inhalation injuries. If the patient requires advanced airway management that cannot be quickly achieved in the field, transport to the nearest facility for stabilization prior to transfer to the Burn Center. Do not wait for a helicopter if airway patency is a critical concern.
- For major burns, do not apply wet dressings, liquids or gels to burns unless it is to remove whatever caused the burn (i.e. dry chemical agent, etc.). Cooling large burns may lead to hypothermia.
- Burn patients are often trauma patients. If burns are evident in the presence of trauma, follow trauma triage guidelines and transport to trauma center if activation criteria is met. Do not transport a trauma patient with burns to a burn center.
- Circumferential burns to extremities are dangerous due to potential vascular compromise secondary to soft tissue swelling.
- Never administer IM pain medication into a burned area.

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**Rule of Nines**

- Seldom will you find a complete isolated body part that is injured as described in the Rule of Nines. More likely, it will be portions of one area, portions of another, and an approximation will be needed.
- For the purpose of determining the extent of serious injury, differentiate the area with minimal (superficial) burn from those of partial or full thickness burns.
- When calculating TBSA of burns, include only partial and full thickness burns; do not include superficial burns in the calculation.