Los Angeles City Park Rangers Presents

California POST Certified
First Aid/CPR/AED Refresher Course #21797
Scene Size Up

Griffith Park, June 2013
4 Injured
Scene Size Up: P-E-N-M-A-N

In this order of Priority:
- Personal Safety
- Partner Safety
- Patient Safety

Why in this order?

Glendale, January 2005
11 Dead
Scene Size Up: P-E-N-M-A-N

● Environmental Hazards

Illegal Dumping
Griffith Park Drive, September 2018

Greek Theatre, April 2018
Scene Size Up: P-E-N-M-A-N

- Number of Patients

Griffith Park, October 1933
29 Dead
Scene Size Up: P-E-N-M-A-N
● Mechanism of Injury
Speed? Mass?
Height? Weight?
Passenger Space Intrusion?
Weapon Type?
Restraints?
# of Collisions and Type?
Helmet?

Crystal Springs Drive, 2019
Scene Size Up: P-E-N-M-A-N

Mechanism of Injury

- Coup
- Contrecoup

Primary Impact
Secondary Impact
Scene Size Up: P-E-N-M-A-N

- Mechanism of Injury
- Is it “significant”?
- So...what would be examples of a mechanisms of injury that can cause “significant” injuries?
REFERENCE NO. 506

- Systolic BP <90 mmHg, or <70 mmHg in infants age less than one year
- Respiratory rate >29 breaths/minute (sustained), <10 breaths/minute, less than 20 breaths/minute in infants age less than one year, or requiring ventilatory support
- Cardiopulmonary arrest with penetrating torso trauma
- All penetrating injuries to head, neck, torso, and extremities proximal to the elbow or knee
REFERENCE NO. 506

- Blunt head injury associated with a suspected skull fracture, altered level of consciousness (Glasgow Coma Score less than or equal to 14), seizures, unequal pupils, or focal neurological deficit
- Injury to the spinal column associated with acute sensory or motor deficit
- Blunt injury to chest with unstable chest wall (flail chest)
- Diffuse abdominal tenderness
- Suspected pelvic fracture (excluding isolated hip fracture from a ground level fall)
Extremity with:

1. Neurological/vascular compromise and/or crushed, degloved, or mangled extremity
2. Amputation proximal to the wrist or ankle
3. Fractures of two or more proximal (humerus/femur) long-bones
4. Bleeding not controlled by direct pressure requiring the usage of a hemorrhage control tourniquet or hemostatic agent (approved provider agencies only)
Falls:

1. Adult patients from heights greater than 15 feet
2. Pediatric patients from heights greater than 10 feet, or greater than 3x the height of the child

REFERENCE NO. 506

>15 Feet For Adults

>10 Feet or 3x Height For Pediatrics
Autos:
- Passenger space intrusion (PSI) of greater than 12 inches into an occupied passenger space
- Passenger space intrusion of greater than 18 inches into any unoccupied passenger space
- Ejected from vehicles (partial or complete)
- Auto versus pedestrian/bicyclist/motorcyclist thrown, run over, or with significant (>20 mph) impact
- Unenclosed transport crash with significant (>20 mph) impact
- Injured victims of vehicular crashes in which a fatality occurred in the same vehicle
Major/Critical Burns:

1. Patients 15 years of age or older with 2nd (partial thickness) and 3rd (full thickness) degree burns involving equal to or >20% Total Body Surface Area (TBSA)

2. Patients ≤ 14 years of age with 2nd (partial thickness) and 3rd (full thickness) degree burns involving equal to or >10% TBSA

Burn Centers
- Torrance Memorial
- LA Co. USC
- West Hills Hospital
Special Considerations:

- Patients in blunt traumatic full arrest
- Adults age greater than 55 years
- Systolic blood pressure less than 110 mmHg may represent shock after age 65 years
- Pregnancy greater than 20 weeks gestation
- Prehospital judgment
Scene Size Up: P-E-N-M-A-N

- Additional Resources
Scene Size Up: P-E-N-M-A-N

Need for:

“Spinal Motion Restriction” (SMR)

Cervical Collars should still be used

- If no C-Collars, then use maintain stabilization with hands.

“Spinal Immobilization”

Why?
Scene Size Up: P-E-N-M-A-N

C4
Quadriplegia/Tetraplegia, complete paralysis below the neck

C6
Partial paralysis of hands and arms as well as lower body

T6
Paraplegia, paralysis below the chest

L6
Paraplegia, paralysis below the waist
Scene Size Up: P-E-N-M-A-N

- Reframing Our Use for Backboards:
  - Extrication
  - Splinting during movement of patients with multiple traumatic injuries
Adult Algorithm
Reference 1360

Potential for unstable spinal injury?

Strongly consider SMR in patient at high risk:
- Age
- Meets trauma criteria for mechanism
- Axial load injury
- Numbness or tingling in extremities

Perform a careful assessment on all patients:
- Unreliable patient?
  - Altered
  - Uncooperative/limited evaluation
  - Intoxicated
- Abnormal spine exam?
- Abnormal sensory or motor exam?

No

Consider forgoing SMR with low-risk features:
- Simple rear-end MVC or other low-energy mechanism
- Ambulatory on scene?
- No neck pain?

Yes

SMR not needed

No

Use Judgment

SMR REQUIRED
Potential for unstable spinal injury?

Strongly consider SMR:
- Meets trauma criteria for mechanism

High Risk Mechanism
- Axial load injury

High Risk Complaint
- Numbness or tingling extremities
- Pain or decreased movement of neck (torticollis)

Patient Assessment
- Unreliable patient?
  - Altered
  - Uncooperative/limited evaluation
  - Intoxicated
- Abnormal spine or torso exam?
- Abnormal sensory or motor exam?
- >2 years old and unable to ambulate?

Simple rear-end MVC or other low-energy mechanism
- No predisposing condition

SMR not needed
Use Judgment

SMR REQUIRED
Body Substance Isolation (BSI)

- AKA: Personal Protective Equipment (PPEs)
Body Substance Isolation (BSI)

What does N95 mean?
When would I use one over the other?
Disposable respiratory protective devices used and worn by healthcare personnel during procedures to protect both the patient and healthcare personnel from the transfer of microorganisms, body fluids, and particulate material.

N95 Mask

- The "N" means that it is Not resistant to oil.
- The "95" in N95 refers to the filter efficiency.
N95 Mask

- For use by health care workers in contact with patients with infections that are transmitted from inhaling airborne droplets (e.g., tuberculosis (TB); also recommended for health care staff working with patients having or suspected of having SARS, severe acute respiratory syndrome).

Patient presenting with a wet cough?

.....put on the mask
N95 Mask – Signs of TB

**SIGNS AND SYMPTOMS OF ACTIVE TB**

- Coughing that lasts three or more weeks
- Coughing up blood
- Fever
- Night sweats
- Chest pain, or pain with breathing or coughing
- Loss of appetite
- Chills
- Unintentional weight loss
- Fatigue
N95 Mask

- N95 masks do NOT protect you against:
  - chemical vapors,
  - gases,
  - carbon monoxide,
  - gasoline,
  - asbestos,
  - lead or
  - low oxygen environments.

- It must cover both the **nose and mouth** to keep you from breathing in mold and dust.

- If it does not have a snug fit, it will not work properly.
N95 Mask

How to Make Sure the Mask Fits:

- **Negative pressure check**
  - Place both hands completely over the mask and inhale sharply. Be careful not to disturb the position of the mask. The mask should pull into your face. If air leaks around your face or eyes, adjust the nosepiece and straps and repeat the positive pressure check.

- **Positive pressure check**
  - Put your hands over the mask and breathe out sharply. If your mask has an exhalation valve (like the one pictured above) be sure to cover the exhalation valve when you exhale. No air should leak out of the mask if it fits properly. If air leaks out, re-adjust the nosepiece and straps and repeat the negative pressure check.
Body Substance Isolation (BSI)

- Properly sized gloves
- Eye Protection
- Wear appropriate mask
- Wash hands after removing gloves
- Decontaminate Equipment
Proper Glove Removal Activity

1. Pinch and hold the outside of the glove near the wrist area.

2. Peel downwards, away from the wrist, turning the glove inside-out.

3. Pull the glove away until it is removed from the hand, holding the inside-out glove with the gloved hand.

4. With your un-gloved hand, slide your finger/s under the wrist of the remaining glove. Do not touch the outer surface of the glove.

5. Peel downwards, away from the wrist, turning the glove inside out.

6. Continue to pull the glove down and over the inside-out glove being held in your gloved hand.
First Aid Bags Contents

- **Exterior Upper Pocket**
  - Large Trauma Dressing x1
  - Burn Sheet x1

- **Exterior Middle Pocket**
  - CPR Mask x1

- **Exterior Lower Pocket**
  - Ice Packs x4

- **Main Pocket**
  - Small Cardboard Splint x1
  - Dust Masks x2
  - N95 Masks x2

- **Front Side Area**
  - Eye Protection x1
  - Survival Blanket x2
  - Gauze Bandage Roll x2

- **Back Side Area**
  - 4in x 4in Sterile Gauze x8
  - Triangle Bandages x2
  - Hand Sanitizer Bottle x1
  - Eye Wash Bottle x1
  - Poison Oak/Ivy Cleanser Bottle x1
  - Water Irrigation Bottle x1

- **Zipper Pocket**
  - Antiseptic Towlettes x18
  - Medical Shears x1
  - Tape Roll x1
  - Bandages (1 in. X 3 in) x10
  - Sunscreen Packets x4
  - Bug Repellent Wipes x4
First Aid Bag – Policy and Procedure

- First Aid Bags are assigned to individual Park Rangers and the vehicles that are assigned to Security Officers.
- First aid supply caches can be found:
  - Crystal Springs Picnic Area
  - Hansen Dam Ranger Station
  - Harbor Ranger Station.

- First Aid Bag Contents Sheet located within the upper rear zipper pocket
- Each of the four assigned pockets shall be sealed with plastic break-away seals.
  - Indicate that the contents of that pocket has been verified and is complete.
First Aid Bag – Policy and Procedure

- Documentation of the condition of First Aid Bag shall be performed at the beginning and end of shift and appropriately logged on Daily Field Activity Report.
Broken Plastic Seal Procedure

- Ensure that the pocket with the broken plastic seal be restocked with the appropriate medical supplies in the amounts consistent with the First Aid Bag Contents Sheet.

- Once the contents of the pocket have been verified having met the criteria on the First Aid Bag Contents Sheet, that pocket shall be sealed with the plastic break-away seal.
Broken Plastic Seal Procedure

- Medical equipment items missing from an assigned pocket within the first aid bag shall be documented on Daily Field Activity Report.

- Any medical equipment restocked from the medical caches shall be logged on the Medical Inventory Check Out Sheet.

- In the event that the medical equipment that needs to be replaced is not readily available at the medical first aid caches, the park ranger or security officer shall inform their immediate supervisor.
C-P-R

- CPR = Cardio Pulmonary Resuscitation
- AED = Automated External Defibrillator
- Rescue Breathing: Patient has a pulse, but needs to be ventilated

- Our standards are based off the American Heart Associations (AHA) course for the Professional Rescuer 2015 guidelines
CPR Section Breakdown

- Anatomy/Pathophysiology/Conduction Pathways
- Heart Attack vs. Cardiac Arrest
- Chain of Survival
- Compressions and Landmarks for Adults/Pediatrics/Infants
- Giving Breaths for Adults/Pediatrics/Infants
  - Including Rescue Breathing
- AED for Adults/Pediatrics/Infants
- 1 Rescuer vs. 2 Rescuer CPR
Pump - Fluid - Container
Heart Pathology

- Superior Vena Cava
- Pulmonary Veins from Lungs
- Lungs
- Atrial Septum
- Tricuspid Valve
- Inferior Vena Cava
- Pulmonary Valve
- to Lungs
- Pulmonary Veins from Lungs
- Mitral Valve
- Aortic Valve
- Ventricular Septum
- AO (Aorta)
- PA (Pulmonary Artery)
- LA (Left Atrium)
- RV (Right Ventricle)
- LV (Left Ventricle)
Heart Anatomy - Electrical
Heart Anatomy - Electrical

Cardiac Conduction System

SA Node

AV Node

Moderator band

Left bundle branch

Right bundle branch
Heart Attack/Sudden Cardiac Arrest

- Cardiac Arrest is an electrical problem.
- Irregular Heartbeat
- Blocked Artery
- Heart Attack is a plumbing problem.
Heart Attack/Sudden Cardiac Arrest

Chain of Survival:

1. 9-1-1: Recognition of cardiac arrest and activation of the emergency response system
2. CPR: Early cardiopulmonary resuscitation (CPR) with an emphasis on chest compressions
3. Rapid defibrillation with an AED
4. Basic and advanced emergency medical services
5. Advanced life support and post-cardiac arrest care
We come across someone who is not conscious. We see no breathing or no “normal” breathing. No rise and fall of the chest noted.

Do we check for a pulse?
We see no breathing or no “normal” breathing
No rise and fall of the chest noted

Do we check for a pulse?

**YES**

......We will discuss where to identify the pulse for Adults/Pediatrics/Infants later on.
Order of Importance

- Old Acronym:
  - A – Airway (clear and open airway)
  - B – Breathing (breaths)
  - C – Circulation (compressions)

- Modern and more accurate Acronym:
  - C – Circulation (compressions)
  - A – Airway (clear and open airway)
  - B – Breathing (breaths)
What are we doing with CPR?

- Performing the function of the pump
- CPR at its best is doing 1/3 the work of normal workload of the heart
- Brain is in constant need of Oxygen
- The brain doesn’t store oxygen
- Oxygen is carried by red blood cells
- We can keep the brain perfused by trying to circulate the blood to the brain
- We are buying time

6 mins
When are the only times we would stop performing CPR?
When are the only times we would stop performing CPR?

1. The patient starts breathing on their own again
2. When the AED is delivering a shock
3. When advanced medical help arrives (EMTs/Paramedics)
4. Scene becomes unsafe
5. Rescuer becomes too exhausted to continue

- If another rescuer is available, the rescuer performing compressions should switch out with the second rescuer every 2 minutes.
Setting up the scene for CPR

- Create Space – equipment and people
- Hard, flat, dry surface
- Remove people who are causing distractions
- Give family members simple tasks to make them feel part of the process....have them fill out an FI card.
Age Groups Defined

- **Infants:**
  - Birth – 1 year of age

- **Pediatrics**
  - 1 year and one day – puberty (subjective)
    - Boys – underarm hair and facial hair
    - Girls – breast development

- **Adults**
  - Everyone past puberty
Order of Events

- Make sure the scene is safe for you to enter and you have your personal protective equipment on
- Tap and shout, if no response then
- Call 911/Contact Ranger Dispatch
  - 1500, 15xx. I have a unresponsive M/F approx _____ year(s) of age at _______ (location), requesting LAFD and an additional Ranger unit to my location.
- Tell someone to go find an AED
- Check Pulse, if no pulse…..
- Begin CPR
Adult: Pulse Check (Carotid Pulse)

Either you feel it or you don’t!
If you don’t know or it is too weak to feel,
it is best to err on the side of performing CPR.
Adult: Pulse Check (Carotid Pulse)

If you truly cannot tell whether you feel a pulse or not......

It is better to give to CPR to someone who doesn't need it then withhold CPR to someone who does need it.
Compressions

Can you break the patient’s ribs while performing CPR? And if so what do I do if I break ribs?

Yes, ribs can break and that should NOT stop you from performing CPR.

The younger people are the more flexible their ribs are and they are less likely to break, but the older people get the more rigid they become, therefore increasing the likelihood of rib fracture.

Ribs can break off the sternum. When this happens you may get the sound and feel of bone rubbing up against bone. This is called crepitus. It will feel strange, but you must continue with compressions!
Adult: Compression Landmarks/Posture

Elbows straight and in a “locked out” position.
Mind the Xiphoid Process

If your hands are placed too far on the sternum, we risk doing compressions over the xiphoid process...which could break off.

Hand Placement:

LOWER HALF of the Sternum
Allow for full Chest Recoil
Adult: Compression Rate/Depth

- Performed at a RATIO of
  - **30 Compressions: 2 Breaths**
- Performed at a RATE between **100-120 compressions per minute**
- A DEPTH of AT LEAST **2 inches (5cm)**
- Allow for the chest to **fully recoil** with each compression
Adult: Breaths

- What’s the goal? Open the Airway
- Know when to use the:

Head Tilt–Chin Lift Technique

vs.

Jaw Thrust Technique
Adult: Breaths

- What’s the goal? Open the Airway

Head Tilt–Chin Lift Technique
(no suspected cervical spinal damage)
Adult: Breaths

- What’s the goal? Open the Airway
  Jaw-Thrust
  (suspected cervical spinal damage)

- An alternative to head tilt - chin lift
- Technique of choice where there is a strong suspicion of cervical spine injury (e.g. RTA, falls, drowning or diving accidents)
- Place fingers posterior to the mandible of jaw and apply upward and forward pressure
- Hold mouth slightly open using thumbs to displace chin inferiorly
Adult: Breaths – Head-tilt Chin-lift

- Create a air-tight seal using “C” and ”E” grip

Lower 3 Fingers lay across jawbone

Thumb and forefinger press mask on face
Adult: Breaths – Head-tilt Chin-lift

- Create a air-tight seal using “C” and ”E” grip

One hand to hold B-V-M

One hand for “C” and “E” Grip
Adult Breaths - Equipment

- Bag Valve Mask (BVM)
- Pop-out Mask
- Foldable CPR Masks w/ valve
- CPR Face Shields (for manikins only)
Another appropriate option if you have plenty of rescuers......

Adult: Breaths
Who can operate an AED?
- Anyone

Is there an age limit for use of the AED?
- No, it can be used for all three age groups. Infants, Pediatrics, and Adults.

If it only comes with adult pads, can I use it on infants?
- Yes, just make sure the pads don’t overlap. Place one on the front and one on the back of the infant.

Is there such thing as a “child/infant setting”?
- There are some manufacturers of AEDs that have pads for pediatrics/infants based on weight or a “switch” on the AED that changes it to a lower joules setting.
....Perhaps an AED Arrives

Pediatric Dose Attenuators: Lower amount of joules for smaller people

The take-away: Know your equipment

*I have not came across any of our AEDs with pediatric dose attenuators
....Perhaps an AED Arrives

• **Turn on AED and listen to prompts.**

(May need to tell people to be quiet so you can hear)
“Attach Pads to Patient”

- “Attach Pads to Patient”
  - If this message keeps repeating, it means that the pads aren’t making a good skin-to-pad connection.

- Where do you place the pads?

- What could cause the pads to not work?
“Attach Pads to Patient”

The pads should generally be placed in the LOWER LEFT and UPPER RIGHT area of the chest. The exception to this is that the pads cannot overlap!
“Attach Pads to Patient”

Pads cannot overlap! So you may need to modify the placement for infants and small pediatrics.
“Attach Pads to Patient”

Other issues that can come up with pad placement?
“Analyzing Rhythm. Do not touch the patient”

- **What is it analyzing?**
  - To see if delivering a shock is “advised” or “not advised”.

- **Why is it important that I not touch the patient?**
  - The device is very sensitive. If you are touching the patient, it may pick up on your heart beat. The AED would not deliver the shock if it picks up a heart beat.
“Shock Advised”
“Do not touch the patient. Charging.”
“Press the Shock Button”
Press the Shock Button.

“Shock Delivered.
Continue with 5 cycles of CPR”
(5 cycles of 30 Compressions: 2 breaths)
This should take about 2 mins.

After 2 mins, it will say:

“Analyzing Patient.
Do not touch the patient.”

It will continue to re-analyze the patient every 2 minutes to see if the patient would possibly benefit from a shock. CPR is being performed when the AED is not analyzing or delivering a shock.

“No Shock Advised”
“Continue with 5 cycles of CPR”
(5 cycles of 30 compressions: 2 breaths)
This should take about 2 mins.

After 2 mins, it will say:

“Analyzing Patient.
Do not touch the patient.”

It will continue to re-analyze the patient every 2 minutes to see if the patient would possibly benefit from a shock. CPR is being performed when the AED is not analyzing or delivering a shock.
What changes?
- Not much. One rescuer performs one cycle of chest compressions and the other focuses on opening the airway and delivering breaths.
- The rescuers shall switch positions every 5 cycles (approximately 2 mins in duration) to avoid rescuer fatigue.
Adult: What if the patient has a pulse but is not breathing or not breathing normally?

- This is called “Rescue Breathing”
- If they have a pulse, assist them with breathing.
- For adults:

  - Deliver 1 Breath every 5-6 seconds.
Our Equipment

Hearing a “Click” sound indicates that you have compressed the chest 2 inches.
Tying it all together: Hands On

- Please grab your foldable mask/facial shield
- Find a manikin
- Practice giving compressions
- Practice giving breaths
- Practice using the AED
- Perform full algorithm

REMEMBER:

Spend no more than 10 seconds to deliver breaths.

Don’t get tunnel vision.

Compressions are the most important part of CPR.
Pediatric Compression Landmarks/Posture

How is it different than Adult CPR?

1. You have the option of using one or both hands to perform compressions. As long as you are compressing approximately 2 inches deep.
2. Only if you have a partner, your compression to ventilation ratio will change from 30:2 to 15:2
   - 15 compressions: 2 breaths
   - 10 Cycles = 2 minutes
Pediatric Compression Landmarks/Posture
Pediatric: What if the patient has a pulse but is not breathing?

- If they have a carotid pulse, assist them with breathing.
- For pediatrics:
  - Deliver 1 breath every 3-5 seconds.
Infant CPR: Eliciting a Response

- Tap or Flick the Sole of the foot....not “tap and shout”
Infant CPR: Checking for a Pulse

- Infant pulse is checked at: brachial pulse
Infant Compression Landmarks/Posture

Best performed on a table or raised surface.

Also, remember babies are portable.
Infant Compression Landmarks/Posture

Two Thumbs Encircling Hands Technique

Two Finger Chest Compression Technique

2 Rescuer Technique Only

Single Rescuer Only Technique
Infant Airway

Correct

Neck Slightly Extended

Incorrect

Neck Hyperextended  Neck Underextended
Infant Airway

An Infant in the “Sniffing Position”

1. Glabella – Chin Plane
   HORIZONTALLY ALIGNED

2. Neck
   WIDE AND OPEN

3. External Auditory Meatus - Suprasternal Notch Plane
   HORIZONTALLY ALIGNED

Shoulder Roll
Headrest

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Infant CPR

- **Single Rescuer**
  - 30 Compressions : 2 Breaths (5 cycles, approx 2 mins)
  - Two finger compression technique

- **Two Rescuer**
  - 15 Compressions : 2 Breaths (10 cycles, approx 2 mins)
  - Rescuers switch positions every 2 minutes
  - Two thumbs encircling hands technique
It is not uncommon for a victim of cardiac arrest to regurgitate or vomit during CPR operations.

Concern:
The patient could *aspirate*. This means we don’t want the vomit to potentially enter the lungs.

Correction:
When you first see or hear the gurgling sound, open the patient’s mouth and roll the patient AWAY from you and use a gloved hand to sweep the vomit out of the patient’s mouth, then resume CPR.
Recovery Position – Unconscious with Pulse

Create a “kick stand” with the uppermost leg and support the head using the patient’s arms.
Big Picture

Will we ever perform CPR on someone we know to have a pulse?
Yes, but only with INFANTS
Infant: What if the patient has a pulse but is not breathing or not breathing normally?

- If they have a **brachial pulse at a rate equal to or greater than 60 beats per min**, assist them with breathing.
- For infants:

  - **Deliver 1 breath every 3-5 seconds.**
Short Review

- What do we always perform first during CPR, chest compressions or breaths?

- Anytime you are by yourself (a single rescuer), the compression to ventilation ratio will always be:
Short Review

- What do we always perform first during CPR, chest compressions or breaths?
  - Chest Compressions

- Anytime you are by yourself (a single rescuer), the compression to ventilation ratio will always be:
  - 30 Compressions : 2 Breaths
Short Review

- If an AED is available, at what point in the CPR process do we incorporate it?
- Can I use the AED on all 3 age groups (infants/pediatrics/adults)?
Short Review

- If an AED is available, at what point in the CPR process do we incorporate it?
  - As soon as possible

- Can I use the AED on all 3 age groups (infants/pediatrics/adults)?
  - Yes, AED can be used on all three age groups
What is the first step when obtaining the AED?

When would you change from the compression ratio of 30:2 to 15:2?
Short Review

- What is the first step when obtaining the AED?
  - Turn on the AED, then follow the prompts
    - Do not skip ahead of the AED instructions

- When would you change from the compression ratio of 30:2 to 15:2?
  - When there are 2 rescuers and you have a pediatric or infant patient.
## CPR Overview – Compression : Breaths

<table>
<thead>
<tr>
<th></th>
<th>1 Rescuer</th>
<th>2 Rescuer</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adult</td>
<td>30:2</td>
<td>30:2</td>
</tr>
<tr>
<td>Pediatric</td>
<td>30:2</td>
<td>15:2</td>
</tr>
<tr>
<td>Infant</td>
<td>30:2</td>
<td>15:2</td>
</tr>
</tbody>
</table>
## Overview – Rescue Breaths

<table>
<thead>
<tr>
<th></th>
<th>Rate</th>
<th>Breath Per Min</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Adult</strong></td>
<td>1 breath every 5-6 seconds</td>
<td>12-20 breaths per minute</td>
</tr>
<tr>
<td><strong>Pediatric</strong></td>
<td>1 breath every 3-5 seconds</td>
<td>15-30 breaths per minute</td>
</tr>
<tr>
<td><strong>Infant</strong></td>
<td>1 breath every 3-5 seconds</td>
<td>25-50 breaths per minute</td>
</tr>
</tbody>
</table>
Choking – Universal Choking Sign
Choking – Terminology Check

Call it what is it.......

- “Abdominal Thrusts”
- “Chest Thrusts”
- “Back Slaps” (infants only)
Choking -

- Only 1 of 2 things are going to happen.......

  The Object Comes Out
  or
  The Object Doesn’t Come Out
Choking Timeline: 2 Parts

- Conscious Stage – Patient is actively trying to cough out obstruction and rescuer can intervene with assisting patient expulse obstruction

- Unconscious State – Patient is no longer actively trying to cough out obstruction. The rescuer will assist patient come to the ground, and CPR should be performed.
Adult Choking Landmarks
What’s the problem here?
Choking – Pregnant Patient

For a consciously choking pregnant female, CHEST THRUSTS is the preferred method to trying to relieve choking.

Abdominal Thrusts can cause serious damage to the fetus.
Choking – Obese Patient

For a consciously choking obese individual, **CHEST THRUSTS** may be the only way you as a rescuer may be able to get your arms physically around the torso of a patient.

More often than not, the upper chest will have a smaller circumference than the lower abdomen.

May not be as effective as abdominal thrusts, but it’s your only reasonable option.
There has been no research that has suggested one way or another that would imply that using the back of a chair would benefit a conscious victim of choking.
Connecting Concepts – Choking/CPR

- Cardiac arrest can be the result of choking. We may never actually see the episode where they are consciously choking.
- When the patient becomes unconscious, it becomes CPR.
- Most infants and pediatrics have happy & healthy hearts, so your index of suspicion should be elevated for these age groups.
- Don’t get “tunnel vision” in dealing with the airway, the most important element of CPR is the compressions. If you are getting good chest rise and fall, that is the goal!
- Spend no more than 10 SECONDS per airway check and attempting to give breaths.
Performing a Primary Assessment

- Scene Safety/Body Substance Isolation/Personal Protective Equipment
- Airway
  - Obstructed or Patent (clear)?
- Breathing
  - Rhythm? - Regular or Irregular
  - Rate? - Increased or Decreased?
  - Quality? – Adequate or Inadequate? Labored?
- Circulation
  - Pulse
    - Rhythm? - Regular or Irregular
    - Rate? - Increased or Decreased?
    - Quality? – Strong or Weak?
- Skin
  - Color? – Pale/Flush/Yellow (jaundiced)/Normal
  - Temperature? – Warm (normal)/Hot/Cool
  - Moisture? – Clammy/Dry/Diaphoretic (sweaty)
- Manage Life Threats
Quantifying Pain - Ref. No. 1345

GUIDELINES:

1. Pain assessment should be performed on patients of all ages as part of the initial patient assessment, and should include severity as measured on one of the 3 formal pain scales used by Los Angeles County.

2. For verbal patients 8 years of age or older, use the Numeric Pain Intensity scale by asking the patient to rate their pain on a 0-10 scale; zero (0) equals no pain and ten (10) equals the most severe pain. Document the number selected on the EMS Report Form.

3. For patients 3-7 years old, or for patients with limited English proficiency, use the Facial Expression pain scale.

[Facial expression scale with numbers 0 to 10 and descriptions: No Pain, Some Discomfort, Having Discomfort, Mild Pain, Moderate Pain, Severe Pain, Most Severe Pain]
4. For children < 3 years of age or for patients who are non-verbal due to baseline medical conditions such as cognitive impairment or severe dementia, utilize the FLACC Behavioral Tool. The patient should be assessed in each of the 5 categories shown in the table below, with the pain severity determined based on the total score on a scale of 0-10.

<table>
<thead>
<tr>
<th>Behavior</th>
<th>0</th>
<th>1</th>
<th>2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Face</td>
<td>No particular expression or smile</td>
<td>Occasional grimace or frown, withdrawn, disinterested</td>
<td>Frequent to constant frown, clenched jaw, quivering chin</td>
</tr>
<tr>
<td>Legs</td>
<td>Normal position or relaxed</td>
<td>Uneasy, restless, tense</td>
<td>Kicking or legs drawn up</td>
</tr>
<tr>
<td>Activity</td>
<td>Lying quietly, normal position, moves easily</td>
<td>Squirming, tense, shifting back and forth, hesitant to move, guarding</td>
<td>Arched, rigid or jerking, fixed position, rubbing of body part</td>
</tr>
<tr>
<td>Cry</td>
<td>No cry/moan (awake or asleep)</td>
<td>Moans or whispers, occasional cries, sighs or complaint</td>
<td>Cries steadily, screams, sobs, moans, groans, frequent complaints</td>
</tr>
<tr>
<td>Consolability</td>
<td>Calm, content, relaxed, needs no consoling</td>
<td>Reassured by hugging, talking to, distractible</td>
<td>Difficult to console or comfort</td>
</tr>
</tbody>
</table>
Performing a Primary Assessment

- Managing Life Threats
  - Uncontrollable Bleeding
  - Penetrating Injuries

Blood Accounts for approximately 8% of body weight

- Males: 5-6 Liters of blood
- Females: 4-5 Liters of blood

If 1.5 Liters of blood are lost, unconsciousness may occur.

Death becomes a risk at 40% blood loss.
Performing a Primary Assessment

- What age group is our victim? (LA Co. DHS)
  - Adult – Age 15 and greater
  - Pediatric Patient – Children 14 years of age or younger (LA Co. Reference No. 510)
  - Infant – falls into the category of “pediatric”.
Secondary Assessment: O-P-Q-R-S-T

**Focused Medical or Trauma Assessment**

- **O - ONSET**
  - Sudden or gradual? At rest or upon exertion?
- **P – PROVOKE**
  - What makes the pain/discomfort worse or better?
- **Q – QUALITY**
  - Sharp/Stabbing/Constant/Pressure-like/Dull/Numbing
- **R – RADIATION**
  - Does the pain spread to anywhere else?
- **S – SEVERITY**
  - Scale from 1-10.
    - “1” being NO PAIN.
    - “10” being WORST PAIN OF THEIR LIFE
- **T- TIME**
  - When did the pain/discomfort begin?
Collect H-A-M

- History?
  - Any significant medical history?

- Allergies?
  - Do you have any allergies?
  - Do you have any allergies to medication?

- Medications?
  - What medications have you been prescribed?
  - Are you compliant with your medications?

Note:
People’s health information is protected information. They don’t have to tell us anything about their medical history.
Treatment of Minors (LA Co. DHS Reference No. 832)

- **Emergency Medical Condition:**
  - A condition or situation in which an individual has an immediate need for medical attention. The presence of abnormal vital signs (heart rate and rhythm, respiratory rate, blood pressure – except isolated asymptomatic hypertension, oxygen saturation) are also indications of an emergency condition.

- **Implied Consent:**
  - In the absence of a parent or legal representative, emergency treatment and/or transport of a minor may be initiated without consent.

- **Voluntary Consent:**
  - Treatment or transport of a minor child shall be with the verbal or written consent of the parents or legal representative.

- **Legal Representative:**
  - A person who is granted custody or conservatorship of another person by a court of law.

- **Minor:**
  - A person <18 years of age
Minor not requiring parental consent is a person who is:

1. Married or was previously married.
2. Not married, has an emergency medical condition, and parent is not available.
3. On active duty with the Armed Forces.
4. Self-sufficient 15 years of age or older, living separate and apart from his/her parents, and managing his/her own financial affairs.
5. An emancipated minor with a declaration by the court or an identification card from the Department of Motor Vehicles.
6. Seeking care related to the treatment or prevention of pregnancy.
7. In need of care for sexual assault or rape.
8. Seeking care related to an abortion.
9. 12 years of age or older and in need of care for communicable reportable disease, prevention of a sexually transmitted infection (STI), alcohol or substance abuse, or mental health.
Minors Not Requiring Transport

A. A minor child (excluding infants ≤ twelve (12) months of age) who is evaluated by EMS personnel and determined not to be injured, to have sustained only minor injuries, or to have illnesses or injuries not requiring immediate treatment or transportation, may be released to:

1. Self (consideration should be given to age, maturity, environment and other factors that may be pertinent to the situation)
2. Parent or legal representative
3. A responsible adult at the scene
4. Designated care giver
5. Law enforcement
Sexual Assault Patient Destination
(LA Co. Reference No. 508)

- **Sexual Assault Patient:**
  - A person who states they were sexually assaulted or a person suspected by the 9-1-1 personnel to have been the victim of a sexual assault.

- **SART:**
  - Sexual Assault Response Team - a coordinated interdisciplinary intervention model between law enforcement, crime laboratory, District Attorney’s Office, medical and advocacy experts to meet the forensic needs of the criminal justice system and the medical and emotional needs of the sexual assault patient.

- **SART Center:**
  - A licensed general acute care hospital, a licensed basic or comprehensive emergency department or a hospital sponsored program clinic that has met the specific requirements approved by the County of Los Angeles to receive patients who are victims of sexual assault.
Sexual Assault Patient Destination
(LA Co. Reference No. 508)

- Sexual assault patients who deny physical injuries and who do not meet base hospital contact and transport criteria may be released at the scene to the local law enforcement agency for appropriate follow-up. Law enforcement personnel are highly encouraged to transport these patients to a designated SART Center. EMS personnel shall document on the EMS Report Form to whom the patient was released.

- EMS personnel shall notify the local law enforcement agency of sexual assault patients regardless of whether the patient complains of physical injuries. EMS personnel shall document on the EMS Report Form to whom the incident was reported.
Los Angeles County Designated Sexual Assault Response Team (SART) Centers and the populations served. Law enforcement may utilize any designated SART Center.

## I. Approved for EMS Transport:

<table>
<thead>
<tr>
<th>SART CENTER</th>
<th>ADDRESS</th>
<th>ADULTS</th>
<th>PEDIATRICS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Antelope Valley Hospital</td>
<td>1600 West Avenue J Lancaster, CA 93534</td>
<td>Y</td>
<td>Y</td>
</tr>
<tr>
<td>Citrus Valley Medical Center-Queen of the Valley</td>
<td>1115 S. Sunset Avenue West Covina, CA 91790</td>
<td>Y</td>
<td>Y</td>
</tr>
<tr>
<td>LAC+USC Medical Center</td>
<td>1200 North State Street Los Angeles, CA 90033</td>
<td>Y</td>
<td>Y</td>
</tr>
<tr>
<td>Pomona Valley Hospital Medical Center</td>
<td>1798 North Garey Avenue Pomona, CA 91767</td>
<td>Y</td>
<td>Y</td>
</tr>
<tr>
<td>PIH Health Hospital - Whittier</td>
<td>12401 E. Washington Boulevard Whittier, CA 90602</td>
<td>Y</td>
<td>Y</td>
</tr>
<tr>
<td>Providence Little Company of Mary Medical Center</td>
<td>1300 West 7th Street San Pedro, CA 90732</td>
<td>Y</td>
<td>Y</td>
</tr>
<tr>
<td>San Gabriel Valley Medical Center</td>
<td>438 W. Las Tunas Drive San Gabriel, CA 91776</td>
<td>Y</td>
<td>N</td>
</tr>
<tr>
<td>Santa Monica-UCLA Medical Center</td>
<td>1250 16th Street Santa Monica, CA 90404</td>
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### II. Approved for Law Enforcement Transport **ONLY:**

<table>
<thead>
<tr>
<th>SART CENTER</th>
<th>ADDRESS</th>
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</tr>
</thead>
<tbody>
<tr>
<td>Long Beach SART Center</td>
<td>1760 Termino Avenue, Suite 216</td>
<td>Y</td>
<td>Y</td>
</tr>
<tr>
<td></td>
<td>Long Beach, CA 90804</td>
<td></td>
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<tr>
<td>Northridge Hospital Medical Ctr. for Assault</td>
<td>14651 Oxnard Street</td>
<td>Y</td>
<td>Y</td>
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<tr>
<td>Treatment Services (CATS)</td>
<td>Van Nuys, CA 91411</td>
<td></td>
<td></td>
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<tr>
<td>Providence Little Company of Mary San Pedro/Torrance Center</td>
<td>4201 Torrance Blvd., Suite 250</td>
<td>Y</td>
<td>Y</td>
</tr>
<tr>
<td></td>
<td>Torrance, CA 90502</td>
<td></td>
<td></td>
</tr>
<tr>
<td>San Gabriel Valley Medical Center</td>
<td>438 W. Las Tunas Drive</td>
<td>Y</td>
<td>Y</td>
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<tr>
<td></td>
<td>San Gabriel, CA 91776</td>
<td></td>
<td></td>
</tr>
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</table>

### III. Approved for Department of Children and Family Services **ONLY:**

<table>
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<th>SART CENTER</th>
<th>ADDRESS</th>
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<th>PEDIATRICS</th>
</tr>
</thead>
<tbody>
<tr>
<td>LAC Harbor-UCLA Medical Center- KIDS</td>
<td>21840 Normandie Ave., St. 500</td>
<td>N</td>
<td>Y</td>
</tr>
<tr>
<td>HDR Container</td>
<td>Torrance, CA 90502</td>
<td></td>
<td></td>
</tr>
<tr>
<td>LAC Martin Luther King Pediatric</td>
<td>1721 E. 120th Street, #6</td>
<td>N</td>
<td>Y</td>
</tr>
<tr>
<td>Clinic</td>
<td>Los Angeles, CA 90059</td>
<td></td>
<td></td>
</tr>
<tr>
<td>LAC Olive View-UCLA Medical Center</td>
<td>14445 Olive View Drive</td>
<td>N</td>
<td>Y</td>
</tr>
<tr>
<td>SCAN Clinic</td>
<td>Sylmar, CA 91342</td>
<td></td>
<td></td>
</tr>
<tr>
<td>LAC+USC Medical Center Violence</td>
<td>1200 North State Street</td>
<td>Y</td>
<td>Y</td>
</tr>
<tr>
<td>Intervention Program (VIP) Clinic</td>
<td>Los Angeles, CA 90033</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Most of the policies make reference to other policies.

When we look at the policies, we will see many of the same ones repeated.

Because of this, we should familiarize ourselves with the most common references first!
Familiarizing Ourselves with LA Co. DHS

Reference No. 1302

**Basic Airway Maneuvers:** Manual airway positioning, obstructed airway maneuvers, bag mask-ventilation (BMV), and/or use of airway adjuncts (nasopharyngeal or oropharyngeal airways) to provide ventilation and/or to facilitate oxygenation in a patient who is unable to maintain adequate spontaneous ventilation.
Familiarizing Ourselves with LA Co. DHS

Guidelines

Reference No. 1302 AIRWAY MANAGEMENT

• Patient is in **mild** or **moderate** respiratory distress, provide O₂ with **nasal cannula** at 2-6 liters per minute

• **High-flow O₂ (15 L/min)** for the following conditions:
  a. Respiratory Arrest
  b. Cardiac Arrest
  c. Shock/Poor Perfusion
  d. Anaphylaxis
  e. Traumatic Brain Injury
  f. Carbon Monoxide Exposure
  g. Suspected Pneumothorax
  h. Hypoxia

High-flow O₂ delivery systems:

• Non-rebreather mask
• BMV with reservoir
Considerations for BMV:

a. Apnea or agonal respirations
b. Altered level of consciousness with hypoventilation or hypoxia despite maximal supplemental O2
If suctioning is required, pre-oxygenate prior to suctioning and do not suction longer than 10 seconds per occurrence.

Considerations for oropharyngeal airway:

a. Unresponsive patient requiring BMV – should be utilized in all such patients where gag reflex is absent.

b. In pediatric patients, placement may not be necessary to achieve adequate ventilation.
Medical Emergencies: Chest Pain/Discomfort

When Is Chest Pain an Emergency?

Seek emergency care if the pain is crushing or squeezing and accompanied by any of these symptoms:

- Cold sweat
- Shortness of breath
- Choking or difficulty swallowing
- Nausea or vomiting
- Numbness or discomfort in hand or arms
- Fast or irregular heart rate
- Pain that spreads from the chest to the neck, jaw, arms, or shoulders
Medical Emergencies: Chest Pain/Discomfort

Symptoms Every Woman Should Know and Pay Attention to

Women and men may differ in their experience of heart attack symptoms, as women are more likely to have unusual or “atypical” signs of a heart attack. Some of these may come and go before a heart attack occurs.

- Nausea or vomiting
- Dizziness or lightheadedness
- Shortness of breath with or without chest discomfort
- Discomfort or pressure in the center of the chest. It often lasts more than a few minutes, or goes away and returns
- Pain in one or both arms, upper back, neck, jaw, or stomach
- Paleness or clammy skin
- Fainting
- Inability to sleep
- Breaking out in a cold sweat
- Unusual fatigue
Medical Emergencies: Chest Pain/Discomfort

Reference No. 1211 For Cardiac Chest Pain

1. Assess airway and initiate basic airway maneuvers prn (Ref 1302)
2. Administer Oxygen prn (Ref 1302)
5. Aspirin 325mg chewable tablets PO if alert

Aspirin is the most important medication for patients with acute myocardial infarction to improve outcomes and should be administered as soon as possible. All patients with cardiac chest pain should receive aspirin unless contraindicated due to active gastrointestinal bleeding or allergy, even if they already took aspirin at home or are prescribed anticoagulant medications. While there are other causes of chest pain that can present similarly to an MI, including aortic dissection, these causes are rare and the benefit of aspirin for patients with MI outweighs the risks of administration.
• According to LA Co. Scope Ref 802.1 an EMT-B...
  • 1. Assist patients with the administration of their physician prescribed emergency devices and medications to include but not limited to:
    a. Sublingual nitroglycerin
    b. Aspirin
    c. Bronchodilator inhaler or nebulizer
    d. Epinephrine device (autoinjector)
    e. Patient-operated medication pump
Medical Emergencies: Asthma

● What is Asthma?

● Asthma is a lung disease that causes inflammation and narrowing of the airways. Common symptoms include breathing difficulty, shortness of breath, wheezing, coughing, and tightness in the chest.

● Symptoms can vary from person to person and range from mild to severe.

● People may only experience symptoms in certain situations, such as when exercising. In some cases, asthma can be life-threatening.
Medical Emergencies: Asthma

Pathology of Asthma

- Normal airway
- Asthmatic airway
- Asthmatic airway during attack
Medical Emergencies: Asthma

What is an asthma attack?

- An asthma attack, or asthma exacerbation, occurs when asthma symptoms get worse for a short period.
- People experience attacks when their airways become narrower than usual because of the presence of inflammation and mucus.

Most people with asthma — approximately 95 percent, according to some research — first develop symptoms before they are 6 years old.

The Centers for Disease Control and Prevention (CDC) estimate that 1 in 12 children live with asthma.
Medical Emergencies: Asthma

Common Asthma Triggers

- **Exercise**
  - Known as exercise-induced bronchoconstriction, bronchospasm, or exercise-induced asthma, this condition can cause wheezing and breathing difficulties during or after periods of physical activity.
  - Cold, dry air can make symptoms worse.

- **Workplace irritants**
  - People with occupational asthma may only have symptoms while working with lung irritants, such as gases, chemicals, or dust.

- **Allergies**
  - Common allergens may account for at least 30 percent of adult asthma cases.
  - Allergens include:
    - cockroach waste
    - dust mites
    - mold spores
    - pet dander
    - pollen

- **Infections**
  - Viral or bacterial infections, such as colds or sinusitis, can trigger asthma attacks. This can be especially problematic in children and older adults.
Medical Emergencies: Asthma

Treatment: Reference No. 1237 - Respiratory Distress

1. Use appropriate PPE
2. Assess airway and initiate basic airway maneuvers prn (MCG 1302)
3. Maintain patient in position of comfort
   - Fowler’s or Semi-Fowler’s positioning is likely to be most comfortable for awake patients with respiratory distress.

4. Administer Oxygen prn (MCG 1302) High flow Oxygen 15 L/min for all patients with impending respiratory failure, suspected pneumothorax, inhalation injury, or carbon monoxide exposure
Medical Emergencies: COPD

Chronic obstructive pulmonary disease (COPD) is a common lung disease. Having COPD makes it hard to breathe.

Most people with COPD have a combination of both conditions.

There are two main forms of COPD:

**Chronic Bronchitis**
• which involves a long-term cough with mucus

**Emphysema**
• which involves damage to the lungs over time

**Causes**
Smoking is the main cause of COPD. The more a person smokes, the more likely that person will develop COPD. But some people smoke for years and never get COPD.
Medical Emergencies: COPD

Pure Chronic Bronchitis

- Large airways (trachea, bronchi)
  - Mucus hypersecretion
  - Inflammation
  - (Chronic bronchitis)

- Small airways (bronchioles)
  - Peribronchiolar fibrosis
  - Airway obstruction
  - (Chronic bronchiolitis)

Pure Emphysema

- Acinus (respiratory bronchiole, alveolar ducts, and alveoli)
  - Loss of elastic recoil
  - (Emphysema)
Medical Emergencies: COPD

**Blue Bloater**
Chronic Bronchitis

- Chronic, productive cough
- Purulent sputum
- Hemoptysis
- Mild dyspnea initially
- Cyanosis (due to hypoxemia)
- Peripheral edema (due to cor pulmonale)
- Crackles, wheezes
- Prolonged expiration
- Obese

**Pink Puffer**
Emphysema

- Dyspnea
- Minimal cough
- Increased minute ventilation
- Pink skin, Pursed-lip breathing
- Accessory muscle use
- Cachexia
- Hyperinflation, barrel chest
- Decreased breath sounds
- Tachypnea
Medical Emergencies: COPD/Asthma

For bronchospasm, COPD or asthma exacerbation:

For deteriorating respiratory status despite albuterol:
Medical Emergencies: Allergic Reaction

An **allergic reaction** occurs when the immune system overreacts to a harmless substance known as an **allergen**.

The immune system protects the body from infections, viruses and diseases. In some people, substances such as pollen, certain foods, latex, mold, pet dander, dust mites or insect stings are allergens that trigger the production of antibodies called Immunoglobulin E (IgE). These antibodies travel to cells that release chemicals, causing symptoms most often in the nose, lungs, throat, sinuses, ears, lining of the stomach or on the skin.

The first time a person with an allergy is exposed to the allergen, it may not cause a reaction. However, the person is then sensitized to the allergen can and even minor future exposures to this allergen produce an allergic reaction.
Medical Emergencies: Allergic Reaction

Reference No. 1219

1. Assess airway and initiate basic and/or advanced airway maneuvers prn (MCG 1302) Continually assess patient’s airway and ventilation status

1. Administer Oxygen prn (MCG 1302) High flow Oxygen 15 L/min for anaphylaxis with poor perfusion or airway compromise
Medical Emergencies: Allergic Reaction

Reference No. 1219

If wheezing: Albuterol 5mg (6mL) via neb Repeat x2 prn, maximum total prior to Base contact 3 doses

For itching/hives: Diphenhydramine 50mg (1mL) slow IV/IM

This is Benadryl!
Medical Emergencies: Anaphylaxis

- Anaphylaxis is a severe, potentially life-threatening allergic reaction. It can occur within seconds or minutes of exposure to an allergen.
- Anaphylaxis causes your immune system to release a flood of chemicals that can cause you to go into shock.
  - blood pressure drops suddenly
  - airways narrow, blocking breathing.

Signs and symptoms include a rapid, weak pulse; a skin rash; and nausea and vomiting.
Medical Emergencies: Anaphylaxis

**Skin**
- 80-90% of reactions
  - Hives (urticaria), itching, flushed skin
  - Swelling of lips, tongue, throat, face

**Central Nervous System**
- 10-15% of reactions
  - Anxiety, headache, dizziness, confusion, tunnel vision, fainting

**Cardiovascular System**
- 30-45% of reactions
  - Chest pain, low blood pressure, rapid heart rate (+ weak pulse)

**Airway**
- 80-90% of reactions
  - Tightness + swelling of the throat, hoarseness, “scratchy” throat
  - Trouble breathing, wheezing, chest tightness, etc.

**GI Tract**
- 30-45% of reactions
  - Nausea, abdominal cramping, vomiting, diarrhea
Medical Emergencies: Anaphylaxis

Treatment per Reference No. 1219 – Everything for Allergic Reaction plus....

For anaphylaxis: Epinephrine (1mg/mL) administer 0.5mg (0.5mL) IM in the lateral thigh.
Medical Emergencies: Altered Mental Status

Possible Causes:
A – alcohol (“ETOH”)
E – epilepsy
I – insulin
O – overdose
U – underdose
T – trauma (to the head, blood loss)
I – infection
P – psychosis - only after we rule out other causes
S – stroke
Medical Emergencies: Altered Mental Status

Alert and Oriented – Two separate things

1. How can we tell if someone is “alert”? What can they be alert to?

1. How can we tell if someone is “oriented”? Oriented to what?

1. Full orientation according to LA Co. DHS is x3
   - Person
   - Place
   - Time

   - All 3 = Fully Oriented
   - While it is nice to know about the Event, it is technically not one of the orienting questions
   - Incorrectly answering 1 = “Altered”
Medical Emergencies: Stroke
Medical Emergencies: Stroke

Blockage Problem
87% of Strokes

Bleeding Problem
13% of Strokes
Medical Emergencies: Stroke

Reference No. 1232

- Assess airway and initiate basic and/or advanced airway maneuvers prn (MCG 1302)
- Administer Oxygen prn (MCG 1302)
- Check blood glucose If < 60mg/dL or > 400mg/dL, *We cannot perform*
- Perform Modified Los Angeles Prehospital Stroke Screen (mLAPSS) on all patients exhibiting local neurologic signs.
Medical Emergencies: Stroke

Reference No. 1232

The mLAPSS is positive if all of the following criteria are met:

i. No history of seizures or epilepsy

ii. Age 40 years or older

iii. At baseline, patient is not wheelchair bound or bedridden

iv. Blood glucose between 60 and 400 mg/dL

v. Obvious asymmetry-unilateral weakness with any of the following motor exams:
   a. Facial Smile/Grimace
   b. Arm Strength
   c. Grip Strength
If mLAPSS is positive, or your primary impression remains stroke despite negative mLAPSS, calculate Los Angeles Motor Score (LAMS) from the mLAPSS motor items:

- i. Facial Droop - it’s either there or it isn’t
  - a. Absent = 0
  - b. Present = 1

- ii. Arm Drift
  - a. Absent = 0 - nothing unusual
  - b. Drifts down = 1
  - c. Falls rapidly = 2

- iii. Grip Strength
  - a. Normal = 0 - normal grips, nothing unusual
  - b. Weak grip = 1
  - c. No grip = 2

Lowest Score is 0
Highest Score is 5
So, what is the treatment?

They need to be immediately transported to a stroke center receiving hospital to get a scan performed. Not all hospitals are stroke centers.

Time is brain tissue. Time can be a significant factor when it comes to attempting to retain the best neurological outcome.

If it’s a BLOCK issue:

Tissue plasminogen activator (tPA)

May be a candidate for receiving thrombolytics within 3 hours of the first stroke symptoms

If it’s a BLEED issue:

The only thing that will save them is SURGERY
Why is it very important we or anyone else not give ASPIRIN to patients that may be experiencing a possible stroke?
Medical Emergencies: Stroke

Knowing what we know now.......

- Until a scan is performed, the stroke may be the result of a bleed

- Aspirin is a blood-thinner, thus making a bad situation even worse

- Aspirin does absolutely nothing for clots that have already formed

- It’s outside of our scope
Medical Emergencies: Stroke

Things to be aware of:

There are events that are very similar that can mimic stroke-like signs, but its signs may only last for a few minutes and then go away.

These are often called “mini-strokes” or TIAs (Transient Ischemic Attacks)

The blockage is temporary and blood flow returns on its own.

These should not be downplayed, and are often a precursor to an eventual and possibly impending stroke.

“Mini-stroke” = Major Warning
Medical Emergencies: Stroke

Things to be aware of:

1. What if they have a already have a history of a stroke? How would that change your assessment?

1. If someone has a history of an “irregular heartbeat” (AKA Atrial Fibrillation), is that something that might be relevant? If, so why?

1. What is Bells Palsy? Can it also mimic a stroke? How to tell the difference?
Medical Emergencies: Stroke

Bell’s Palsy

<table>
<thead>
<tr>
<th></th>
<th>Bell’s palsy</th>
<th>Acute stroke</th>
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<tr>
<td><strong>Age</strong></td>
<td>20s–50s</td>
<td>&gt; 60</td>
</tr>
<tr>
<td><strong>Time course</strong></td>
<td>Hours to a few days</td>
<td>Seconds to minutes</td>
</tr>
<tr>
<td><strong>Upper face</strong></td>
<td>Always affected</td>
<td>+/- affected</td>
</tr>
<tr>
<td><strong>Lower face</strong></td>
<td>Always affected</td>
<td>Always affected</td>
</tr>
</tbody>
</table>
Medical Emergencies: Diabetic Emergencies

When it come to acute diabetic emergencies, most often it is a low-blood sugar problem, also known as HYPOglycemia.

There are diabetic emergencies that can be the result of too much sugar in the blood, known as HYPERglycemia.
Medical Emergencies: Diabetic Emergencies

- Energy Distribution
  Problem/Metabolism Problem

- Sugar = Energy

- Energy needs to make its way from in the blood and into the cells

- In order to do this you need to open that “door” by using the “key”
Medical Emergencies: Diabetic Emergencies

Type 1 Diabetics – “insulin dependant”
- Pancreas doesn’t make insulin
- Auto immune in nature (body attacks pancreas with antibodies, and damaged pancreas cannot make insulin)
- Not creating any “keys”

Type 2 Diabetics – “non-insulin dependant”
- Pancreas is producing some insulin, but in insufficient amounts or the insulin it is producing or the body’s cells resist it.
- Producing insufficient “keys”, the wrong “keys”, or the “keys” becomes rusted
Medical Emergencies: Diabetic Emergencies

- Treatment for Type 1 Diabetics involves taking insulin, which needs to be injected through the skin into the fatty tissue below. The methods of injecting insulin include:
  - Syringes
  - Insulin pens that use pre-filled cartridges and a fine needle
  - Jet injectors that use high pressure air to send a spray of insulin through the skin
  - Insulin pumps that dispense insulin through flexible tubing to a catheter under the skin of the abdomen
Medical Emergencies: Diabetic Emergencies

- There is no cure for diabetes

- Type 2 diabetes can, however, be controlled with weight management, nutrition, and exercise.

- Unfortunately, type 2 diabetes tends to progress, and diabetes medications are often needed.
1. Assess airway and initiate basic and/or advanced airway maneuvers prn *(MCG 1302)*

2. Administer **Oxygen** prn *(MCG 1302)*

3. Advanced airway prn *(MCG 1302)*

4. Initiate cardiac monitoring prn *(MCG 1308)*
   Perform 12-lead ECG if cardiac ischemia suspected

5. Establish vascular access prn *(MCG 1375)*

6. Check blood glucose

   **We cannot perform!**

7. For blood glucose < 60 mg/dL:
   **Oral glucose preparation or Glucopaste 15gm PO** if patient awake and alert
   **OR**
   **Dextrose 10% 125 mL IV** and reassess
   If patient continues to be symptomatic, repeat 125 mL for a total of 250mL
   Document Provider Impression as **Hypoglycemia**
   If unable to obtain venous access, **Glucagon 1mg (1mL) IM**, may repeat x1 in 20 min prn
   **CONTACT BASE** for persistent hypoglycemia for repeat dose of Dextrose 10% 250mL IV

8. For blood glucose > 200 mg/dL:
   Document Provider Impression as **Hyperglycemia**
Medical Emergencies: Diabetic Emergencies

According to DHS Policy Ref No. 1203:

- Hypoglyemia = \(<60 \text{ mg/dL}\)
- Hyperglycemia = \(>200 \text{ mg/dL}\)

Other Glucometer Readings to Note:

- “High” or “HI” usually means \(>600 \text{ mg/dL}\)
- “Low” or “LO”, usually means \(<20 \text{ mg/dL}\)
Medical Emergencies: Diabetic Emergencies

**HYPOGLYCEMIA**
- Sleepiness
- Sweating
- Pallor
- Lack of Coordination
- Irritability
- Hunger

**HYPERGLYCEMIA**
- Dry mouth
- Increased thirst
- Blurred vision
- Weakness
- Headache
- Frequent urination
Medical Emergencies: Diabetic Emergencies

Insulin Pump
Medical Emergencies: Seizures

Seizures are due to brief disturbances in the electrical functions of the brain.

“Epilepsy” is a neurological condition characterized by recurrent seizures.

“Status Epilepticus” is a continuous seizure lasting more than 30 min, or two or more seizures without full recovery of consciousness between any of them.

A “febrile” seizure occurs when a child contracts an illness such as an ear infection, cold, or chickenpox accompanied by fever. Febrile seizures are the most common type of seizure seen in children and are harmless. 2-5% percent of children have a febrile seizure at some point during their childhood. Most children outgrow febrile seizures by age 5.
Medical Emergencies: Seizures

FOCAL ONSET
- Motor
- Non-Motor
  - Focal to bilateral tonic-clonic

GENERALIZED ONSET
- Motor
  - Tonic-clonic
  - Other motor
- Non-Motor
  - Absence

UNKNOWN ONSET
- Motor
  - Tonic-clonic
  - Other motor
- Non-Motor
  - Absence
Medical Emergencies: Seizures

Generalized Seizure: Stages

- **Aura Stage**: Hallucination, Confusion, Dizzy, Numbness, Distorted Emotions
- **Tonic Stage**: Stiff Body, Incontinence, Epileptic Cry, Back Arched
- **Clonic Stage**: Jerky Movements, Frothy Saliva, Blinking Eyes
- **Postictal Stage**: Exhaustion, Weak Limbs, Sleepy

**Tonic phase**

**Clonic phase**
Medical Emergencies: Seizures

Reference No. 1231

<table>
<thead>
<tr>
<th>Step</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Assess airway and initiate basic and/or advanced airway maneuvers prn <em>(MCG 1302)</em></td>
</tr>
<tr>
<td>2.</td>
<td>Administer Oxygen prn <em>(MCG 1302)</em></td>
</tr>
<tr>
<td>3.</td>
<td>Assess for signs of trauma. If traumatic injury suspected, treat in conjunction with TP 1244, Traumatic Injury</td>
</tr>
<tr>
<td>4.</td>
<td>Initiate cardiac monitoring prn <em>(MCG 1308)</em></td>
</tr>
<tr>
<td>5.</td>
<td>Establish vascular access prn <em>(MCG 1375)</em></td>
</tr>
<tr>
<td>6.</td>
<td>For suspected eclampsia, CONTACT BASE, do not delay transport 1</td>
</tr>
<tr>
<td>7.</td>
<td>If seizure stops spontaneously prior to EMS arrival or no witnessed seizure by EMS: Document Provider Impression – Seizure - Post</td>
</tr>
<tr>
<td>8.</td>
<td>For active seizure witnessed by EMS: Midazolam 5 mg (1mL) IM/IN/IV Repeat x1 in 2 min prn, maximum total dose prior to Base contact 10mg all routes 3 Document Provider Impression – Seizure – Active, even if seizure spontaneously resolves 2 3 CONTACT BASE for persistent seizure and additional medication orders May repeat as above for a maximum total dose of 20mg</td>
</tr>
<tr>
<td>9.</td>
<td>For persistent seizure or persistent ALOC: Check blood glucose If &lt; 60mg/dL or &gt; 400mg/dL, treat in conjunction with TP 1203, Diabetic Emergencies</td>
</tr>
</tbody>
</table>
Medical Emergencies: Seizures

**DO**
- Cushion the person's head and remove dangerous obstacles.
- Turn the person on his side.
- Time the seizure.
- Loosen tight clothing, especially ties and collars.

**DON’T**
- Hold the person down.
- Put anything in the person's mouth.
- Panic. Stay calm, and call 911 if necessary.
Medical Emergencies: Alcohol and Drugs

Alcohol

3 Different Types

- Ethanol (grain alcohol, ethyl alcohol)
- Methanol (wood alcohol, methyl alcohol)
- Isopropanol (rubbing alcohol, isopropyl alcohol)
Medical Emergencies: Alcohol and Drugs

**Signs of Alcohol Poisoning**
- Confusion
- Unconsciousness
- Seizures
- Slow breathing
- Hypothermia
- Blue or pale skin

**Alcohol Poisoning**

**Percentage of Alcohol**
- 12 fl oz of beer: 5%
- 8–9 fl oz of malt: 7%
- 5 fl oz of wine: 12%
- 1.5 fl oz shot: 40%

**Effects if Untreated**
- Choking on vomit
- Stopped breathing
- Hypothermia
- Severe dehydration
- Permanent brain damage
- Death

**What to Do**
- Know danger signs
- Don’t wait for all signs
- Call 911
Medical Emergencies: Alcohol and Drugs

Increased Impairment
- Perceived beneficial effects of alcohol, such as relaxation, give way to increasing intoxication
- Increased risk of aggression in some people
- Speech, memory, attention, coordination, balance further impaired
- Significant impairments in all driving skills
- Increased risk of injury to self and others
- Moderate memory impairments

Mild Impairment
- Mild speech, memory, attention, coordination, balance impairments
- Perceived beneficial effects, such as relaxation
- Sleepiness can begin

- .16–.30%
- .06–.15%
- .0–.05%

- Drives dangerously impaired
- Judgment and decision-making dangerously impaired
- Blackouts (amnesia)
- Vomiting and other signs of alcohol overdose common
- Loss of consciousness
Medical Emergencies: Alcohol and Drugs

As Blood Alcohol Concentration (BAC) Increases, So Does Impairment

BAC Level

Life Threatening
- Loss of consciousness
- Danger of life-threatening alcohol overdose
- Significant risk of death in most drinkers due to suppression of vital life functions

.31–.45%

Severe Impairment
- Speech, memory, coordination, attention, reaction time, balance significantly impaired
- All driving-related skills dangerously impaired
- Judgment and decision-making dangerously impaired
- Blackouts (amnesia)
- Vomiting and other signs of alcohol overdose common
- Loss of consciousness

.16–.30%

Increased Impairment
- Perceived beneficial effects of alcohol, such as relaxation, give way to increasing intoxication
- Increased risk of aggression in some people
- Speech, memory, attention, coordination,

.06–.15%

Mild Impairment
Medical Emergencies: Alcohol and Drugs

7 Drug Categories: Stimulants

Stimulants (or “uppers”) impact the body’s central nervous system (CNS), causing the user to feel as if they are “speeding up.” These drugs increase the user’s level of alertness, pumping up heart rate, blood pressure, breathing and blood glucose levels.

- Adderall
- Ritalin
- Synthetic Marijuana
- Cocaine
- Methamphetamine
- Ecstasy
- Caffeine
7 Drug Categories: Depressants

Like stimulants, depressants also impact the body’s CNS, but with the opposite effect, making users feel as if things are “slowing down.” Thus, they are often called “downers” on the street.

- Rohypnol
- Barbiturates
- Xanax
- Valium
- Benzodiazepines
- Alcohol
Hallucinogens work by disrupting communication within the brain. Users report intense, rapidly shifting emotions and perceptions of things that aren’t really there. For example, a hallucinogen user might believe that they see a person speaking to them — when that person does not even exist.

- LSD
- Psilocybin
- Salvia
- Peyote
Dissociatives distort the user’s perception of reality, and cause users to “dissociate,” or feel as if they are watching themselves from outside their own bodies. They may gain a false sense of invincibility, then engage in risky behavior such as driving under the influence or unsafe sex. These drugs work by interfering with the brain’s receptors for the chemical glutamate, which plays a significant role in cognition, emotionality and pain perception. Dissociatives can be taken as liquids, powders, solids or gases.

- Ketamine
- DXM (Dextromethorphan)
- PCP (phencyclidine)
Medical Emergencies: Alcohol and Drugs

7 Drug Categories: Opioids

Opioids are powerful painkillers that produce a sense of euphoria in users. Derived from the poppy plant, opioids are often prescribed by doctors to patients who are suffering from intense pain. They are extremely habit-forming, sometimes even causing addiction in as little as three days. Opioids can be smoked, eaten, drank, injected or taken as pills.

- Heroin
- Morphine
- Hydrocodone
- Opium
- Vicodin
- Oxycontin
- Percocet
- Codeine
Medical Emergencies: Alcohol and Drugs

7 Drug Categories: Opioids

What is Narcan?

Narcan (naloxone) is an opioid antagonist used for the complete or partial reversal of opioid overdose, including respiratory depression.

For suspected opioid overdose and hypoventilation/apnea:

Naloxone 2-4 mg IN
(1mg per nostril or 4mg/0.1 mL IN if formulation available)

Maximum dose all routes 8 mg

Titrate to adequate respiratory rate and tidal volume
Medical Emergencies: Alcohol and Drugs

7 Drug Categories: Inhalants

Mostly made up of everyday household items, these drugs cause brief feelings of euphoria. As the name suggests, inhalants are always inhaled as gases or fumes. The “highs” slightly differ from inhalant to inhalant, but most abusers are willing to huff whatever inhalant they can acquire.

- Fumes of markers, paint, paint thinner, gasoline and glue
- Nitrous oxide
- Aerosol sprays
- Room deodorizers
Medical Emergencies: Alcohol and Drugs

7 Drug Categories: Cannabis

Most commonly recognized as marijuana, cannabis acts like a hallucinogen, but also produces depressant-like effects. It is a Schedule I drug (i.e. it has a high potential for addiction) but has increasing medicinal uses in the United States. Still, marijuana is often abused by those who do not medically require it.

Marijuana leaves
Hashish
Hash oil
Cannabis-based medicines, such as Sativex
Medical Emergencies: Abdominal Pain

“Left” and “Right” are always from the patient perspective.

Hollow:
- Stomach
- Small Intestine
- Appendix
- Large Intestine/Colon
- Gallbladder
- Bladder
- Uterus
- Aorta
- Common bile duct
- Fallopian tubes

Solid:
- Liver
- Pancreas
- Spleen
- Kidneys
- Ovaries
Medical Emergencies: Abdominal Pain

External injuries may be obvious, but sometimes we need to think beyond the obvious.

For a penetrating injury, stabilize in place with bulky dressings.

For eviscerations, DO NOT PLACE PROTRUDING ORGANS BACK IN ABDOMINAL CAVITY, instead cover wound with a moistened sterile dressing and put and occlusive dressing on wound. Keep patient warm.
Medical Emergencies: Abdominal Pain
Medical Emergencies: Abdominal Pain

Upper and Lower GI Bleeds

Peptic ulcers may lead to bleeding, perforation, or other emergencies.
Medical Emergencies: Abdominal Pain

**APPENDICITIS**

- Peak incidence 10-12 years
- Begins as dull, steady pain in periumbilical area...
  
  Progresses over 4-6 hours & localizes to right lower quadrant

- Low grade fever
- Nausea
- Anorexia

- Sudden pain relief may indicate rupture of appendix (Leads to peritonitis)

*Diagnosis*

- Clinical signs and symptoms
- ↑ WBC
- Abdominal Sonogram
- Exploratory Lap

- Rebound Pain or Tenderness (RLQ) at McBurney's Point
Medical Emergencies: Abdominal Pain

1. Assess airway and initiate basic and/or advanced airway maneuvers prn (MCG 1302)

2. Administer Oxygen prn (MCG 1302)

3. Initiate cardiac monitoring prn (MCG 1308)
   Perform 12-lead ECG if cardiac ischemia suspected

4. Establish vascular access prn (MCG 1375)

5. For poor perfusion:
   **Normal Saline 1L IV rapid infusion**
   Reassess after each 250mL increment for evidence of volume overload (pulmonary edema); stop infusion if pulmonary edema develops

   For persistent poor perfusion, treat in conjunction with TP 1207, Shock/Hypotension

6. Assess and document pain (MCG 1345)
   If abdominal or pelvic pain during pregnancy, or vaginal bleeding with known or suspected pregnancy treat per TP 1217, Pregnancy Complications

   Consider the following Provider Impressions:
   If abdominal or pelvic pain – document Abdominal Pain/Problems
   If pain in penis, scrotum or testes in a male or complaints of vaginal symptoms in a female, or if for sexual assault – document Genitourinary Disorder

Reference No. 1205
Medical Emergencies: Abdominal Pain

7. For pain management: *(MCN 1345)*
   - Fentanyl 50mcg (1mL) slow IV push or IM/IN
     Repeat every 5 min pm, maximum total dose prior to Base contact 150mcg
   - Morphine 4mg (1mL) slow IV push or IM
     Repeat every 5 min pm, maximum total dose prior to Base contact 12mg

   **CONTACT BASE** for additional pain management after maximum dose administered:
   May repeat as above up to maximum total dose Fentanyl 250mcg or Morphine 20mg

8. For nausea or vomiting:
   **Ondansetron 4mg ODT/IV/IM**, may repeat x1 in 15 min prn

---

**SPECIAL CONSIDERATIONS**

1. When evaluating a patient with abdominal pain, note that abdominal pain may be a sign of cardiac disease. If age ≥ 35 years, previous history of cardiac disease or MI, or risk factors are present (hypertension, diabetes mellitus), consider obtaining a 12-lead ECG to evaluate for ischemia or STEMI.

2. For both upper and lower GI bleeding, if abdominal pain is also present, document GI bleeding as primary provider impression and abdominal pain as secondary provider impression.
Medical Emergencies: Obstetrical

Stage 1: The cervix relaxes, causing it to dilate and thin out.

Stage 2: Uterine contractions increase in strength and the infant is delivered.

Stage 3: The placenta is expelled.
Placenta Previa is a condition where the placenta lies low in the uterus and partially or completely covers the cervix. The placenta may separate from the uterine wall as the cervix begins to dilate (open) during labor.
Placenta Abruption

The placenta is a structure that develops in the uterus during pregnancy. Placental abruption occurs when the placenta separates from the inner wall of the uterus before birth.

Placental abruption can deprive the baby of oxygen and nutrients and cause heavy bleeding in the mother.
1. Assess the mother’s airway and initiate basic and/or advanced airway maneuvers pm (MCG 1302)

2. Administer Oxygen pm (MCG 1302)

3. Establish vascular access pm (MCG 1375)
   Vascular access should not take precedence over controlled delivery or emergency transport

4. Place mother in Semi-Fowler’s or Lateral Sims position

5. If mother has the urge to push or crowning is evident, prepare for delivery
   Prepare OB kit
6. If crown is showing with amniotic sac intact, pinch sac and twist the membrane to rupture

7. If maternal hypertension, breech presentation, shoulder dystocia, or prolapsed or nuchal cord treat in conjunction with **TP 1217, Pregnancy Complication**

8. Once delivered, dry newborn with a towel, clamp and cut the cord. Treat newborn per **TP 1216-P, Newborn/Neonate Resuscitation**

9. For management of the placenta:
   The placenta may deliver spontaneously; do not pull on cord but allow placenta to separate naturally
   Place placenta in plastic bag from the OB kit and bring to the hospital with the mother

10. Massage the mother’s lower abdomen (fundus) after the placenta delivers
Medical Emergencies: Pregnancy/Labor

Reference No. 1218

1. Assess airway and initiate basic and/or advanced airway maneuvers prn (MCG 1302)

2. Administer Oxygen prn (MCG 1302)

3. Establish vascular access prn (MCG 1375)

4. Monitor frequency and duration of contractions

5. If delivery is imminent, treat per TP 1215, Childbirth (Mother)

6. If breech presentation, shoulder dystocia, nuchal cord or prolapsed cord treat per TP 1215, Childbirth (Mother) in conjunction with TP 1217, Pregnancy Complication

7. Opiate analgesia is contraindicated (MCG 1345)
Medical Emergencies: Pregnancy/Labor
Reference No. 1218

SPECIAL CONSIDERATIONS

1. The more frequent the contractions, the closer the patient is to delivery; if the contractions are < 2 minutes apart or last > 60 seconds prepare for delivery. Women who have had prior vaginal deliveries can progress through labor very rapidly.

2. Crowning, urge to push, or presentation of a presenting part indicate imminent delivery.
Normal Birth
**Medical Emergencies: Obstetrical**

**Pregnancy Complication – Reference No. 1217**

**BREECH DELIVERY**

7. Support presenting part and allow newborn to deliver

8. If head does not deliver, place gloved hand inside mother and form “V” formed with fingers by baby’s face to provide an opening for the airway

**PROLAPSSED CORD**

9. Position mother face down and hips elevated

10. Check cord for pulses

11. If no cord pulsation, manually displace presenting fetal part off the umbilical cord until pulsations are felt; maintain elevation of the presenting part until transfer of care

12. Wrap cord with moist gauze
Breech Birth

Complete Breech

Footling (Incomplete) Breech

Frank Breech
Prolapsed Cord
Prolapsed Cord
Prolapsed Cord

Face Down with Hips Elevated
Shoulder dystocia is inability to deliver the anterior shoulder, which usually occurs in large newborns. If delivery fails to progress after head delivers, hyperflex mother’s hips tightly in knee to chest position and apply firm suprapubic pressure in attempt to dislodge anterior shoulder (McRoberts maneuver)

NUCHAL CORD

13. If nuchal cord is loose attempt slipping the cord over the head prior to delivery

14. If the cord is too tight to easily slip over the head, clamp the cord in two places 1 inch apart and cut the cord with scissors

SHOULDER DYSTOCIA

15. Perform McRoberts maneuver in order to deliver the anterior shoulder
Nuchal Cord

Normal Anatomy

- Placental attachment to uterine wall
- Area of Enlargement

Asphyxia resulting from decreased flow of oxygen to fetus through umbilical cord

Nuchal Cord Condition

- Umbilical cord wrapped around neck of fetus
- Compressed cord preventing blood and oxygen exchange between mother and fetus, resulting in asphyxia

Oxygen-rich blood and nutrients flowing to fetus through umbilical vein

Waste products and carbon dioxide flowing back to mother through umbilical arteries
Nuchal Cord
Shoulder dystocia is a delivery that requires additional obstetric maneuvers following failure to deliver the shoulders after gentle downward traction on the baby's head.

Most commonly, the baby's shoulder is stuck behind a bone in the mother's pelvis.
Shoulder Dystocia

**McRoberts maneuver**

1. Legs flexed onto abdomen causes rotation of pelvis, alignment of sacrum, & opening of birth canal
2. Suprapubic pressure applied to fetal anterior shoulder
Medical Emergencies: Psychological

What is a Panic Attack?

A **panic attack** is the abrupt onset of intense fear or discomfort that reaches a peak within minutes and includes at least four of the following symptoms: Palpitations, pounding heart, or accelerated heart rate. Sweating. Trembling or shaking. Sensations of shortness of breath or smothering.
## Medical Emergencies: Psychological

<table>
<thead>
<tr>
<th>Panic Attack</th>
<th>Heart Attack</th>
</tr>
</thead>
<tbody>
<tr>
<td>• sharp, stabbing pain in the middle of the chest</td>
<td>• squeezing pain and pressure in the chest</td>
</tr>
<tr>
<td>• sudden onset or onset due to extreme stress</td>
<td>• sudden onset or onset during physical exertion, e.g. climbing stairs</td>
</tr>
<tr>
<td>• pain that gets better over time</td>
<td>• pain that radiates to the arm, jaw, or shoulder blades</td>
</tr>
<tr>
<td>• symptoms that resolve in 20–30 minutes</td>
<td>• pain that gets worse over time</td>
</tr>
<tr>
<td>• racing heart rate</td>
<td>• longer-lasting symptoms</td>
</tr>
<tr>
<td>• shortness of breath</td>
<td>• shortness of breath</td>
</tr>
<tr>
<td>• sweating</td>
<td>• sweating</td>
</tr>
<tr>
<td>• shakiness</td>
<td>• nausea and vomiting</td>
</tr>
<tr>
<td>• tingling in the hands</td>
<td></td>
</tr>
</tbody>
</table>
Medical Emergencies: Psychological Emergencies

Fig. Carpopedal spasm

The wrist are flexed, the finger extended, the thumbs adducted over the palms, the feet extended and adducted.
Medical Emergencies: Psychological

It is important to recognize, to the person experiencing the panic attack, that the fear is real and genuine.

DO NOT to “downplay” the significance

Introduce yourself, provide reassurance and comfort

Remove people who don’t need to be there

Help them control their breathing
“In through the nose, out through the mouth”

Have them look you in the eyes and have them breath with you

Give positive feedback when they are following commands

The power of touch (appropriate touch)
Medical Emergencies: Psychological

DO NOT HAVE THEM ATTEMPT TO USING A BAG TO DECREASE RATE OF BREATHING

Common Anxiety Medications

- Zoloft
- Prozac
- Paxil
- Celexa
- Xanax
- Klonopin
- Valium
- Ativan
What is bipolar disorder?

Bipolar disorder is a mental illness marked by extreme shifts in mood. Symptoms can include an extremely elevated mood called mania. They can also include episodes of depression. Bipolar disorder is also known as bipolar disease or manic depression.

2.8% of U.S. adults — or about 5 million people — have been diagnosed with it. The average age when people with bipolar disorder begin to show symptoms is 25 years old.
Medical Emergencies: Psychological

What is bipolar disorder?

There are three main symptoms that can occur with bipolar disorder:
- mania
- hypomania
- depression

Possible causes of bipolar disorder include:
- Genetics
- Environment
- Brain Structures
What is schizophrenia?

Long-term mental disorder of a type involving a breakdown in the relation between thought, emotion, and behavior, leading to faulty perception, inappropriate actions and feelings, withdrawal from reality and personal relationships into fantasy and delusion, and a sense of mental fragmentation.
## Medical Emergencies: Psychological

<table>
<thead>
<tr>
<th>Common Antipsychotics for Schizophrenia</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chlorpromazine <em>(Thorazine)</em></td>
</tr>
<tr>
<td>Haloperidol <em>(Haldol)</em></td>
</tr>
<tr>
<td>Aripiprazole <em>(Abilify)</em></td>
</tr>
<tr>
<td>Lurasidone <em>(Latuda)</em></td>
</tr>
<tr>
<td>Quetiapine <em>(Seroquel)</em></td>
</tr>
<tr>
<td>Risperidone <em>(Risperdal)</em></td>
</tr>
</tbody>
</table>
Attention deficit disorder (ADD) is a neurological disorder that causes a range of behavior problems such as difficulty attending to instruction, focusing on schoolwork, keeping up with assignments, following instructions, completing tasks and social interaction.

**Behavioral:** aggression, excitability, fidgeting, hyperactivity, impulsivity, irritability, lack of restraint, or persistent repetition of words or actions.

**Cognitive:** absent-mindedness, difficulty focusing, forgetfulness, problem paying attention, or short attention span.

**Mood:** anger, anxiety, boredom, excitement, or mood swings.

Also common: depression or learning disability.

Ritalin
Adderall
Strattera
Medical Emergencies: Psychological Welfare and Institutions Code 5150.

(a) When a person, as a result of a mental health disorder, is a danger to others, or to himself or herself, or gravely disabled,

a peace officer, professional person in charge of a facility designated by the county for evaluation and treatment, member of the attending staff, as defined by regulation, of a facility designated by the county for evaluation and treatment, designated members of a mobile crisis team, or professional person designated by the county may, upon probable cause, take, or cause to be taken, the person into custody for a period of up to 72 hours for assessment, evaluation, and crisis intervention, or placement for evaluation and treatment in a facility designated by the county for evaluation and treatment and approved by the State Department of Health Care Services.
Medical Emergencies: Psychological

Definition of “Gravely Disabled”

“a condition in which a person, as a result of a mental health disorder, is incapable of making informed decisions about, or providing for, his or her own basic personal needs for food, clothing, shelter, or medical care without significant supervision and assistance from another person and, as a result of being incapable of making these informed decisions, the person is at risk of substantial bodily harm, dangerous worsening of a concomitant serious physical illness, significant psychiatric deterioration, or mismanagement of his or her essential needs that could result in bodily harm.”

https://leginfo.legislature.ca.gov/faces/billTextClient.xhtml?bill_id=201720180AB2156
1. Assess situation for safety; Attain law enforcement assistance for physical restraint prior to approaching a patient if a weapon is visualized or the patient threatens violence towards EMS

2. Approach patient with caution and attempt verbal de-escalation

3. Assess airway and initiate basic and/or advanced airway maneuvers prn (MCG 1302)

4. Administer Oxygen prn (MCG 1302)

5. For combative patients requiring restraints for patient or provider safety
   CONTACT BASE for orders for sedation
   Midazolam 5mg (1mL) IM/IN/IV, repeat every 5 min prn; maximum total dose 20mg

6. If evidence of trauma, provide spinal motion restriction prn (MCG 1360)

7. Establish vascular access prn (MCG 1375)

8. Check blood glucose prn
   If glucose < 60 mg/dL or > 400 mg/dL treat in conjunction with TP 1203, Diabetic Emergencies

9. Initiate cardiac monitoring prn (MCG 1308)
   Assess for dysrhythmia or interval widening
   CONTACT BASE for QRS > 0.12 sec, QT > 500 ms, or heart rate > 150 or < 50 to discuss need to administer Sodium Bicarbonate 50mEq (50mL) IV

10. For suspected ingestions, treat in conjunction with TP 1241, Overdose/Poisoning/Ingestion

Reference No. 1209
SPECIAL CONSIDERATIONS

1. It is important to assess for any evidence of suicide attempt. If there is concern for overdose, ask the patient to provide information on agents used (specifically what, when, and how much). Collect and transport any medication vials, additional pills, etc. This will assist in determining necessary antidote treatment and monitoring at the hospital. This information is often lost, if not obtained immediately on scene.

2. Avoid applying restraints to patients who do not present a threat to self or EMS personnel. Never transport a patient in restraints in prone position. (Ref. 838)

3. Midazolam onset is 2 minutes with maximum effect at 5 minutes.

4. Agitation may be present after a seizure, or in the setting of hypo/hyperglycemia. Consider checking glucose early if the patient is a known diabetic or demonstrates clinical evidence of hypoglycemia, but only if safe to do so.

5. Several drugs that may cause agitation and present similarly to a psychiatric crisis may also cause life threatening cardiac arrhythmias after intentional or accidental overdose. These arrhythmias are often preceded by prolonged ECG intervals (particularly QRS > 0.12 sec or QT interval > 500 ms). Cocaine intoxication is strongly associated with Agitated Delirium and may also produce cardiac effects similar to Tricyclic antidepressant (TCA) overdose (widened QRS progressing to malignant arrhythmia). These patients may require a large dose of sodium bicarbonate to prevent sudden cardiac death. Consult Base Physician immediately to discuss administration of Sodium Bicarbonate; may repeat x1 if QRS remains > 0.12 sec after initial sodium bicarbonate. Treat in conjunction with TP 1241, Overdose / Poisoning / Ingestion

Reference No. 1209
### Burn Emergencies

Reference No. 1220

1. Assess airway and initiate basic and/or advanced airway maneuvers prn *(MCG 1302)*
   If evidence of inhalation injury, treat in conjunction with *TP 1236, Inhalation Injury*

2. Administer **Oxygen** prn *(MCG 1302)*
   If carbon monoxide exposure suspected, provide **high flow Oxygen 15 L/min** and treat in conjunction with *TP 1238, Carbon Monoxide Poisoning*

3. Assess for signs of trauma
   If traumatic injury suspected, treat in conjunction with *TP 1244, Traumatic Injury*

4. Remove jewelry and clothing from involved area

5. Apply blanket to keep patient warm

6. **For ELECTRICAL burns:**
   Cover with dry dressing or sheet, treat in conjunction with *TP 1221, Electrocution*

7. **For THERMAL burns:**
   Cover with dry dressing or sheet
   Do not flush with water, even if accelerant present

8. **For CHEMICAL burns:**
   If **dry**, brush and flush with copious amounts of water
   If **liquid**, flush with large amounts of water
   If eye involvement, irrigate eye with **Normal Saline 1L** during transport; allow patient to remove contact lenses if possible, treat in conjunction with *TP 1240, HAZMAT*
9. Establish vascular access prn *(MCG 1375)*
For IO placement in alert patients administer, **Lidocaine 2% 40mg (20mg/mL) slow IO push,**
may repeat once for infusion pain at half initial dose

10. For partial/full thickness burn > 10% body surface area or poor perfusion:
**Normal Saline 1L IV/IO rapid infusion**
Reassess after each 250 mL increment for evidence of volume overload (pulmonary edema);
stop infusion if pulmonary edema develops
**CONTACT BASE** for persistent poor perfusion to obtain order for additional **Normal Saline 1L IV/IO**

11. Elevate burned extremities as able for comfort

12. For pain management: *(MCG 1345)*
**Fentanyl 50mcg (1mL) slow IV/IO push or IM/IN**
Repeat every 5 min prn, maximum total dose prior to Base contact 150mcg
**Morphine 4mg (1mL) slow IV/IO push or IM**
Repeat every 5 min prn, maximum total dose prior to Base contact 12mg

**SPECIAL CONSIDERATIONS**

1. Consider potential for carbon monoxide and/or cyanide toxicity in closed space fires. Pulse oximetry is not accurate in carbon monoxide poisoning *(TP 1238, Carbon Monoxide Poisoning)*

2. Observe for hypothermia; cooling large surface area burns (greater than 15% body surface area) may result in hypothermia.
Burn Emergencies
Calculating Body Surface Area: Rule of Nines

Rule of 9’s
(Adults)
Burn Emergencies
Calculating Body Surface Area: Rule of Nines
<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
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</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Ensure source of electricity is turned off ①</td>
</tr>
<tr>
<td>2.</td>
<td>Assess airway and initiate basic and/or advanced airway maneuvers pm (MCG 1302)</td>
</tr>
<tr>
<td>3.</td>
<td>For cardiac arrest, treat per TP 1210 Cardiac Arrest ②</td>
</tr>
<tr>
<td>4.</td>
<td>Administer Oxygen pm (MCG 1302)</td>
</tr>
<tr>
<td>5.</td>
<td>Initiate cardiac monitoring (MCG 1308) Perform 12-Lead ECG pm If cardiac dysrhythmia present, treat in conjunction with TP 1212, Bradycardia or TP 1213, Tachycardia ③</td>
</tr>
<tr>
<td>6.</td>
<td>Assess for signs of trauma If traumatic injury suspected, treat in conjunction with TP 1244, Traumatic Injury</td>
</tr>
<tr>
<td>7.</td>
<td>Remove jewelry and clothing from involved areas</td>
</tr>
</tbody>
</table>
**SPECIAL CONSIDERATIONS**

1. Do not touch the patient unless you have removed the source of the electricity. An electrical current can be conducted through water and skin. Ensure that area surrounding the patient is dry before approaching him/her.

2. For young, healthy patients, especially in lightning injuries, consider prolonged cardio-pulmonary resuscitation.

3. Electrocution may result in ventricular tachycardia, ventricular fibrillation, asystole or other dysrhythmias. However, if the patient is in a regular rhythm on evaluation, they are unlikely to develop a dysrhythmia.

4. Superficial skin findings do not correlate with the severity of an electrical burn. As the electrical current passes through tissue, it can cause more damage than is superficially present.
Can appear minor or not show at all on the skin, but can have extensive deep tissue damage below the skin.

- Internal damage can be caused by a strong enough shock (ex: cardiac arrest)
- Have a mortality rate of 3-5%
- Adults tend to get electrical burns at the workplace
- Children tend to get burned at home
- Damage can range from very minor to severe, with complications, to death.
Burn Emergencies

Degree of Burns

- **First degree burn**: The burn affects only the outer layer of skin (epidermis).
- **Second degree burn**: The burn affects the epidermis and part of the dermis.
- **Third degree burn**: The burn affects all layers of skin, including the epidermis, dermis, and subcutaneous fat.
Burn Emergencies

Degree of Burns

Use the size and symptoms of the burn to determine its degree. The cause of the burn will give clues as to severity and whether the injury is critical.

**First-degree burn**
Only the top layer of the skin is damaged.

**Second-degree burn**
Both layers of the skin are damaged.

**Third-degree burn**
The full thickness of the skin, including tissues under the skin are damaged.

**First-degree symptoms**
- Skin color is pink to red
- Slight swelling
- Skin is dry
- Burn can be anywhere from tender to severely painful

**Second-degree symptoms**
- Skin looks raw and is mottled red in color
- Skin is moist
- Blisters contain clear fluid
- Severe to extreme pain

**Third-degree symptoms**
- Skin is pearly-white, tan-coloured or charred
- Skin is dry and leathery
- Blood vessels and bones may be visible under the skin
- Little or no pain, as nerve endings are destroyed
Burn Emergencies

Remember, we got WaterJel!

Note how this product we have available to us is potentially at odds with LA Co. DHS protocols for burns.

We have WaterJel on both Engine 1 and Engine 2 Water Tender 1 and Water Tender 2.

Let's review these products again!
Burn Emergencies: Chemical Burns
Reference No. 1220

Keep it Simple:
If the chemical is dry, brush it off
If the chemical is wet, rinse it repeatedly

PH Scale

Examples of pH Conditions:
- pH 2: gastric juices
- pH 4: tomato juice
- pH 5: human urine
- pH 7: pure water
- pH 7.4: human blood
- pH 10: hand soap
- pH 12: household bleach
# Facial Injuries

1. Assess airway and initiate basic and/or advanced airway maneuvers pm *(MCG 1302)*

2. Administer **Oxygen** pm *(MCG 1302)*

3. Assess for signs of trauma
   If traumatic injury suspected, treat in conjunction with *TP 1244, Traumatic Injury*

4. Control bleeding with direct pressure 🍖

5. For epistaxis:
   Control bleeding by pinching nose just distal to nasal bone with head in neutral position and patient sitting forward 🍖
   Document Provider Impression – *Epistaxis*

6. For tooth avulsion:
   Handle it by the enamel (crown) and do not touch the root
   Place in container with **Normal Saline**

7. For complaints of throat irritation and/or foreign body sensation:
   Assess for airway obstruction, if present treat per *TP 1234, Airway Obstruction*
   For throat complaints without airway obstruction, document Provider Impression – *ENT/Dental Emergencies*
Facial Injuries

Do not touch by the root part. Place it in some normal saline if available.
# Facial Injuries: Eye Injuries

Reference No. 1228

<p>| | |</p>
<table>
<thead>
<tr>
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<tbody>
<tr>
<td><strong>1.</strong></td>
<td>Assess airway and initiate basic and/or advanced airway maneuvers prn <em>(MCG 1302)</em></td>
</tr>
</tbody>
</table>
| **2.** | Assess for additional signs of trauma  
If traumatic injury suspected, treat in conjunction with *TP 1244, Traumatic Injury* |
| **3.** | If penetrating globe injury present/suspected, shield the eye and position patient at 45 degrees  
Do not put any pressure on the eye |
| **4.** | Do not remove any impaled foreign bodies from eye; secure them in place |
| **5.** | If contacts lenses are present and the patient is unable to remove them, leave in place |
| **6.** | Establish vascular access prn *(MCG 1375)* |
| **7.** | Burns to eye:  
Chemical Burn – Irrigate with **Normal Saline 1L**  
Thermal Burn – Cover with dry dressing  
Treat in conjunction with *TP 1220, Burns* |
Facial Injuries: Eye Injuries

Reference No. 1228
# Hypothermia/Cold Injury

<table>
<thead>
<tr>
<th>Step</th>
<th>Action</th>
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</thead>
<tbody>
<tr>
<td>1</td>
<td>Assess airway and initiate basic and/or advanced airway maneuvers prn <em>(MCG 1302)</em></td>
</tr>
<tr>
<td>2</td>
<td>Administer <strong>Oxygen</strong> prn <em>(MCG 1302)</em></td>
</tr>
</tbody>
</table>
| 3    | Initiate cardiac monitoring *(MCG 1308)*  
For patients with dysrhythmias, treat in conjunction with **TP 1212, Bradycardia** or **TP 1213, Tachycardia** |
| 4    | Provide warming measures 📄 |
| 5    | For frostbite:  
Handle affected area gently, remove jewelry, cover and protect the area 📄 |
| 6    | Establish vascular access prn *(MCG 1375)* |
| 7    | For altered level of consciousness, treat in conjunction with **TP 1229, ALOC** |
| 8    | For poor perfusion:  
**Normal Saline 1L IV rapid infusion**; use warm saline if available  
Reassess after each 250 mL increment for evidence of volume overload (pulmonary edema); stop infusion if pulmonary edema develops  
For persistent poor perfusion, treat in conjunction with **TP 1207, Shock/Hypotension** |
**SPECIAL CONSIDERATIONS**

1. Warming measures should include moving the patient to a warm environment as quickly as possible, removing wet clothing/items, covering with an emergency/rescue blanket or blanket/sheets, and using warm normal saline if available.

2. Do not allow an area of frostbite to thaw and then refreeze as this causes more tissue damage.

3. Follow usual protocols for resuscitation of patients with hypothermic cardiac arrest while rewarming. Patients with hypothermia may have good neurologic outcome despite prolonged resuscitation; resuscitative efforts should continue until the patient is rewarmed. Consultation with the Base Physician is required before consideration of termination of resuscitation.
Environmental Emergencies
Hypothermia/Cold Injury
Environmental Emergencies

1st Degree

Frostenp
Frostenp (mild frostbite) irritates the skin, causing a cold feeling followed by numbness. Frostenp doesn't permanently damage the skin and can be treated with first-aid measures.
Environmental Emergencies

2nd Degree

Superficial frostbite
When frostnip progresses into superficial frostbite, you experience a warm feeling in the involved area — a sign of serious skin involvement. A fluid-filled blister may appear 24 to 36 hours after thawing the skin.
Environmental Emergencies

Deep frostbite
As frostbite progresses, you may experience deceptive numbness. Joints or muscles may no longer work. Large blisters form 24 to 48 hours after rewarming. Afterward, the area turns black and hard as the tissues die. Amputation may be necessary.

- Epidemis
- Dermis
- Subcutaneous tissue
### Environmental Emergencies

**Heat Related Emergencies**

Reference No. 1222

<table>
<thead>
<tr>
<th>Step</th>
<th>Instruction</th>
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</thead>
<tbody>
<tr>
<td>1.</td>
<td>Assess airway and initiate basic and/or advanced airway maneuvers prn <em>(MCG 1302)</em></td>
</tr>
<tr>
<td>2.</td>
<td>Administer Oxygen prn <em>(MCG 1302)</em></td>
</tr>
</tbody>
</table>
| 3.   | Initiate cardiac monitoring *(MCG 1308)*  
For patients with dysrhythmias, treat in conjunction with *TP 1212, Bradycardia* or *TP 1213, Tachycardia* |
| 4.   | Provide cooling measures ⚫ |

Cooling measures should include moving patient to a cooler environment (e.g. ambulance with air conditioner), removing clothing, applying wet towels, and fanning/blowing cool air from air conditioning vents.

<table>
<thead>
<tr>
<th>Step</th>
<th>Instruction</th>
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<tbody>
<tr>
<td>8.</td>
<td>For adequate perfusion and normal mental status, encourage oral hydration</td>
</tr>
</tbody>
</table>
| 9.   | For poor perfusion or if unable to take fluids orally: *Normal Saline 1L IV rapid infusion*  
Reassess after each 250 mL increment for evidence of volume overload (pulmonary edema); stop infusion if pulmonary edema develops  
For persistent poor perfusion, treat in conjunction with *TP 1207, Shock/Hypotension* |
Environmental Emergencies
Heat Related Emergencies

**Heat Exhaustion** or **Heat Stroke**

- **Faint or Dizzy**
- **Excessive Sweating**
- **Cool, Pale, Clammy Skin**
- **Nausea or Vomiting**
- **Rapid, Weak Pulse**
- **Muscle Cramps**

- **Throbbing Headache**
- **No Sweating**
- **Body Temperature Above 103° (Red, Hot, Dry Skin)**
- **Nausea or Vomiting**
- **Rapid, Strong Pulse**
- **May Lose Consciousness**

**ALOC**
<p>| | | |</p>
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<tbody>
<tr>
<td>1</td>
<td>HYDRATED</td>
<td>You can use this simple scale to assess whether you're sufficiently hydrated.</td>
</tr>
<tr>
<td>2</td>
<td>HYDRATED</td>
<td>If your urine colour matches any of the colours between 1-3 you're sufficiently hydrated.</td>
</tr>
<tr>
<td>3</td>
<td>HYDRATED</td>
<td>If you urine colour matches any of the colours between 4-8 you're dehydrated and need to drink more fluid.</td>
</tr>
<tr>
<td>4</td>
<td>DEHYDRATED</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>DEHYDRATED</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>DEHYDRATED</td>
<td></td>
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<tr>
<td>7</td>
<td>SEVERELY DEHYDRATED</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>SEVERELY DEHYDRATED</td>
<td></td>
</tr>
</tbody>
</table>
Bites and Stings
Reference No. 1224

1. Assess airway and initiate basic and/or advanced airway maneuvers prn *(MCG 1302)*

2. Prioritize treatment of systemic symptoms
   For signs or symptoms of allergic reaction, treat in conjunction with *TP 1219, Allergy*
   For poor perfusion, treat in conjunction with *TP 1207, Shock/Hypotension*

3. Keep patient calm and limit activity
   Position affected extremity at or below level of the heart

4. For SNAKE bites:
   Splint the affected area
   Elevate the extremity to the level of the heart

5. For INSECT (bee, wasp, ant), spider and scorpion stings:
   Remove stinger if visualized 1
   Apply cold pack

6. For MARINE envenomation (e.g., jelly fish, stingrays and scorpion fish):
   Remove barb when applicable
   Soak area in hot water if available 2
Bites and Stings
Reference No. 1224

SPECIAL CONSIDERATIONS

1. Remove stinger by scraping patient's skin with the edge of a flat surface (credit card or similar). Do not attempt to pull the stinger out with fingernails or tweezers, as this may cause release of additional venom.

2. Do not use vinegar given the type of jellyfish endemic to California.
What animals can you get rabies from?
Bites and Stings

Rabies
Bites and Stings

Rabies – What is it and what does it do?
- Rabies is a viral zoonosis affecting the central nervous system of warm-blooded animals.
- Transmission occurs when saliva containing the rabies virus is introduced into an opening in the skin, usually via the bite of a rabid animal.
- After the rabies virus enters the body, it begins to multiply in the area near the entry site. If the infection is not stopped at this point, the virus will eventually invade the nerve cells in that area. Once the virus is in the nerve tissue, it travels along the nerve to the brain, where it continues to multiply. The virus may then spread along nerves from the brain to the salivary glands or other parts of the body.
Bites and Stings

Rabies

- In the US, the most commonly reported rabid animal is the raccoon, followed by skunks and bats.
- The CDC estimates that worldwide, 90% of exposures are due to rabid dogs.
- Low-risk animals for transmitting rabies include rabbits, opossums and armadillos, plus mice, rats, squirrels, nutria, shrews, prairie dogs, beavers, gophers, and other rodents.
If a Bite does occur:

- Wash the bite wound immediately with soap and water promptly.
- Seek medical attention and guidance from a physician; and take rabies PEP if prescribed by a physician.
- The physician may also prescribe antibiotics and a tetanus vaccination depending on the nature of the bite and the circumstances of the bitten person.
- Note that the PEP regime no longer features the much-feared extensive treatment of vaccinations in the stomach, but consists of a dose of human rabies immune globulin (based on weight) and a series of 4 vaccinations (5 vaccinations for immunocompromised individuals) in the deltoid area over a month period.
Bites and Stings

Rabies

Before the Bite options:

- You can also prevent rabies by getting pre-exposure rabies vaccinations (3 doses of vaccine given in the deltoid area over the course of 3 to 4 weeks).
- If you are traveling to a foreign area with enzootic rabies, you should consult with a physician about getting pre-exposure vaccinations as well.
Bites and Stings

Brown Recluse

Often hide in dark, secluded places, like under porches or deep in closets. The brown recluse thrives in man-made areas, and may be found under trash cans, tires, etc. It is primarily nocturnal.

Brown recluse spiders live in a region comprising Kansas, Oklahoma, Texas, Louisiana, Arkansas, Missouri, Mississippi, Alabama and parts of Georgia, Tennessee, Kentucky, Ohio, Indiana, Illinois, Iowa and Nebraska.
Bites and Stings

Brown Recluse

The violin shape is easy to misinterpret, so it is best to look at the eyes when determining if a spider is a brown recluse.

The recluse's eyes are one of its most distinctive physical characteristics. They have six eyes, instead of eight like most spiders.

Other types of spiders have eight eyes arranged in rows of four. Recluses, however, have six equal-size eyes arranged in three pairs, called dyads, in a semicircle around the front.
The Bottom Line:

Brown recluse spiders are rarely seen or identified.

A brown recluse spider bite often is not felt when it happens.

The complex venom causes injury and death (necrosis) of the surrounding tissues.

In severe cases, the venom can damage deeper tissues.

Serious illness and death are rare.

There is no antidote; treatment includes treating the wound and preventing infection.
Bites and Stings

Tarantulas and Scorpions

Tarantula bites typically only cause pain at the bite site, but contact with tarantula hairs can cause redness, itching, and swelling.

Bark scorpions primarily live in Arizona but can also be found in parts of California, Nevada, New Mexico, Texas, and Utah. In addition to causing a painful sting, the bark scorpion can sometimes cause abnormal muscle activity like muscle twitching, unusual eye movements, slurred speech, or difficulty swallowing and breathing.

Death from a scorpion sting is very rare and has not been reported in the US for almost 50 years.
Bites and Stings

Black Widow

The black widow's webs are purposefully made in an irregular shape, not like the typical and sometimes practically perfect webs made by other spiders.

They prefer undisturbed places such as woodpiles, under simulated rock well covers, the eaves of a house, around fences, and other areas where debris piles up. Watch for black widows in dark, moist, and undisturbed places like meter boxes, under porches, porch furniture, and inside and around barns and sheds.

Black widow spider bites can be dangerous but fatal bites are rare.

Antivenin is available but is needed only rarely.
Bites and Stings

Black Widow

Black widow spiders have fangs. When bitten, two small puncture wounds are usually visible.

As the venom from the bite spreads, the area develops a target-like appearance. The fang marks are in the center, surrounded by an area of reddened skin, then another circle of red just a little further beyond the center.

The fang marks are visible immediately. Redness and swelling of the area where the bite occurred develops rapidly.

Pain typically starts within the hour and can quickly spread from the site to systemic areas such as the abdomen, chest area, or back.
Bites and Stings
Snakes

**Gopher snake**
- Rounded nose
- Round pupil
- No nostril
- No fangs or pit

**Rattler**
- Upturned nose
- Nostril
- Elliptical pupil
- Fangs
- Pit

*Snake Bite Safety*
1. Call **911** or Contact Ranger Dispatch
2. **Assess airway** and initiate basic and/or advanced airway maneuvers
3. Prioritize treatment of systemic symptoms
   - Are there signs of an **allergic reaction?** Redness, itchiness, or swelling at bite site or airway?
     - Remove constricting clothing and jewelry
   - Are there signs of **poor perfusion?**
     - Place **supine** if respiratory status allows
4. Keep patient **calm** and **limit activity.** Position affected extremity to the **level of the heart.**
5. **Splint** the affected area.
6. **Photograph** the snake if it can be done safely.
   Photographs of the snake can help hospital personnel determine the appropriate antivenom or treatment, as these are often specific to the species
Bites and Stings
Snakes

**Snake Bite Safety**

**BAD IDEA**

- Cutting the area around the snake bite
- Attempting to suck the venom out
- Removing the tissue around the snake bite
- Using electric shock as treatment
- Freezing the area around the snake bite
- Using tourniquets, constriction bands, and pressure immobilization
- Venom extraction devices
Poisoning

Reference No. 1241

Assess for co-ingestion of other substances

Consider contacting the Poison Control Center (1-800-222-1222)

Bring containers of ingested substances to the Emergency Department with patient
Poisoning – Carbon Monoxide

- It’s caused by excessive exposure to carbon monoxide, which builds up in the bloodstream.
- Symptoms include nausea, chest pain, and irregular heartbeats, but unconsciousness and death can occur.
- It’s commonly treated with pressurized oxygen to clear the blood.
- It’s most easily prevented with a carbon monoxide alarm.
Organophosphates are a group of human-made chemicals that poison insects and mammals. Organophosphates are the most widely used insecticides today. They are used in agriculture, the home, gardens, and veterinary practice.
Poisoning - Organophosphates

**WHAT?**

Organophosphates (OP) form the basis of many insecticides, herbicides and also nerve agents. OP accounts for at least 50% of worldwide pesticides and in the UK exposure is mainly from crop spraying and sheep dips.

Malathion is an OP which is used to treat head lice and scabies in adults. Sarin and VX are examples of OP nerve agents.

OP irreversibly inactivates acetyl-Cholinesterase (AChE). **Patients can die as a result of acute cholinergic syndrome.** Features of inhibition of acetylcholinesterase are:

- Salivation
- Lacrimation
- Urination
- Diarrhoea
- GI upset
- Emetic

**WHY?**

OP poisoning can be rapidly fatal. Treatment is directed at reversing the blockade and decontaminating the patient.

Any patients with significant hypoxia, bradycardia, and/or hypotension require oxygen and atropine (2mg) immediately.

After decontamination any patient with rhinorrhoea, bronchorrhea or any of the above should receive atropine.

**Atropine should be repeated every 5 minutes** until secretions are minimal (*clear lungs, heart rate >80 beats/min and blood pressure adequate*).

Patients will also require a loading dose of pralidoxime chloride (30 mg/kg, max 2g) over 20 minutes, followed by an infusion (8 mg/kg/hour). **This is available via Pharmacy.**
Poisoning - Organophosphates

**Organophosphate Poisoning**

↑ Ach

**Cholinergic Toxidrome**

- Irreversibly inhibits AChE (AChE does not break down Ach = ↑ Ach)
- Diarrhea
- Urination
- Miosis (constriction)
- Bronchospasms
- Bradycardia ↓ HR
- Excitation of skeletal m. and CNS
- Lacrimation
- Salivation
- Sweating
- Vomiting

Rx. Atropine + Pralidoxime (regenerates AChE) doesn’t work right away

Only reversed by pralidoxime works on nicotinic
Poisoning – Recognize this?
Poisoning - Atropine

ATROPINE POISONING  ↓Ach

JIMSON WEED (DATURA) BELLADONNA

- Dilated pupils
- Urinary retention (detrusor relax/contraction of urethral sphincter)
- Mydriasis (dilation)
- Bronchodilation
- Cycloplegia (BLIND as a bat; loss of accommodation/paralysis of ciliary m.)
- Tachycardia
- Dry mouth (DRY as a bone)
- Fever (↑ temperature; HOT as a hare)
- Hyperthermia (↓ sweat)
- Flushed skin (RED as a beet)
- Hallucinations / agitation / delirium

Rx. Physisostigmine (inhibits AChE)
Don’t forget about this helpful tool
KEEP YOUR BACK UPRIGHT

BEND YOUR KNEES UNTIL YOUR THIGHS ARE LEVEL WITH THE FLOOR BEFORE LIFTING

USE YOUR LEG AND BUTTOCKS MUSCLES TO DO THE LIFTING AND LOWERING, NOT YOUR WEAKER BACK MUSCLES

FEET WIDE APART TO CREATE A STABLE BASE

KEEP YOUR HEAD UP

TIGHTEN YOUR ABDOMINAL MUSCLES BEFORE AND DURING LIFTING

KEEP LOAD CLOSE TO YOUR BODY

DO NOT LIFT LOADS THAT ARE TOO HEAVY OR BULKY
Carrying a Patient

https://www.youtube.com/watch?v=KPrATJ-u5Rg

Patient Mover

- Support the patient’s weight on your shoulders while holding the patient’s thigh and arm.
Carrying a Patient
Carrying a Patient
Active Shooter: High Profile Targets
Quick Look: 250 Active Shooter Incidents in the United States From 2000 - 2017

Incidents Per Year

Source: Federal Bureau of Investigation, 2017

https://www.fbi.gov/about/partnerships/office-of-partner-engagement/active-shooter-incidents-graphics
FBI.GOV 2019
Quick Look: 250 Active Shooter Incidents in the United States From 2000 - 2017

Casualties Per Year

Source: Federal Bureau of Investigation, 2017

https://www.fbi.gov/about/partnerships/office-of-partner-engagement/active-shooter-incidents-graphic
FBI.GOV 2019
Quick Look: 250 Active Shooter Incidents in the United States From 2000 to 2017

**Location Categories**

- **EDUCATION**
  - Schools (Pre-K to 12), 14.8% (37)
  - Institutions of Higher Education, 6% (15)
- **COMMERCIAL**
  - Businesses, Open to pedestrian traffic, 26% (65)
  - Malls, 4% (10)
  - Businesses, Closed to pedestrian traffic, 12% (30)
- **GOVERNMENT**
  - Other Government Properties, 7.2% (18)
  - Military, 2.8% (7)
- **OPEN SPACE**
  - 14% (35)
- **RESIDENCES**
  - 4.8% (12)
- **HEALTH CARE FACILITIES**
  - 4% (10)
- **HOUSES OF WORSHIP**
  - 4% (10)
- **OTHER LOCATION**
  - 0.4% (1)

Source: Federal Bureau of Investigation, 2017


FBI.GOV 2019
You are the highest legal authority at the Observatory........

What would you do during an active shooter incident?
Discussion

● Who do you contact?
● Where will you send people/staff?
● Ingress/Egress of LAFD and LAPD?
● How will you communicate this?
● Where will you send the Security Officers?
● What are the most likely traumatic injuries that could occur?
● What is the equipment you would need?
● How much of that equipment would you need?
Cold – Warm – Hot Zones

THREAT

The Hartford Consensus
Improving Survival from Active Shooter and Intentional Mass Casualty Events

- Hot Zone
  - Danger
  - Threat Suppression
- Warm Zone
  - Not Secure
  - Hemorrhage Control
  - Rapid Extrication
- Cold Zone
  - Safe
  - Assess Patient
  - Transport to Hospital
Able to walk?
Yes → MINOR → SECONDARY TRIAGE

No

Spontaneous breathing
Yes → POSITION AIRWAY
No → APNEA

Spontaneous breathing
IMMEDIATE

Respiratory Rate
>30 → IMMEDIATE
<30

Perfusion
Radial pulse absent or capillary refill > 2 sec → IMMEDIATE
Radial pulse present or capillary refill < 2 sec

Mental status
Doesn't obey commands → IMMEDIATE
Obeys commands → DELAYED

Triage Categories

**EXPECTANT**
Black Triage Tag Color
- Victim unlikely to survive given severity of injuries, level of available care, or both
- Palliative care and pain relief should be provided

**IMMEDIATE**
Red Triage Tag Color
- Victim can be helped by immediate intervention and transport
- Requires medical attention within minutes for survival (up to 60)
- Includes compromises to patient’s Airway, Breathing, Circulation

**DELAYED**
Yellow Triage Tag Color
- Victim’s transport can be delayed
- Includes serious and potentially life-threatening injuries, but status not expected to deteriorate significantly over several hours

**MINOR**
Green Triage Tag Color
- Victim with relatively minor injuries
- Status unlikely to deteriorate over days
- May be able to assist in own care: “Walking Wounded”
Orientation to EMS System

Emergency Medical Services Agency
10100 Pioneer Blvd, Santa Fe Springs, CA 90670
Interaction with EMS Personnel

- 800 Ambulance vs 900 Ambulance
  - ALS vs. BLS Differences
- Alert and Oriented
- AMA – who is capable of signing this?
- Spinal Mobile Restriction
- Chest Thrusts/Abdominal Thrusts
- Vital Signs
EMS Handoff

- Accurate
- Brevity
- Clarity

When EMS arrive paint a one sentence story.
- “I have a ___ year old, M/F patient, alert to ____ and oriented x ____, with a chief complain of ______.”
Trauma Emergencies

- Occlusive Dressings
- Hemostatic Dressings
- Roll Gauze
- Sponges
Amputations

- Amputations – Direct Pressure, Tourniquet Use if necessary/possible
  - What to do with the amputated body part?
    - Collect it with PPE on
    - Keep it dry (it’s okay to rinse dirt off)
    - Wrap in gauze or dry dressing
    - Place it in a plastic bag
    - Keep body part cool
    - **DO NOT PLACE DIRECTLY ON ICE**
    - Make sure it gets transported with patient
Amputations

1. Wash amputated part with water to remove gross contaminants
2. Wrap amputated part in moist gauze
3. Place wrapped amputated part in dry plastic bag
4. Place bag with amputated part in another plastic bag with ice
Penetrating Injuries

- Stabilize in place
Other signs to be aware of

- **Raccoon Eyes**
  - Sign of basal skull fracture or subgaleal hematoma
- **Battle Signs**
  - Indicative of a fracture at the bottom of the skull
1. Immediately control major bleeding *(MCG 1370)*
   Apply tourniquet prn

2. Assess airway and initiate basic and/or advanced airway maneuvers prn *(MCG 1302)*

3. For traumatic arrest, treat per *TP 1243, Traumatic Arrest*

4. Provide spinal motion restriction (SMR) if indicated *(MCG 1360)*
   For alert patients, logroll off the backboard (if used during extrication) and onto gurney prior to transport

5. Administer Oxygen prn *(MCG 1302)*
   **High flow Oxygen 15 L/min** for all patients with shock or with suspected traumatic brain injury

6. If patient has an Unmanageable Airway *(MCG 1302)*:
   Initiate immediate transport to MAR and **CONTACT BASE** en route

7. For anticipated prolonged extrication (> 30 minutes)
   Consider activating the Hospital Emergency Response Team (HERT), *Ref. 817*

8. For crush injury, treat in conjunction with *TP 1242, Crush Injury/Syndrome*
9. Initiate cardiac monitoring prn (*MCG 1308*)

10. Establish vascular access prn (*MCG 1375*)

11. Apply blanket to keep patient warm

12. Consider medical condition preceding accident and refer to appropriate treatment protocol prn

**MULTI-SYSTEM TRAUMA**

13. Perform needle thoracostomy for suspected tension pneumothorax (*MCG 1335*)

14. For an open or sucking chest wound, cover with a commercially available vented chest seal or vented (3-sided) occlusive dressing

15. For poor perfusion with hypotension:

   *Normal Saline 250mL IV/IO rapid infusion*
16. Cover eviscerated organs with a moist non-adhering dressing

17. Pain management prn (MCG 1345)
   - Fentanyl 50mcg (1mL) slow IV/IO push or IM/IN
   - Morphine 4mg (1mL) slow IV/IO push or IM

   CONTACT BASE for additional pain management:
   May repeat as above up to maximum total dose Fentanyl 250mcg or Morphine 20mg

18. For nausea or vomiting: 6
   - Ondansetron 4mg ODT/IV/IM, may repeat x1 in 15 min prn
ISOLATED HEAD INJURY

19. Administer **high flow Oxygen 15 L/min**
   Continually assess patient’s airway and ventilation status, assist prn

20. For SBP ≤ 90mmHg:
   Normal Saline 1L IV/IO rapid infusion
   Reassess after each 250 mL increment for evidence of volume overload (pulmonary edema);
   stop infusion if pulmonary edema develops
   **CONTACT BASE** for persistent poor perfusion after Normal Saline 1L

21. For nausea or vomiting:  
   Ondansetron 4mg ODT/IV/IM, may repeat x1 in 15 min prn

22. Transport with head of gurney elevated to 30 degrees when possible

23. If patient develops seizure activity, treat in conjunction with TP 1231, Seizure

24. Pain management prn *(MCG 1345)*
   For an alert and oriented patient with GCS 15:
   Fentanyl 50mcg (1mL) slow IV/IO push or IM/IN
   Morphine 4mg (1mL) slow IV/IO push or IM
Trauma Policy – Ref. No 1244

For Isolated Extremity Injury

Splint and dress injuries prn For distal extremity fractures with poor neurovascular status distal to injury – realign and stabilize extremity Mid-shaft femur – apply traction splint per manufacturer guidelines. All other fractures/dislocations – splint in position of comfort

Special Considerations:

A backboard is not required for spinal motion restriction (SMR) and may cause harm as well as increased pain. Patients should not be transported on a backboard for the purpose of SMR. If a backboard is used for extrication, patients who are alert should then be logrolled onto the gurney prior to transport. The backboard may be used during patient transport for splinting of multiple simultaneous extremity fractures or to assist in maneuvering the unconscious patient. In all cases, the backboard should be removed immediately if causing respiratory compromise.
Principles

1. Applying direct continuous pressure to the area of bleeding should be the first management technique to control external bleeding.

1. Tourniquets have been demonstrated to be safe and effective when used appropriately and can be lifesaving.

1. A hemorrhage control tourniquet should be used if external bleeding from an extremity cannot be controlled by direct pressure to an exposed wound.

1. Poorly perfusing patients with an isolated penetrating extremity injury and those with amputations or mangled extremities should have a tourniquet applied even if minimal to no visible bleeding.

1. Tourniquet application may be the initial method to control extremity bleeding when scene safety concerns, resource limitations, or patient positioning/entrapment preclude direct pressure application.

1. Tourniquet application frequently results in severe pain. Pain management should be provided as necessary.

1. Hemostatic Agents are only to be utilized by approved providers.
GUIDELINES:

1. First, remove any bandages applied by patient or bystanders, identify the area of bleeding, and apply continuous, firm, focused pressure directly to source of bleeding using gauze or hemostatic agents as appropriate.

2. If unable to control hemorrhage with direct pressure, or if scene or patient safety precludes application of direct pressure, prepare for tourniquet application.

3. Explain usage of tourniquet to the patient if patient’s condition allows.

4. Follow manufacturer’s instructions for application of the tourniquet.
GUIDELINES:

5. Apply tourniquet 2-3 inches proximal to the bleeding site but not over a joint or the hemorrhaging injury.

6. Ensure that bleeding is stopped and distal pulses are absent after the application of the tourniquet.

7. Once a tourniquet is applied, the patient should be reassessed at least every 5 minutes for continued absence of distal pulse and/or bleeding.

8. If bleeding is not controlled with one tourniquet, a second tourniquet may be applied proximal to the first tourniquet. Do not remove the first tourniquet after applying the second tourniquet.

9. Once a tourniquet is applied it should not be loosened or removed without physician approval.
Tourniquets – Instruction, Application, and Practice
Flail chest is a life-threatening medical condition that occurs when a segment of the rib cage breaks due to trauma and becomes detached from the rest of the chest wall.
Stabilize in place with bulky dressings
Chest Injuries—Instruction, Application, and Practice

- **Pneumothorax**
  - **Closed pneumothorax**
  - **Open pneumothorax**
  - **Tension pneumothorax**

- **Closed pneumothorax**: Air in pleural space
- **Open pneumothorax**: Air in pleural space
- **Tension pneumothorax**: Air in pleural space increasing and unable to escape
Neck Injuries– Instruction, Application, and Practice

Direct Pressure

Occlusive dressing on all 4 sides
An occlusive dressing is an air- and water-tight trauma medical dressing used in first aid. These dressings are generally made with a waxy coating so as to provide a total seal, and as a result do not have the absorbent properties of gauze pads.
Cover with a moist, non-adhering dressing
Bleeding in the junctional areas—
Instruction, Application, and Practice

Wound-packing with hemostatic dressing
Joint injury – immobilize bone above and below

Bone injury – immobilize joint above and below
Various Splinting – Bones and Joints
Instruction, Application, and Practice

Mid-shaft Femur Fracture
Basic Methods of Bleeding Control

Practice:

- Direct Pressure
- Pressure Bandages
- Tourniquets
- Hemostatic Dressings
- Wound Packing
California Code of Regulations

Title 22. Social Security Division 9. Prehospital Emergency Medical Services Chapter 1.5. First Aid and CPR Standards and Training for Public Safety Personnel

- § 100018. Authorized Skills for Public Safety First Aid Providers
- § 100017. Public Safety First Aid and CPR Course Content
- § 100014. Application and Scope
- § 100009. Public Safety First Aid
- § 100019. Optional Skills § 100019. Optional Skills
Safety Protocol: Employee Injuries

- Notify Supervisor
- Contact Park Ranger Dispatch for LAFD Response
- Worker’s Compensation Paperwork
- Make sure your emergency contact on file is current and accurate
Safety Protocol Non-Employee Injuries

- Offer ambulance services
- Complete Non-Employee Accident or Illness Report
Assessments

- Written Exam
- Skills Demonstration
  - Primary Assessment and CPR/AED
  - Rescue Breathing
  - Clearing an Obstructed Airway
  - Bleeding Control and Bandaging while using PPE
- Course Evaluation