EMS PSYCHOMOTOR SKILLS LAB MANUAL

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EMS Psychomotor Skills Lab Manual

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Detailed Licensing

Licensing

*A detailed breakdown of this resource's licensing can be found in **Back Matter/Detailed Licensing**.*

Contributions

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This text was made possible by a generous grant from Open Education Oregon and by a fantastic team of Emergency Medical Services professionals, educators, and librarians who chose to share their knowledge and experience with future guardians of our communities.

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Note from Author

2

You have chosen an interesting time to attend EMT school. Waves of pandemic, the effects of climate change on our hometowns, civil unrest, and increasing fears of yet another war certainly makes your EMS experience meaningful. By starting this journey, you are stepping into the fray of our struggling health care system and will witness the best and worst of the human experience.

As an EMT you will have a front row seat to pure, raw, and uncut *humanity*. Your seat grants you access to people's lives in a way not many people or professions can claim. As such, it is your charge to have a positive impact in the lives of those struggling, hurting and downcast in our society. At times you may feel like a real hero; enjoy the feeling, you earned it. At other times, you may feel like a well-trained Uber driver. Remember in these times of frustration, that EMS is our nation's true "safety net" and that what you do matters.

In the United States, *911* is the only number a person can call to receive guaranteed attention and support, regardless of income, race, immigration status, mental capacity, or insurance. You are it. The *tip of the spear*. You will be called to assist victims of major trauma as well as a simple hangnail. You will respond to imminent birth and an elderly person who falls. Your role in society is to make the situation better when no one else knows how. You will be on the front lines of a mental health crisis and bear witness to the grind of addiction.

Starting now, the authors, your instructors, and your mentors and partners will pass along wisdom to help you obtain the skills necessary to make order from chaos, but also tips to keep you safe, provide you with waypoints for growth, and hold you to the ideals of our profession.

Being a well-studied and practiced EMT is essential to standing ready for the worst-case scenario. However, all your expertise will mean little if you aren't there when the call for help comes. Suicide, anxiety, depression, PTSD, burnout, and divorce are all too common by-products of life on the front line.

Therefore, make the habit now, while you are still in school, to pay attention to your mental health. Seek a therapist, join an exercise routine, breathe, and share your struggles with one another. Your family, friends, and community need you physically, mentally, and emotionally healthy. Don't wait. Do this for all of us. Do it for you.

Thank you for your interest in learning how to be an asset to someone in crisis. Whether you choose to join our ranks as a volunteer, paid professional, or use this experience as a stepping stone to something else, I speak for all the authors when I say I am honored to come alongside you on this section of your path.

Stay safe out there and I'll see you on "the big one,"

Chris Hamper, B.S., Paramedic

12: How to Use This Text - Instructors

4

Overview:

As you are aware, EMTs must be prepared for an array of possible emergencies while on duty. This text is a tool for you and your students that includes instructions and recommended number of repetitions to obtain proficiency in every skill associated with the EMT Scope of Practice. The text is written based on Oregon EMT Scope of Practice; however, it can be utilized in any state the instructor deems appropriate.

We encourage you to utilize this text in its entirety, and only adjust as needed to fit your teaching style, program, and the needs of your students. The use of the text and each individual section is at the discretion of the lead instructor.

You may use this recommended skill numbers in each section to track student progress on skills. Completion of the text in its entirety will provide you and your students with the confidence that they are prepared to meet minimum competency requirements.

Process:

Each time a skill is performed by an individual or member of the team the student should be encouraged to obtain a witness initial and date in the box. We recommend a policy that defines a witness as a classmate, family member, field or clinical preceptor, or friend, and in some cases self-initiated.

Each skill has one initial box labeled “instructor” which should be initiated by a certified EMS professional, usually one part of your instructional team. Consider the initial of an instructor an endorsement of the learner’s proficiency at that skill.

Some skills have additional spaces for students to document details of the skill which may include vital sign readings, location of injury or technique used. It is best practice for the student to document every skill as this is the expectation in the profession.

Grading:

We recommend this text have graded weight associated with completion. Assignments and grading are at the discretion of your lead instructor. Here’s an example of how the lead author assigns weight to this text in an EMT course:

Point Distribution:

**EMT Task Book 10%*

**Clinical Paperwork 7.5%*

(Charting, Call Log, Daily Eval)

Reflection Paper 2.5%

Chapter Quizzes 20%

Mid-Term Exam 20%

Final Exam 40%

**Denotes required assignments for NREMT approval*

Errors, Omissions and Feedback:

The creation of the text is complicated. None of the contributors are perfect, the science changes, protocols and scope of practice can differ by medical director, county, state, and region. The goal for this project is to be a living tool, owned by the community of EMS educators and updated with the science.

If you find technical errors or would like to see components added to the text, please reach out to the authorship team. We will make changes and grow the text alongside your feedback. If you would like to join the team, we are always seeking additional authors, reviewers, and editors.

A feedback form to contact the authors is also available at this link.

https://med.libretexts.org/@go/page/84347

12: How to Use This Text - Learners

3

Overview:

Emergency Medical Technicians (EMTs) must be prepared for an array of possible emergencies while on duty. These skills must be ingrained through practice to withstand the stress of an emergency scene: ready at a moment's notice, should the patient condition necessitate.

Within this book you will find many of the skills an EMT will be expected to perform. Each student is required to complete each skill a minimum number of times. This effort will assist the instructional team in tracking your progress, as well as provide you with the documentation necessary to prove proficiency for national and state certification. The skills in this text are important to master but remember, a *truly proficient* EMT is refreshing old skills and acquiring new ones throughout their career.

Process:

Each time a skill is performed by an individual or member of the team the student will obtain a witness initial and date in the box. A witness can be a classmate, family member, field or clinical preceptor, or friend, and in some cases self-initiated. The final initial on each skill is labeled "instructor" and must be initiated by a certified EMS professional, usually one part of the instructional team. Please work with the lead instructor to understand their expectations.

Some skills have additional spaces for students to document details of the skill. This section may include vital sign readings, location of injury or technique used. It is best practice to document every skill, as it is the expectation in the profession.

Grading:

Refer to the course syllabus and the lead instructor for grading policies. The authors recommend the text be utilized in its entirety. However, assignments and grading are at the discretion of the lead instructor.

CHAPTER OVERVIEW

1: Safety

1.1: Personal Protective Equipment (PPE) and Body Substance Isolation (BSI)
1.2: Safe Lifting
1.3: Safe Firearm Handling
1.4: Hazardous Materials

Thumbnail: Man being treated for smoke inhalation. (Unsplash License; Acton Crawford via Unsplash)

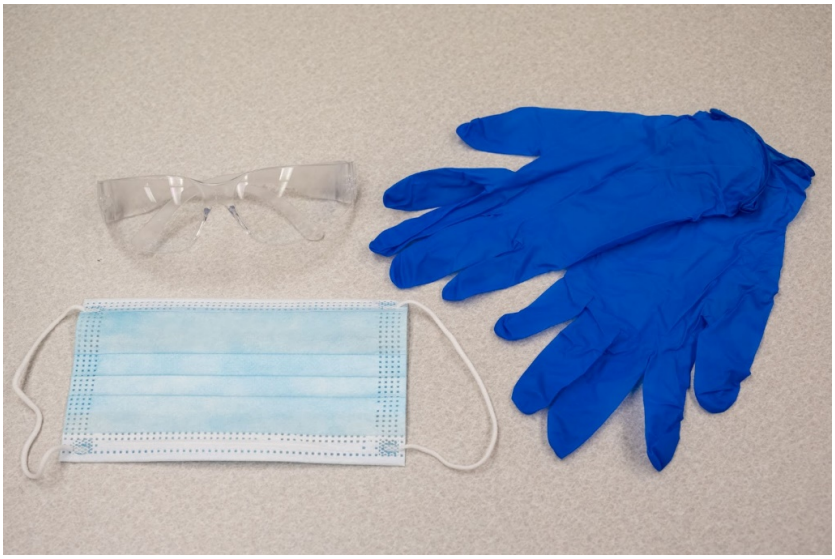
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1.1: Personal Protective Equipment (PPE) and Body Substance Isolation (BSI)

Protecting yourself from blood, bodily fluids and airborne illness is essential for your short and long-term health. There are different levels of protection that we use for various calls.

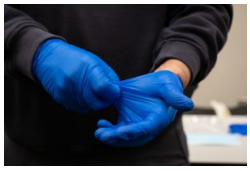
On every call:

- Eye protection – well-fitting eye protection will protect your eyes from airborne particulates landing in your eyes. Prescription glasses are inadequate for eye protection. It is highly recommended if you wear prescription glasses to invest in a pair that will protect your eyes in this environment.

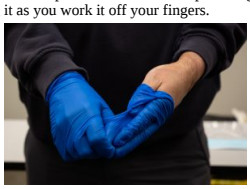


Personal protective equipment (PPE): Eye protection, gloves and surgical mask. Image by Nickolas Oatley, licensed CC-BY-NC.

- Gloves – A single layer of nitrile gloves is the most effective way to keep bloodborne pathogens from accumulating under and around nails and entering your body through cuts.
  - To remove soiled gloves:
    - Pinch the palm of one hand and pull the glove off, inverting it as you work it off your fingers.
    - With the gloved hand, ball up the removed glove.
    - Using your ungloved hand, slide two fingers under the cuff of the glove still on your hand.
    - Invert the glove as you remove your hand from the glove.
    - Dispose of the balled-up gloves properly in a garbage or hazmat bag.



Step 1: Pinch the palm of one hand and pull the glove off, inverting it as you work it off your fingers.



Step 2: With the gloved hand, ball up the removed glove.



Step 3: Using your ungloved hand, slide two fingers under the cuff of the glove still on your hand.



Step 4: Invert the glove as you remove your hand from the glove. Glove procedure images by Nickolas Oatley, licensed under CC BY-NC 2.0.

- Mask – for most calls, a well-fitting surgical mask is all that is required.

On respiratory calls:

- Include all the above except for increasing your respiratory protection to a fitted N-95, P100 or PAPR. All devices must be fitted to your face and confirmed by your agency's occupational health person or department. While in school you will be issued a fitted version that complies with PPE requirements of partnering clinical organizations.

On calls with excessive bleeding, skin contact transmissible disease, and childbirth calls:

- All the above protections are required.
- Gown with a fluid protection barrier.
- To don a gown:
  - Place arms through the arm holes.
  - Secure the tie straps as indicated by the style of gown.
- To remove the gown
  - With gloved hands, pull at the gown and break the straps.
  - Ball up a soiled gown with the clean side out and dispose of it properly.

PPE and BSI Skills Verification Table

Full PPE	Equipment Used
N95, P100 or PAPR fitting	
Date	
Instructor Initials	

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1.2: Safe Lifting

Take a minute to go to a full-length mirror if you have one. If not, prop your phone up and take a video of yourself lifting something small and light from the ground to a standing position.

Did you do it? Great! Do it again and watch how your body moves.

Did you notice the instinct to lift your butt into the air first? – this is totally normal and often feels natural. Our habits and subconscious prefer to lift with speed rather than safe form.

Your new role as an EMT will place you in situations when it may be tempting to lift heavy items, fast. The truth is that there is rarely a "true emergency" worth justifying improper lifting technique.

Lifting how we've always lifted without mindful consideration of technique will result in eventual injury, perhaps resulting in chronic pain, and may even be career-ending. If you talk with EMS professionals long enough you will discover the aches and pains they have acquired and injuries that have taken their colleagues out of the field.

A part of the work we need to do entering this field is to re-teach our bodies how to lift with our legs and an engaged core to avoid injury. At first it will feel uncomfortable and be difficult. Over time you will develop a "new normal" of lifting that is healthier and safer for your body.

Let's try this activity a few times.

Grab another EMT student, partner, or mirror. Give each other notes as you repeat this activity with various items around the classroom or station. This time focus on a few things:

1. Start by bringing your feet hip width apart and heels down on the ground.
2. Lower your butt back, and down. Your knees will naturally bend, placing weight in your heels. Don't lift your toes!
3. Keep your knees behind your toes. If you did step 2 right, this is also natural.
4. Tighten your core (think bringing your belly button back to your spine).
5. Keep your chin level or only slightly dipped.
6. Keep your shoulder blades pinched back.
7. Grab the object with one or both hands.
8. Clench your butt to push your hips forward. This will cause your legs to straighten, lifting the object.

What changed from the first time you did the exercise? Were you able to lift with your legs more than back?

Practice this sequence as often as you can. The more you pay attention to this technique as you move about your day the quicker it will engrain as your default.

Safe Lifting Skills Verification Table

Safe Lifting	1	2	3	4	5	6	7	8	9	10 (instructor)
Initials										

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1.3: Safe Firearm Handling

In your role as an EMT, you will come across firearms that are unsecured. Over 50%[1] of Oregon households own a firearm and an estimated 7%[2] possess a concealed firearm permit. With so many firearms in circulation you are highly likely to encounter them, either as part of the call narrative, or they will materialize as part of the scene size up or patient assessment. How your respond to discovering an unsecured firearm will affect your safety. Let's look at some basics of firearm safety, then work through a few scenarios.

There are several rules for EMS providers when encountering firearms:

1. Do not touch the firearm if safety isn't in threat.[3] Movement of a firearm should only take place to keep the scene safe and the firearm should only be moved to a secure location (lockbox or safe person).
2. *All firearms are loaded.*
3. If you must handle the firearm, *never let the barrel point toward anything you don't want to destroy or kill*. The floor works great.
4. *Never place your fingers on the trigger or inside the trigger guard.*
5. If discovered enroute to the hospital, lock the firearm in the glovebox or medication cabinet and notify hospital security to meet you in the ambulance bay to secure the weapon.
6. Additional training is necessary for safe firearm handling. If you are not trained in firearm safety, do not attempt to manipulate or "clear" a firearm.
7. Take additional care to avoid disturbing a weapon if it is involved in a crime scene. If moving the weapon is necessary, request law enforcement perform the procedure or document exact movements and transfer that information to law enforcement.







Images by Nickolas Oatley, licensed under CC BY-NC 2.0.

Scenario	Threat y/n	Action
You are caring for a 55y/o male experiencing chest pain. He has an open carry pistol on his hip. He is in his home.	No	Safest approach: Ask the patient to secure the firearm at home before going to the hospital. Acceptable: encourage him to relinquish the firearm to a trusted person on scene to secure the firearm

Scenario	Threat y/n	Action
While assessing your 22y/o male patient involved in a motorcycle accident he tells you that he has a concealed pistol in his backpack. He is worried that it would be out of his sight. Law enforcement is not on scene.	No	Safest approach: call law enforcement to secure the backpack Acceptable: Inform the patient that he cannot have it while under medical care and that you will lock it in the ambulance and pass it to security at the hospital
You are working a cardiac arrest of a 77y/o female. There is a shotgun sitting in the corner of her bedroom, out of the way.	No	Safest approach: Leave it alone. It is of no threat.
Your crew is responding to an assault at a local tavern. Law enforcement is on scene and has advised you to enter. Your patient is a 44y/o female who sustained blunt trauma to her face and chest. On your initial assessment, you find a pistol in her pants.	Maybe	Safest approach: Ask law enforcement to remove and secure the firearm. Acceptable: Inform the patient that you will be removing the firearm and give it to law enforcement.
You are caring for a 16y/o female who was assaulted. Her father meets you at the door with a shotgun apparently to defend her from her attacker.	Yes	Safest approach: Retreat from the scene, request law enforcement re-enter when safe. Less safe, but acceptable: Ask the father to put the gun away so you can care for his daughter.

To receive a sign-off for this skill you will need to discuss safe firearm handling with an EMS instructor.

Firearm Safety Skill Verification Table

Firearm safety	1 (instructor)
Initials	

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1.4: Hazardous Materials

Hazardous materials are everywhere in our world. As an EMS responder, you need to be familiar with the signs of a potential hazardous material, maintain a safe distance, alert experts, and facilitate evacuations. Never approach a scene where a hazardous material has been released without the express direction of HazMat teams. Your job is to identify potential safety risks and alert a specialist team. If you can identify the material from a safe distance, then do so, otherwise, stay safe.

Activity

Situational awareness is key to identifying scene hazards and potentially unsafe situations involving hazardous materials. For starters, let's kick off with what you already know about the world around you. In the box below identify one or more potential hazardous materials.

Scenario	**Possible Hazardous Materials** (think of some potential hazardous materials that might be found in a garage)
3y/o female found unresponsive, in the garage with an unlabeled empty container	
Motor vehicle accident on a major highway involving 2 passenger cars	
45y/o male with shortness of breath after working with pesticides	
A couple living in a small trailer start experiencing headache and dizziness during a cold snap.	

Bringing your knowledge into EMS

It isn't hard to let your imagination run wild with all the possible situations you may encounter with hazardous materials. The key is to tune into your surroundings and identify when these hazardous materials might be a part of the current situation. This is an ongoing process, just as identifying any other potential safety hazards on a scene.

Once the potential of a hazardous materials incident is identified, it is the responsibility of all members of the EMS crew to alert other responders about the potential safety concern and take appropriate steps to mitigate exposure.

For example:

- You may identify multi-colored pills on scene that you believe may be fentanyl. Touching this substance is not dangerous, but team members should be made aware of illicit drugs and have a heightened index of suspicion for drug related behavior.
- While responding to a train derailment you see hazardous materials placards on some of the overturned train cars. Prior to approaching the scene, crews should stop a safe distance, ideally uphill & upwind and identify the substance using binoculars and a HazMat Emergency Response Guidebook or App.

Identifying the material is aided with the use of **HazMat Emergency Response Guidebook**, Applications and Poison Control.

Take a minute to look up these placards using the free app "ERG 2020" put out by the U.S. Department of Transportation:



Public domain image. Source: usfa.fema.gov

Your turn: Identify placards in your community. Over the next few days, see if you can spot a few. Look them up and determine the steps required to care for a patient with an exposure.

Where did you see it?	Substance Identification	First Aid

Now it's time to put your situational awareness into action. Ask your instructor or classmate to give you a scenario involving the potential of a hazardous material and work through it in real-time.

Hazardous Materials Skill Verification Table

HazMat	1	2 (instructor)
Substance		
Initials		

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CHAPTER OVERVIEW

2: Assessment Tasks

2.1: Radial/Brachial Pulses
2.2: Spot Pulses
2.3: Pupil Assessment
2.4: Respiratory Rates
2.5: Abnormal Lung Sounds
2.7: Blood Pressure Palpation
2.8: Capillary Blood Glucose (CBG)
2.9: Glascow Coma Scale (GCS)

Thumbnail: Man being treated for smoke inhalation. (Unsplash License; Acton Crawford via Unsplash)

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2.1: Radial/Brachial Pulses

Assessing Radial Pulse

1. Start by finding the thumb side of your wrist. There are some tendons that you should be able to feel as you move your wrist around, they are the tight ones that wiggle when you move your fingers. These attach muscle to bone. They are not what you are looking for.
2. Now that you've found those landmarks, slide your index finger toward the lateral (thumb) side of your wrist.
3. Depending on an individuals' anatomy there should be a small groove running up your arm. The groove is bordered by a tendon that you found and the radius bone of the lower arm.
4. Using just the tips of your index and middle finger, gently press down until you feel a beat. Do not use your thumb to feel a pulse.
5. Have a watch or clock handy. Count the "thumps" that happen in 15 seconds.
6. Multiply that by 4 (15 sec x 4 = 1 min)
7. Here's an easy trick. Double your initial number. Then double that number. For example, you got 18 beats in your 15 seconds = 36. Then double 36 for 72. The pulse rate is documented as 72 bmp (beats per minute).
8. Alternatively, you can count for 30 seconds and double the number, or spend an entire minute counting. For pediatrics it is advised to count for 30 or 60 seconds.
9. IF the pulse is irregular, you must count for the entire minute.
10. Record your findings.

Assessing Brachial Pulse

1. Raise one arm up like you are casually asking a question in class.
2. Using the index and middle finger of your opposite hand, find the medial (inside) of your upraised upper arm.
3. Using those fingers, separate your bicep (the one on the front) and triceps (the one on the back) muscles by gently pressing inward until you feel the beat.
4. Bang! You did it. Good job!
5. Now count it and write it down as you would for a radial pulse.

Radial/Brachial Pulse Skills Verification Table

Pulse Rate	1	2	3	4	5	6	7	8	9	10 (instructor)
Location Assessed										
Recording										
Initials										

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2.2: Spot Pulses

Spot pulses are used to quickly assess for the presence of a pulse and not necessarily recommended for assessing a pulse rate. This technique helps you quickly determine if CPR is indicated.

Carotid Pulse

1. Using the index and middle finger find your thyroid cartilage (Adam's apple). Yes, all genders have this landmark!
2. Which hand did you use? The right (or left)? Great, slide your fingers to the side of the body the assessment hand (right hand > right, left > left) into the groove created by your trachea (windpipe/throat) and your sternocleidomastoid (neck muscle on the front). We try to avoid reaching over the trachea (windpipe) when feeling for a carotid pulse.
3. Gently press down, separating the trachea and sternocleidomastoid until you feel the beat.
4. Find it? Pretty simple. Great! They won't all be that obvious. Practice starting gently and applying pressure just until you feel it. All pulses will disappear if you push too hard, so use just enough pressure, not too much.
5. Assess for 5 seconds, but no more than 10 seconds. This is to avoid prolonged pressure on the carotid artery that supplies the brain AND because this pulse is usually assessed in emergent situations, we don't want to waste time looking for a pulse if there isn't one.
6. We usually don't count the pulse using the carotid, so confirm the presence and move on.



Image by Nickolas Oatley, licensed under CC BY-NC 2.0.

Femoral Pulse

Due to proximity of the genitals, attempt femoral pulse assessments on yourself first. Be sure to obtain consent for all procedures practiced on others, especially more invasive ones like this.

1. Lay flat.
2. Using the front of your fingers, place your hand on the anterior (front) lateral (side) portion of your own lower abdomen under the waistband where the leg meets the abdomen. Gently press down with the front of your fingers until you locate a beat.
3. When you find the beat, switch to using the tips of your index and middle finger to confirm presence.

Posterior Tibial Pulse

1. Find the medial (inside) portion of the ankle. That big knobby bone is called the medial malleolus.
2. Slide the tips of your index and middle finger posteriorly (towards the back) to the back of your ankle. Just as your fingers drop off into soft tissue, there is a tiny groove outlined by the medial malleolus and tendon of the gastrocnemius (calf muscle). It is right behind the bone.
3. Gently press down with the tips of your index and middle finger until you feel the beat to confirm circulation to the lower limb.

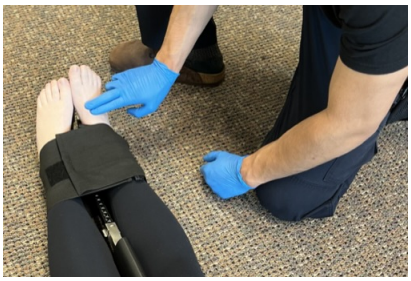


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Spot Pulse Skills Verification Table

Pulse	1	2	3	4	5	6	7	8	9	10 (instructor)
Location Assessed										
Initials										

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2.3: Pupil Assessment

They say they eyes are the window to the soul; however, it would be more accurate to say they are a window to the brain. In a healthy eye and brain, the pupil responds to allow light waves to properly stimulate the nerves of the retina. The stimulation of nerves, called “rods” and “cones” within the retina is translated to signals along the optic nerve to the occipital lobe of the brain. Within low-light settings the pupil dilates, or “grows larger,” to let needed light stimulate the retina. In high-light settings the pupils constrict, become smaller, to limit the light and avoid damage to the sensitive nerves of the retina.

The pupil assessment may reveal the presence of certain drugs, or trauma to the eye or brain. Medications such as opiates can cause the pupils to constrict and be “pinpoint” and not reactive to light. Other drugs such as psychotropics, stimulants and alcohol can cause pupils to become dilated. A non-reactive, “fixed” or asymmetric, “blown” pupil is a late sign of increased intracranial pressure and may increase the EMT’s index of suspicion for trauma to the brain or eye, or may point to the presence of a stroke. Note that genetic blindness in eyes will, in most cases make the pupils unresponsive to light changes.

You may hear several similar mnemonics for what to assess when looking at the eyes. The authors recommend the use of a standardized pneumonic such as, “PERRL.” Whichever acronym you choose to work with, stick with it for your whole career.

P – Pupils

E – Equal

R – Round

R – Reactive

L – to Light

To assess pupil responsiveness:

1. First look at the patient pupil without additional light to determine size of pupil.
2. Use a pen light to shine light from the far corner of the eye to the bridge of the nose.
    1. Note – do not use a super-bright flashlight as the additional light can be painful for your patient.
3. As you shine the light, look for changes in pupil size in both eyes. Eye response is connected and both pupils should respond to light in one eye.
4. Pupil reactive rate of change is also noted.
5. Perform this assessment in each eye.



Fig 1. Normal pupils.



Fig 2. Pinpoint pupils



Fig 3. Blown pupils



Fig 4. Dilated pupils

Images of pupils by Michaela Willi Hooper for Open Oregon, CC BY-NC-SA 4.0.

Pupil Assessment Skills Verification Table

Pupil Assessment	1	2	3 (Instructor)
Initials			

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2.4: Respiratory Rates

Obtaining respiratory rates can be difficult. Patients will be talking, moving and generally non-compliant with allowing you to count respiratory rate. You will need to be diligent in your assessment of this vital sign. It is essential that the patient does not know you are counting their respiratory rate. If they know you are counting it, they will become conscious of their breathing and unknowingly alter breathing and alter the validity of the assessment.

There are a few ways to assess the patient's breathing without making it obvious. Try assessing their breathing while you are taking their radial pulse. After you have taken their pulse, leave your fingers on their wrist and shift your attention to the rise and fall of their chest. Use the same method of counting for 15 seconds and multiplying by 4 for my breaths per minute.

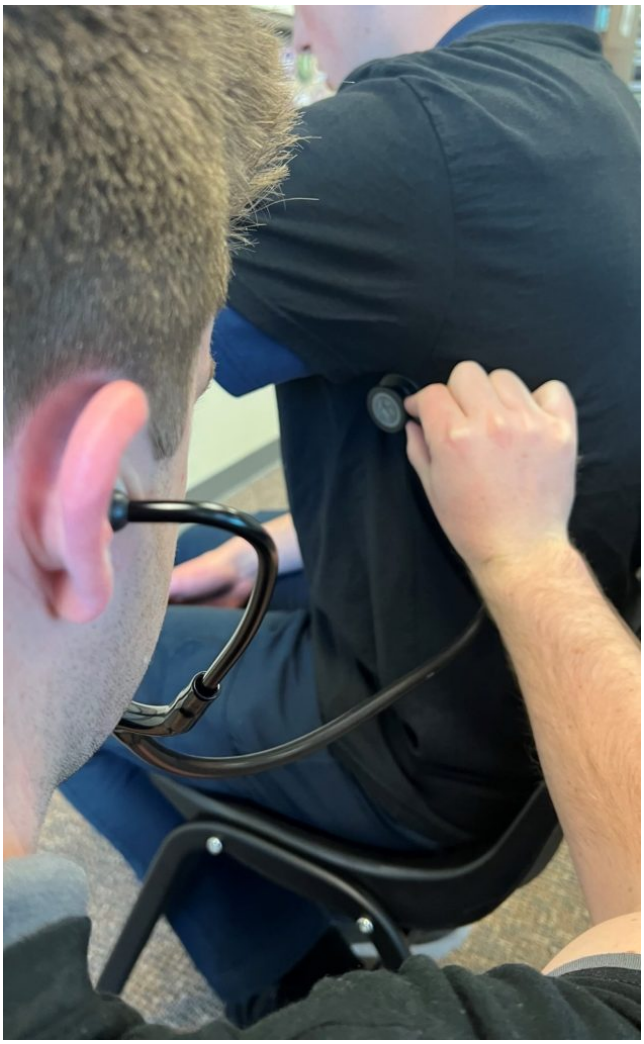
Alternatively, you can stand back and watch their breathing while something else is happening on the call, without telling the patient anything is being assessed.



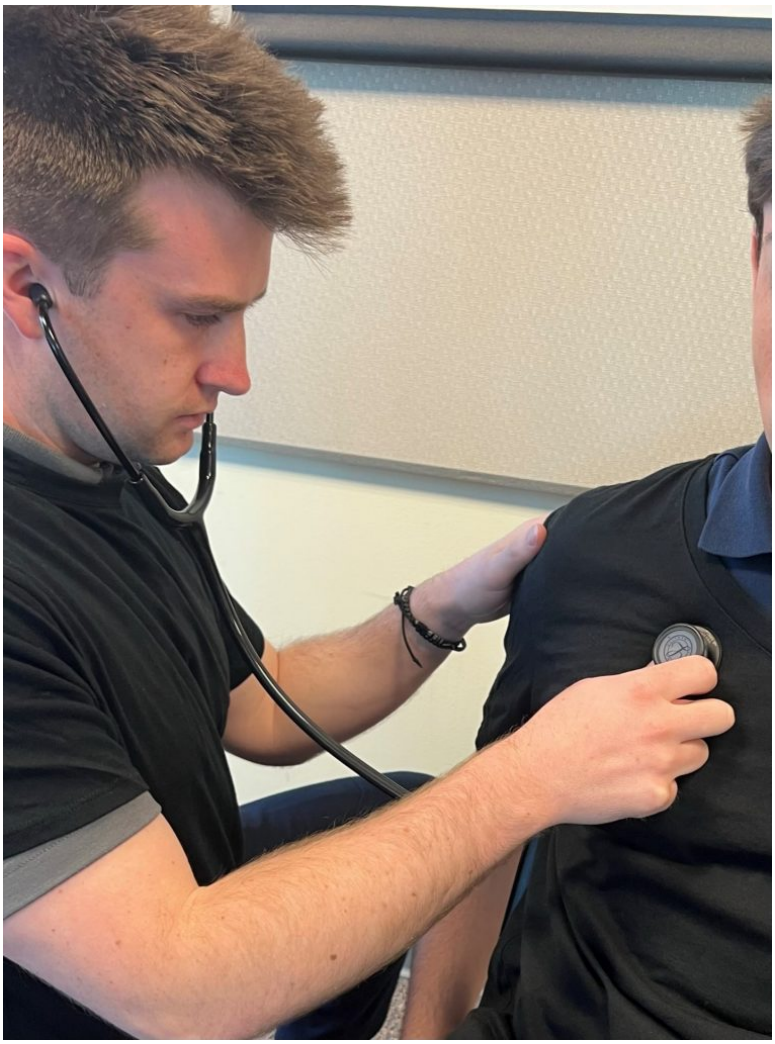
A person using a stethoscope to listen to a patient's right posterior lower lung.



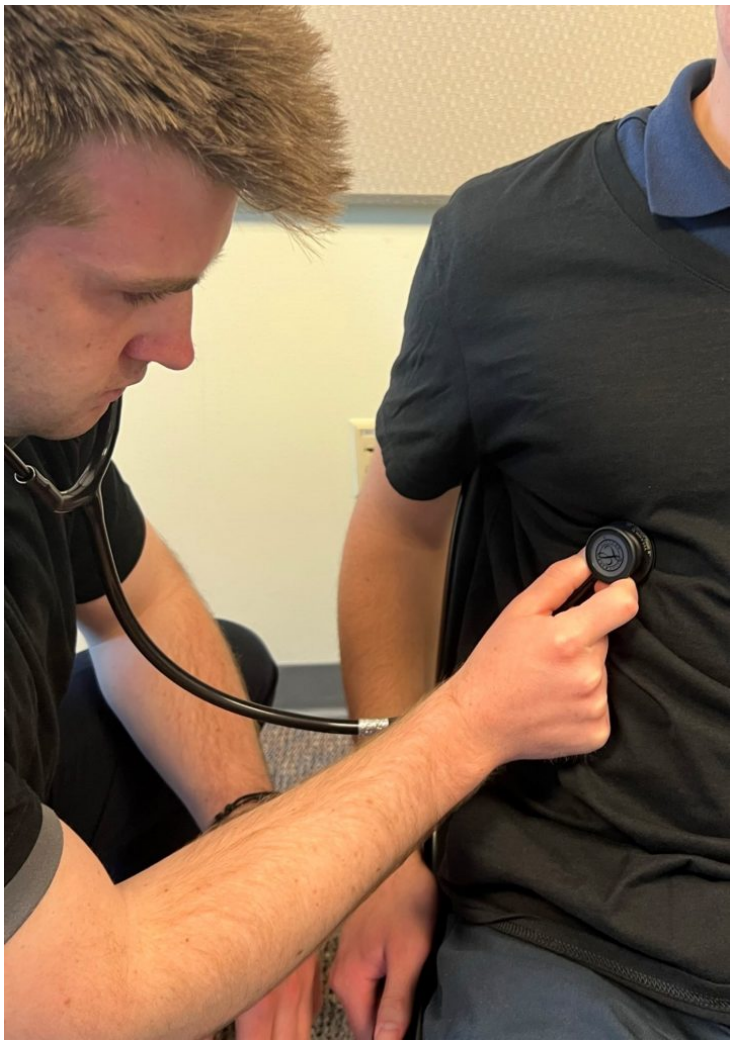
A person using a stethoscope to listen to a patient’s left posterior upper lobe.



A person using a stethoscope to listen to a patient’s left mid-axillary line, left mid-lung.



A person using a stethoscope to listen to a patient’s anterior right upper chest, right upper lobe.



A person using a stethoscope to listen to a patient's anterior left lower chest wall, left lower lobe. Images by Holly Edwins, licensed under CC BY-NC-SA 4.0.

Respiratory Rate Skill Verification Table

Respiratory Rate	1	2	3	4	5	6	7	8	9	10 (instructor)
Recording										
Initials										

Basic Lung Sounds

Assessing lung sounds is an easy skill but challenging to meaningfully interpret. To build our interpretation skill we need to first practice what "normal" or "clear" lungs sound like to build our internal library for comparison when our patient has signs of obstructive abnormal lung sounds.

1. Start by ensuring permission to lift the patient's shirt.
2. Then place a stethoscope directly on the skin.
3. Listen once to one lung and compare it to the other by moving to the other side and listen once.

Lung Sounds Skill Verification Table

Lung Sounds	1	2	3	4	5	6	7	8	9	10 (instructor)
Recording										
Initials										

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2.5: Abnormal Lung Sounds

For interpreting abnormal lung sounds we will need to use technology as most of your classmates, friends and family will have normal “clear” lung sounds.

Head out to YouTube and search for videos that play lung sounds. Also, while attending clinical shifts, use your patient interactions as an opportunity to listen to as many lung sounds as you can. The more lung sounds you listen to, the more proficient you will get at distinguishing the different sounds. Also, when talking to other medical providers don’t forget to use the new fancy medical terminology, such as: auscultate, bilateral, unilateral, apex, base, axillary, posterior, anterior.

Use the common lung sounds noted below to practice over several days.

- Normal / Clear – Air moving in and out freely with no difficulty.
- Crackles / Rales – Fluid in the lungs from pulmonary edema and heart failure.
- Rhonchi – Mucus and immune cells from infection or aspiration.
- Wheezing – Narrowing of the lower airways including bronchi and bronchioles from Asthma, COPD, anaphylaxis.
  - Wheezing is also further described as being inspiratory, expiratory or heard on both.
- Stridor – Narrowing of upper airway and trachea from anaphylaxis and choking (high-pitched sound)

Lung Sounds Skills Verification Table

Lung Sounds	1	2	3	4	5	6	7	8	9	10 (instructor)
Recording										
Date										
Initials										

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2.7: Blood Pressure Palpation

Measuring an auscultated BP in the back of an ambulance is challenging at best. In loud or chaotic environments, it may be easier to assess blood pressure by “palpation” or feel. The assessment is approximately 10mm Hg systolic below their auscultated BP. You will only obtain systolic pressure, diastolic can’t be obtained via palpation.

1. Gather your equipment. You won’t need the stethoscope for this one.
2. Ask the patient to remove any bulky clothing. You can take a BP over T-shirt material; anything more needs to be removed.
3. Place the cuff around the desired arm. You will want to line up the “artery” marker on the cuff with the anterior/medial (front/middle) side of the patient’s arm.
4. Encourage the patient to relax their arm, palm up.
5. The patient should not be suspending or holding their arm in the air. Encourage them to rest their arm on their leg or allow the limb to be supported.
6. Place the gauge in a comfortable position to view it while your hands are full.
7. Feel for the radial pulse.
8. Inflate the cuff until you no longer feel the radial pulse.
9. Deflate the cuff, while feeling for the first beat.
10. Document the number on the sphygmomanometer when you feel the beat “#/palp”.



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Blood Pressure by Palpation Skills Verification Table

BP	1	2	3	4	5	6	7	8	9	10 (instruc
BP Recording “#/palp”										
Initials										

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2.8: Capillary Blood Glucose (CBG)

Assessing blood glucose should be a part of every patient with altered mentation. Concerning findings for EMS professionals include readings below 60 mg/dL, and above 500-600 mg/dL. Be familiar with the Glucometer specs supplied by your service. Sometimes you might get a reading of “LO” or “HI”, the manufacturer specs will give the ranges of blood sugar levels that fall into those categories (usually under 20 mg/dL or over 500 mg/dL)

To take a CBG:

1. Ensure proper PPE. Have a sharps container handy.
2. Identify a finger of choice – ideally off to the side of the distal tip as it tends to hurt less.
3. Clean the site using an alcohol pad & let it dry.
4. Insert test strip into monitor.
5. Communicate to your patient that they will feel a “poke”.
6. Use your department approved lancet to puncture the site and draw blood.
7. With the test strip inserted, bring the end of the test strip to the blood, and allow it to “soak up” into the strip.
8. You should have a reading within 10 seconds – record the reading.
9. Control bleeding as necessary use gauze and direct pressure.

*On rare occasion the patient’s fingers are so calloused that the lancet does not penetrate deep enough to obtain a blood sample, the patient’s ear lobe might be a good alternative to get blood sample with lancet



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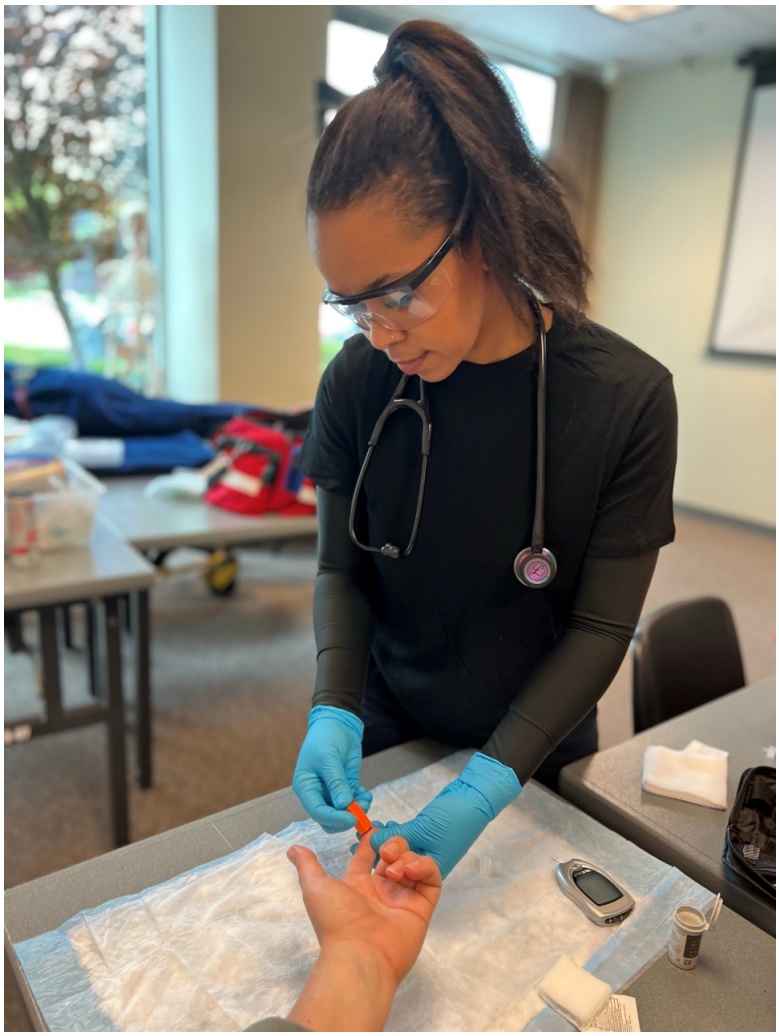


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CBG Skills Verification Table

CBG	1	2	3 (instructor)
CBG Reading mg/DL			
Initials			

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2.9: Glascow Coma Scale (GCS)

Glasgow Coma Scale (GCS) is a useful tool to aid assessing altered mental status. In some conditions the scale may be used to determine treatments. GCS is based on three objective assessments including eye movement, verbal response, and motor response.

Eyes (1-4)	***Verbal (1-5)***	***Motor (1-6)***
No eye opening – 1	*No verbal response – 1*	*No motor response – 1*
Open to painful stimuli – 2	*Incomprehensible sounds – 2*	*Extension / Decerebrate posturing – 2*
Open to voice – 3	*Inappropriate words – 3*	*Flexing / Decorticate – 3*
Spontaneous opening – 4	*Confused – 4*	*Withdraws from painful stimuli – 4*
	Oriented – 5	*Localizes to painful stimuli – 5*
		Obeys commands – 6

GCS Practice

Use the following scenarios to practice calculating GCS. Document your answers in the recording sheet below. For the final 4 signoffs use scenarios from class and verify your work with another student.

1. 46-year-old male sole driver involved in a motorcycle v. tree. He is bleeding from his mouth and ears and is unresponsive to painful stimuli.
2. 16-year-old female complaining of respiratory distress. She answers your questions and believes she is having an asthma attack. She lets you know that she ran out of her inhaler. She is sitting in a tripod position.
3. 33-year-old transgender male who was found in his home on the bathroom floor. He opens his eyes when you speak loudly and responds with mumbling. His medical alert bracelet tells you that he is an insulin dependent diabetic. He pushes your hand away when you shake him by the shoulders.
4. 67-year-old male with stroke-like symptoms. He has right sided facial droop and grip weakness. His eyes are open and tracking you, though he cannot speak.

Glasgow Coma Scale Skills Verification Table

GCS Practice	1 (written)	2 (written)	3 (written)	4 (written)	5 (scenario)	6 (scenario)	7 (scenario	8 (scenario) (instructor)
Eyes								
Verbal								
Painful								
Total Score								
Initials								

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CHAPTER OVERVIEW

3: Team Function

3.1: Closed Loop Communications
3.2: Team Pause
3.3: Calling Online Medical Control
3.4: Calling in HEAR Reports
3.5: Equity in Healthcare- What is equity in healthcare?
3.6: Equity in Healthcare Activities- Self-Awareness
3.7: EMT as a Team member for Advanced Life Support Assist Skills
3.8: Helicopter Operations

Thumbnail: Man being treated for smoke inhalation. (Unsplash License; Acton Crawford via Unsplash)

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3.1: Closed Loop Communications

Arguably the most important skill an EMT can learn is how to observe and improve their own communication skills. Communication affects every other aspect of patient care and effective teamwork. There are many techniques to explore in this skill. One technique used commonly by medical professionals and pilots is called closed-loop communication. To start building the skill, let's start with documenting when we observe ourselves or others demonstrate closed loop communication in class. Key aspects of closed-loop communication include:

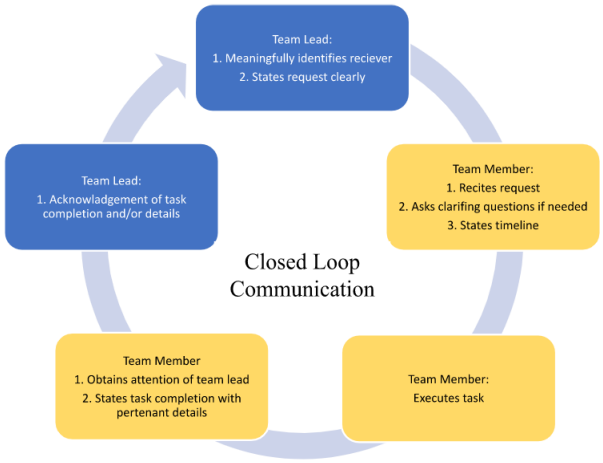


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Example Closed Loop Communication in Bleeding Control:

Team lead: **touches shoulder of teammate* please control the bleeding with a tourniquet*

Team member: *"controlling bleeding with a tourniquet now"*

Team member: *"Team lead" *waits for team leader attention* "bleeding controlled with a tourniquet, time noted"*

Team lead: *"thank you team member, standby for the next task"*

Closed Loop Communication Skills Verification Table

Closed Loop Communication	1	2	3	4	5	6	7	8	9	10 (instructor)
Initials*										

*Self-evaluation, candidate initials accepted

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3.2: Team Pause

A “Team Pause” is an effective technique used by team leaders to share information about the patient as well as solicit input from the team. During this pause, everyone is focused on presented information and makes an agreement on the treatment plan.

A team pause should take place directly after the primary assessment and again after any major changes in patient condition or significant finding. It may also be called for by a team member who is uncomfortable with their role, the direction of patient care or needs clarifying information from other team members. It can be used a means to reset and recollect, especially on a very chaotic scene.

1. The team leader **calls for a “Team Pause”** and gets the attention of all available team members.
2. **Recap all patient information** including name, age, chief complaint, scene findings, and vital signs.
3. **State direction of treatments** (i.e. protocol, differential diagnosis, or simply “I don’t know yet what is happening with this patient”).
4. **State your plan & delegate** by delegating tasks to team members, prioritized to fill pertinent gaps in patient assessment and/or to initiate treatments.

Try the following template:

> “Team pause *(wait for attention)*. This is __pts name, age, preferred pronoun__. They are complaining of __chief complaint__, which started __time/activity__. Their vital signs are __BP, HR, RR, SpO2, CBG, etc.__. We found __other assessment details and scene clues__. Does anyone have any additional details to add?”
>
> Choose one…
>
> - “I believe they may be suffering from __your differential diagnosis__.”
> - “I am not sure yet what is going on. Does anyone have a recommendation?”
>
> “Here’s what we need to do __obtain additional assessments/perform actions__. I would like team member to do__task__.” *(Continue delegation using closed-loop communication until all stated actions are completed).*



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Team Pause Skill Verification Table

Team Pause	1 Student	2 Student	3 Student	4 Student	5 Instructor
Initials					

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3.3: Calling Online Medical Control

Calling OLMC connects you directly to a Physician or Advanced Practice Provider, such as a Physician Assistant (PA) or Nurse Practitioner (NP), can be a great resource for you to use while on-scene for several functions:

1. If you want to administer a medication that is outside your protocol.
2. If you want to administer a medication that your protocols require OLMC approval.
3. If you have a patient and you are at a loss on how best to move forward with your assessment or treatment.

For all medication administration scenarios in EMT school that are outside of your standing orders, you will call OLMC for direction. OLMC will be most effective if you are able to describe the patient situation logically and include all necessary elements of your assessment. To perform a call to OLMC:

1. Dial the number and ask to speak with the Online Medical Control Physician (in class this will be a pretend call and the instructor will play the role of the physician)
2. Request the physician's name and clarify spelling.
3. State your request, (i.e., "I am calling to request administration of Albuterol")
4. Provide patient details including age, gender, chief complaint, relevant findings, and vitals (make sure to have a set of vital signs to relay, you will not get orders without them)
5. State your differential diagnosis.
6. Repeat your request.
7. Listen to the response! Clarify follow up questions and repeat orders back to verify they were understood correctly.

Try the following template:

> "Hello, this is __your name, certification level, unit number, location__ , and I am calling to speak with a physician regarding__ reason for call__ . Can you spell your name please *(write down name of physician)*. I am on scene with a __pts age, reported gender__ . They are complaining of __chief complaint__ , which started __time/activity__ . Their vital signs are __BP, HR, RR, SpO2, CBG, etc.__ . We found __other assessment details and scene clues .__"
>
> Choose one based on the reason for calling OLMC…
>
> - "I believe they may be suffering from __your differential diagnosis__ ."
> - "I am not sure yet what is going on. Do you have a recommendation for assessment or treatment?" *(end)*

"I would like to ___repeat request to administer / request permission___ for ___reason for calling OLMC___ . *(Listen to answer, repeat direction back to physician for confirmation).*

OLMC Call Skills Verification Table

OLMC Call	1	2	3	4	5 (instructor)
Initials					

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3.4: Calling in HEAR Reports

Hospital Emergency Ambulance Radio ("HEAR") reports give the hospital lead-time to set resources in place to receive ambulance patients. Without a HEAR report, the hospital staff will be caught off guard when you arrive and in emergent cases, this could delay treatment. As soon as is reasonable, EMS transport crews will call the hospital, usually over the radio. Phone calls do happen in special circumstances, and in some geographical areas where phones are the main use of communication.

A HEAR report should contain the following information and be **less than 1 min in length**:

1. Use the radio and the "hey you, it's me" format.
2. State patient age, gender, chief complaint, and differential diagnosis.
3. Pertinent interventions and results.
4. Most recent vitals.
5. Provide an estimated time of arrival ("ETA").
6. Ask if they have any additional questions.

DO NOT INCLUDE:

- Names
- Addresses
- Personal information
- Commentary

Try the following template:

> "Hospital __ hospital name __ , this is __ certification level, unit number __ , we are transporting __ transport code __ with a __ pts age, reported gender __ . They are complaining of __ chief complaint / differential diagnosis __. I have administered/assisted __ interventions (EPI, Nitro, ASA, Glucose, etc.) with or without change __ chest pain relieved, mentation improved, etc. Their vital signs are currently __ BP, HR, RR, SpO2, CBG, etc. __ . We are about __ ETA __ . Do you have any questions?"

HEAR Report Skills Verification Table

HEAR Report	1	2	3	4	5 (instructor)
C/C					
Initials					

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3.5: Equity in Healthcare- What is equity in healthcare?

What is equity in healthcare?

Differences in health between populations lead to differences in the quality of life and life span. While an individual's health status is influenced by genetic factors, it is much more impacted by societal responses to an individual's social characteristics, such as a person's race, gender, and socio-economic status, among others. These factors are called Social Determinants of Health (SDH).

The US Department of Health and Human Services defines Social Determinants of Health (SDH) as "the conditions in the environments where people are born, live, learn, work, play, worship, and age that affect a wide range of health, functioning, and quality-of-life outcomes and risks." There are five SDH areas which have been shown to have particularly significant impacts on an individual's health: economic stability, neighborhood quality, education access and quality, social and community context, and healthcare access and quality. As of 2022 there are hundreds, if not thousands, of research studies that describe the degree to which an individual's social characteristics impact each of these SDH areas, which then in turn impacts their health and their lifespan.

Unfortunately, cultural responses to an individual's characteristics also influence their healthcare. Populations with privilege generally have the best access, receive the highest quality treatment, and frequently benefit from the best outcomes, all of which contribute to a higher quality of life and a longer life span. Conversely, populations with reduced levels of power and resources in society are more likely to suffer from reduced or no access to healthcare, are provided with a substandard quality of treatment, and consequently, often suffer from worse outcomes which in turn lead to a reduced quality of life and life span. To illustrate the impact this has on patients, an estimated 74,000 Black individuals in the United States die from racism's impact on all SDH areas, which include reductions in the quality of healthcare, every year.[1] This is the equivalent of a fully loaded Boeing 737 airliner full of Black individuals crashing and killing everyone on board every day. These deaths are completely preventable and are caused entirely by external factors generated by social and cultural bias and discrimination.

Why is this important to EMS providers?

Understanding the inequities in EMS treatment is important for several reasons. First, as healthcare providers we all strive to provide excellent care to all patients, and not just to some patients, although evidence indicates this isn't happening. Second, under-resourced and underserved populations are more likely to use EMS services for their healthcare needs. EMS utilization rates for all types of medical and traumatic emergencies are higher in poor neighborhoods, in predominantly racial minority neighborhoods, and in neighborhoods with higher rates of residents whom are currently non-US citizens, compared to high socioeconomic neighborhoods, neighborhoods that are predominantly white, and neighborhoods with higher rates of individuals who are currently US citizens, respectively.[2] Next, the quality of EMS medical treatment can have direct morbidity and mortality consequences for an individual, and when taken together over time, for an entire community of individuals has direct impacts on a community's quality of life and life span. Finally, medical providers are more likely to make biased decisions in dynamic field-based settings where medical decisions are often made under time pressure, where a patient's condition is clinically ambiguous, and in situations with incomplete information; all conditions which are common in EMS treatment settings.[3,4]

Are there disparities in EMS treatment?

Unfortunately, but not surprisingly, the short answer is yes, disparities are happening in EMS treatment. Before we explore these disparities and what to do about them, we must review foundational concepts regarding cause and effect. A patient's race doesn't influence the care they receive, but rather it's *racism's influence* (at the system, agency, provider, and even at the patient level) that impacts the quality of treatment the patient receives. Similarly, it's not the gender of the patient, but it's *sexism's influence* that operationalizes an impact on treatment, and it's not the size or obesity status of the patient, it's *sizeism* or obesity stigma, etc.

Other areas of medicine have been collecting clear and convincing evidence for decades that racial and ethnic minorities are more likely to receive a substandard of healthcare quality regardless of access, clinical need, or preferences. Several researchers, including myself, have found evidence that for individuals that call EMS for the same injury type (long bone fractures, or burns, or blunt trauma, etc.), racial and ethnic minorities (especially Black patients), while often being in higher levels of pain when they call EMS, are much less likely to receive pain medications from EMS providers.[5–7]

Additionally, patients who are overweight, including those with obesity and severe obesity, receive a lower quality of hospital-based healthcare and are much more likely to avoid medical treatment due to the discriminatory behavior they are subjected to when they do seek care. Interestingly, when it was investigated if these same unprofessional and unethical behaviors took place in EMS practice, it was found that when men and women with the same injury interact with EMS for treatment, men who are considered obese receive improved care compared to men who are not obese. However, women who are obese received a reduction in the quality of their EMS care when compared to non-obese women.[8] Said another way, obesity provides an EMS treatment advantage for men, but a disadvantage for women.

And finally, another individual characteristic that tends to be discriminated against is a patient's ability to speak English. Patients with limited English proficiency (LEP) of course have direct challenges communicating with EMS providers, but they are also some of the most vulnerable patients we care for as they are also much more likely to be poor, a racial and ethnic minority, are likely unfamiliar with the healthcare system, and are often recent immigrants. Due to these reasons, and likely others, research currently in-progress suggests that patients with LEP in the setting of traumatic injuries are much less likely to receive a pain screening or pain medications from EMS providers when compared to English speaking patients, even when interpreter services are available. More information and research is needed to improve our ability to improve our treatment of the LEP community.

The topics introduced here provide a brief summary of only a few of the sources of discrimination and prejudice in EMS treatment and we are still learning about them through active research and inquiry.

Why is this happening?

We are humans who exist in and are influenced by our own cultural context. Although we are aware that we have sub-conscious preferences and influences, we also know intellectually that racism and other forms of discrimination are abhorrent, and so it can become particularly difficult to examine the ways in which our societally induced biases affect us. As we have noted earlier, clinical situations that require medical providers to perform under high levels of cognitive load have been shown to create environments that are conducive to racial/ethnic treatment disparities through the activation of heuristics and stereotypes, which are known to contain bias. [3,4,10,11]

We may also be operating with incorrect information. For example, some EMS medical providers may believe, incorrectly, that race/ethnicity is a biological construct instead of a social one. While it has been shown conclusively that there are no medically significant biological differences between individuals of different races/ethnicities, there is evidence that some medical providers nevertheless believe race/ethnicity to be a medically relevant factor and may be adjusting their clinical actions accordingly, resulting in biased treatment.[9]

What can you do?

As an EMS provider, you have many opportunities to improve the equity of your treatment and the development of a more equitable emergency healthcare system as a whole.

Self-awareness

The first step is to build your awareness of your beliefs, both conscious and unconscious, that influence your decisions and your view of the world. Although it can feel daunting at first, careful reflection and observation of the feelings and thoughts that we experience can be revealing, and with practice, becomes easier over time. When evaluating situations, people, and ideas, ask yourself why you feel the way you do? Would you feel different if the race/gender/age/size/apparent social status of any of the people involved was different? Many tools have been developed to help us learn about our biases, including the Implicit Association Test (IAT, implicit.harvard.edu/implicit/takeatest.html), which can be helpful starting points.

Engage others

In addition to self-reflection and learning, we all have the opportunity to engage others in conversations about equity, to ask questions, and to learn from each other. As an EMS provider you will often be in positions where you can be an advocate or be an ally to intervene when you see inequitable care being provided, to support your colleagues as they learn about and work towards providing more equitable care, and in destigmatizing the humility and self-reflection needed for reducing disparities. As patient care topics are raised in your agency, ask questions about equable care and how we can be informed about the degree to which we are providing it.

Education

In choosing to be a medical provider you have also chosen to be a life-long learner. Advances are continuously being made in our understanding of medicine, and the same is true in our understanding of how to provide the highest quality of care to all patients. As you have opportunities to attend conferences or read EMS journals, seek out topics that can enhance your understanding of equity in medical care. Many excellent books have been written about the ways in which societal structures and biases have led to the inequities being experienced right now in our country, and how to reduce them. Great sources to further your education on this topic are included below:

- Unequal Treatment: Confronting Racial and Ethnic Disparities in Health Care, a report by the Institute of Medicine (US) Committee on Understanding and Eliminating Racial and Ethnic Disparities in Health Care.
- How to Be an Anti-Racist, a book by Ibram X Kendi.
- Class Matters, a book by correspondents of the New York Times.
- The Problem with Race Based Medicine, by Dorothy Roberts, on YouTube.
- Allegories on Race and Racism, by Camara Jones, on YouTube.

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3.6: Equity in Healthcare Activities- Self-Awareness

Implicit Bias Assessment

Every human being makes decisions informed by a lifetime of experiences, stories, family traits, beliefs, and values. Each experience informs the system of shortcuts in our brain called heuristics. Our brain's heuristics can serve to aid us in survival, keep us safe from hazards and facilitate social interaction. They can and do contribute to subconscious aka "implicit" bias. Unfortunately, our brain's subconscious bias does lead to disparities in healthcare treatment for minorities, women, and the LGBTQ populations. Take care! I am not accusing you of racism, sexism, or trans/homophobias. However, humble self-discovery is the first step in rooting out our own hidden implicit bias and improving known disparities in the care all people receive from EMS services.

One way we will gain access to these hidden heuristics through taking various Implicit Association Tests. These tests can be found at this URL: implicit.harvard.edu/implicit/takeatest.html or do a web search for "implicit bias test Harvard" and clicking "I wish to proceed" at the bottom of the page.

Choose 5 of these assessments at various times throughout the term. Try not to do them all in one sitting. **You do not need to do all of them! Only 5/10.** You can choose any five assessments out of the tables below.

IAT	Transgender IAT	Disability IAT	Age IAT	Skin Tone IAT	Weapons IAT
Initials					

Equity in Healthcare Skills Verification Table

IAT	Asian IAT	Sexuality IAT	Native IAT	Race IAT	Weight IAT
Initials					

Privilege Assessment

For the next step in self-awareness circle any of the privileges that you benefit from. Remember, privilege is something that gives you an advantage that you didn't necessarily earn.

Adapted from: "Do the Work!" by Bell & Schatz

- White
- Fair/light-skinned
- Middle class
- Upper middle class
- Rich
- Land-owning
- Home-owning
- College-educated
- Conventionally attractive
- Good at taking tests
- Thin
- Tall
- Thick in the "right" places
- Hearing
- Seeing
- Live in a "safe" neighborhood
- Debt-free

- Nondisabled
- Have a good relationship with the police
- Straight
- Cisgender
- Not the first in my family to go to college
- Christian
- US Citizen
- Feel safe walking home at night
- Cultural history was part of regular school curriculum, not just an elective
- Inherited money
- Have a trust fund
- Between the ages of 18-60
- Grew up with access to children's books, TV and movies with characters who looked like me
- Reading this in my first language
- Tall
- A cis man
- Have health insurance
- Housed
- Employed
- Married
- Blue-eyed
- Green-eyed
- Have an "American" sounding name
- Blond-haired
- No speech impediment
- Full head of hair
- Athletic
- Good teeth
- Can pay rent every month
- Always able to pay utility bills
- Never been in prison
- Laugh easily
- Not worried about money
- Have "connections" with "friends in high places"
- Understand the stock market
- Often put in charge of things
- Everybody in my home has their own room
- Have a well-worn passport
- Have employees
- Are an actual billionaire
- Regularly fly first class
- Get to doctor appointments easily
- Have time for hobbies and leisure
- Aren't afraid of a medical bill
- Clothes sold in stores fit my body
- Regularly get a good night's sleep
- Are or have been the president of the United States
- Have gotten away with yelling at a cop
- Own a professional sports team
- Am George Clooney
- Right-handed
- Parents are alive, married and nice to me

- Get invited to cool parties
- Car registration is paid
- Are offended by the term “Karen”
- Feel mildly annoyed by parking tickets
- Took a selfie with a cop while storming the US capitol
- Own multiple functioning cars
- Not afraid to show ID
- Can easily access buildings I need to go into
- Know how to swim
- Understand memes
- Have a strong wi-fi connection
- Can easily access fresh food
- Not kept up at night by the sounds of sirens and gunshots
- Not worried about family members getting deported
- Friends and family share my belief systems
- Do not have an accent, drawl or other identifiable geographical speech pattern

Next discuss your results with a class member who also has completed the assessment.

Privilege Assessment Skills Verification Table

Privilege Assessment	Discussion – what did you notice about yourself?	Discussion – what did you notice about others?
Partner Initials		

Engaging Others

Within your community of people (EMT school, work, social circle), identify two individuals who are not exactly like you. They may be different in age, gender, skin color, personality. Ask if you can interview them about their healthcare experience. After you gain consent, use these questions to spur a discussion about how each of us experiences healthcare differently:

- How do you interact with healthcare professionals? Do they listen to you? Do you get your needs met? Do you have to repeat yourself to be heard? Why or why not?
- Do you have health insurance? How is it paid for? Have you ever had a big medical bill? Do you need to travel to get to healthcare? How do you get there?
- Do you feel like you get enough to eat? Is there ever a time when you don’t have enough food? How far do you have to travel to get to a grocery store?

Engaging Others Skills Verification Table

Engaging Others	1	2
Partner Initials		

Education

Take some time to read one of the below articles or books on race, gender, age, size, or social status, and their experience with healthcare that interests you. You may also choose one of your own. If you select one of your own, please be sure it is more than a blog post, preferably a peer-reviewed article. Tell your team about it. Why did it interest you?

- Unequal Treatment: Confronting Racial and Ethnic Disparities in Health Care, a report by the Institute of Medicine (US) Committee on Understanding and Eliminating Racial and Ethnic Disparities in Health Care.
- How to Be an Anti-Racist, a book by Ibram X Kendi.
- Class Matters, a book by correspondents of the New York Times.

- The Problem with Race Based Medicine, by Dorothy Roberts, on YouTube.
- Allegories on Race and Racism, by Camara Jones, on YouTube.

Education Skills Verification Table

Article	1
What was the article?	
Team Initials	

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3.7: EMT as a Team member for Advanced Life Support Assist Skills

In urban environments the EMT will be partnered with one or more paramedics. The EMT often fills the vital role of assisting the paramedic team leader by performing assessments and skills within the EMT scope of practice as well as leading logistic efforts on a call.

Paramedic providers may ask for assistance in setting up equipment for advanced life support (ALS) treatments, including:

- Intravenous “IV” Cannulation Set Up
- Intravenous Bolus Medication Administration set up
- Electrocardiogram (ECG) set up and placement
- Endotracheal Intubation set up

Intravenous Cannulation Set Up

Advanced providers will often elect to establish intravenous “IV” access. Sometimes IV access is needed to prepare for or administer medication, fluids, or to facilitate expedited care upon arrival to the Emergency Department. As an EMT, setting up IV equipment for your ALS team members is one way to support overall team function and contribute to patient care.

As you assemble the equipment ask the requesting provider which size IV catheter they would like in the given situation. IV catheters are sized by the diameter of the catheter using the universal “French’ system and expressed in common sizes of 22 gauge (written as ‘ga’), 20, 18, 16, or 14 ga. Important to note that the smaller the gauge, the larger the catheter diameter size (ex. 14 ga is much larger than a 22 ga). For most patient situations, an ALS provider will choose between 18 ga, 20 ga or 22 ga needles.

The equipment must remain clean and aseptic to reduce the chances of exposing the patient to dangerous infections. Be mindful of contamination and if the equipment becomes contaminated, throw it away and replace.

Items needed:

1. IV needles varying size 18 ga, 20 ga, 22 ga unless otherwise directed.
2. Chlorhexidine, Povidone-iodine wipes, or Alcohol preps – to clean the skin prior to insertion of the IV needle.
3. Extension Set – connects the IV catheter to drip set and fluid bag or remains isolated to administer medications.
4. 10 mL saline flush – to remove the air from the extension set and replace with sterile saline.
5. Band tourniquet – not the same as a bleeding control tourniquet.
6. Op-site / Tagaderm – usually clear plastic that covers the IV catheter after insertion.
7. 2-4 pieces of short strips (2”-3”) of tape
8. 4×4 gauze pads
9. Sharps container

To set up for an IV:

1. Check all equipment expiration dates (should be done at the beginning of your shift during the kit check so that you don’t need to waste time doing it on-scene).
2. Unwrap the extension set and 10-mL flush.
3. Place the 10-mL flush on the hub of the extension set and connect it by twisting it into place on the end of the extension set.
4. At the far other end of the extension set, unscrew the capped end ¼ turn, just enough to keep the cap on but allow fluid to pass.
5. Push the plunger of the 10mL saline flush to remove all the air from the extension set.
    1. Look for air bubbles within the extension to move as the saline moves the trapped air out.
    2. The saline fluid will flow out the other end of the extension until this step is complete.
6. Place all items within reach of the person conducting IV Cannulation procedure keeping the items in their packages and as aseptic as possible.

IV Set Up Skill Verification Table

IV Set Up	1 Instructor
Initials	

IV Fluid Set Up Overview

IV fluids are administered for a variety of reasons such as volume replacement in shock. Fluid bags come in multiple sizes, primarily in 250 mL, 500 mL, 1000 mL bags. There are two main types of IV fluids used in EMS: Normal Saline (NS) and Lactated Ringers (LR). Protocols, availability, and ALS provider preference will dictate what type of fluids are appropriate for the patient and the set-up listed below is the same for either type of fluid (NS or LR).

The other piece of equipment required to administer fluids is what’s called a “drip set”. A drip set is simply tubing that connects into the fluid bag on one end with the other end connecting into the IV extension set and allows the fluid to flow into the patient via the established IV site. Drip sets are available in many sizes, however the most common in EMS are 10-drip set (expressed as “10 gtt/mL”) or sometimes called a “macro” drip set, or a 60-drip set (expressed as “60 gtt/mL”), sometimes called “micro” drip set.

The strange abbreviation “gtt” is from the Latin word “guttae” which means “drop” indicating that the macro drip set administers 1 mL of fluid for every 10 drops and the micro drip set administers 1 mL or fluid for every 60 drops.

Items needed for IV Fluid Set Up

- All items above with patent IV access placed in the patient.
- IV bag – ask which size and type.
- IV tubing – assume a macro drip set (10gtt/mL) unless otherwise directed.

Steps:

1. Check all equipment expiration dates (should be done at the beginning of shift during the kit check).
2. Unwrap appropriate IV tubing, make sure that it is unknotted and untangled.
3. Gather the appropriate bag of fluid and remove the cover over the port where you will insert the IV tubing.
4. Puncture the fluid bag port with the pointy end of the IV tubing drip set.
5. Squeeze the drip chamber to allow fluid to run into the drip chamber filling it ¼ to ½ full.
    1. This doesn’t need to be precise but can’t be completely full.
    2. If the chamber does completely fill, simply invert the bag and chamber, and squeeze the chamber. Repeat as necessary.
6. Open the rolling stopcock that is below the drip chamber thus allowing the fluid to flow through to the bottom of the tubing.

7. Slightly untwist the cap at the end of the IV line to allow for fluid to escape.
8. Ensure the fluids have filled the entire tubing set from start to finish and that minimal air bubbles are present.
9. Close the rolling stopcock on the IV tubing to stop the flow of fluids.
10. Hang the bag of fluid at a location that is higher than the patient's heart and keep the end of IV tubing capped until needed.
11. Place capped end within reach of the provider starting the IV line.

IV Fluid Bag Set Up Skill Verification Table

IV Bag Set Up	1 Instructor
Initials	

Cardiac Monitor Setup

Electrocardiogram or "ECG," sometimes referred to as an "EKG" (from the German spelling although ECG is preferred) is a tool used to help determine a patient's cardiac rhythm. An advanced provider will use the cardiac rhythm to aid in establishing a working diagnosis of the patient's condition. There are two main cardiac assessments you will be asked to set up for your ALS team, the "4-Lead" and "12-Lead."

To set up the 4–Lead you will need the following items:

- Cardiac monitor
- ECG electrodes (the sticker part) already attached to the wires.
- ECG 4-Lead and 6-Lead wires
- You may also need a disposable razor if the patient's chest has thick hair or a towel if the patient's chest is wet or overly sweaty to ensure you can get the stickers to stick to the patient.

Communicate with the patient what you plan to do:

Use terminology that is appropriate to a non-medical person and start by introducing yourself and your certification. Try out this script or make up your own when introducing this procedure to the patient.

"Hello, my name is _____ , I am an EMT. To check your heart activity, I need to place these stickers (or electrodes) on your chest/shoulder/arms. This test is painless and will tell us about the electrical activity of your heart. Do you have any questions before I begin?"

Remember, "right" means the patient's right!

White – RA (marked on the end of the ECG lead wires) – Right Arm, shoulder, wrist, or upper chest.

Black – LA – Left Arm, shoulder, wrist, or upper chest.

Green – RL – Right Leg, or RLQ of abdomen.

Red – LL – Left Leg, or LLQ of abdomen.

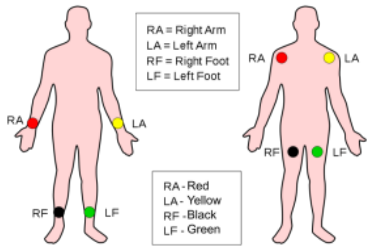


Image by Jmarchnv, licensed under a CC-BY-SA 3.0 unported license

At this point you should start to see a cardiac rhythm appear on the cardiac monitor. Don't worry about trying to figure out the rhythm (that's the ALS provider's job) but do make sure a rhythm is being displayed on the monitor. If it's not, recheck your ECG leads as one or more of them may have become disconnected from the patient and needs to be reapplied. Once complete and a rhythm is being displayed on the monitor, be sure to "close the loop" by letting the ALS provider know that the requested task is complete, the cardiac rhythm is being displayed, and you are ready for another task.

If requested by your ALS partner for a 12-Lead, continue to place the ECG leads required to obtain a 12–Lead cardiac reading:

Continue your communication with the patient…

"To further check your heart activity, I need to place these stickers (or electrodes) on your chest around the left side of the ribcage. If applicable: I need to lift your breast to place the ECG stickers appropriately. This may pinch slightly as I am placing the stickers. I will do my best to protect your privacy. Once I have placed these stickers the monitor will run a test. This test is painless and will show us more detail about the electrical activity of your heart. I will need you to hold as still as possible once the test starts. I will walk you through this process. Do you have any questions before I begin?"

V1 is placed on the right side of the sternum in the 5th intercostal space.

V2 is placed on the left side of the sternum in the 5th intercostal space.

V3 is placed on the left side of the sternum on the 5th rib.

V4 is placed on the left side of the sternum in the 6th intercostal space.

V5 is placed on the left side of the sternum in the 6th rib.

V6 is placed on the left side of sternum in the mid axillary on the intercostal space.

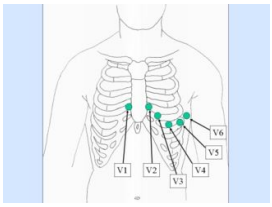


Image of Precordial Leads by MoodyGroof, used under GNU Free Documentation License

Be mindful! This is a procedure that can cause fear in patients with a history of trauma and is generally uncomfortable for most people. This is an especially vulnerable position for female and LGBTQ patients. Think about it: we arrive on scene and after just a few moments, request access to a person's bare chest. That's crazy!

Due to the nature of the test, you may need to move breast tissue and unhook a bra. Use the backside of your hand when moving breast tissue and tell the patient everything you are doing, ideally before you are doing it ("Now I'm going to now lift your left breast up slightly and apply some electrodes just underneath it") and you will protect their privacy. Based on the situation on your scene, you can protect the patient's privacy during this procedure in a number of ways, including facing them away from the public if you are in a public setting, making sure your team members are not staring at the patient during the procedure, and if achieving privacy is difficult on scene, conducting the 12-lead procedure in the back of the ambulance. Also consider that in some cases it may be appropriate to match the patient's gender and the provider's gender who's applying the 12-lead when available to increase the patient's comfort. This may be especially true for younger patients (12-30 years of age).

ECG Setup Skill Verification Table

ECG Set Up	1 (4-lead) Instructor	2 (12-lead) Instructor
Initials		

Intubation Set Up

Field intubation is a high-stakes procedure that requires a well-functioning team to implement successfully. The need for intubation represents a series of the most challenging critical thinking tasks performed in the prehospital setting.

If the patient has a pulse, the paramedics will use medications to assist in obtaining a secured airway via intubation. This procedure can commonly be accomplished with either a Rapid Sequence Intubation (RSI) or a Delayed Sequence Intubation (DSI). The medications include an induction medication to put the patient to sleep and a paralytic to eliminate the gag reflex. The ALS providers on scene may also be managing medications to treat the precipitating condition. If the patient does not have a pulse the situation is easier on the paramedic and team, but still represents significant challenges and high cognitive loads so your assistance preparing for the procedure is critical.

It is the role of the EMT to reduce the cognitive load on the paramedic wherever possible. The EMTs may have several different roles depending on experience level, relationship with the paramedic, and the patient's condition. Common roles for an EMT when assisting with this procedure include:

- BVM ventilation – you may be asked to briefly hyper-oxygenate the patient.
- BURP/cricoid pressure (gentle backward pressure on the cricoid ring) to assist with placement of the intubation tube.
- General equipment set-up.

If you are asked to set up equipment gather the following:

- Monitor – it needs to be on (see cardiac monitor set-up) and positioned in such a way for the PIC to clearly see the screen.
- BVM attached to the oxygen tank with the oxygen flowing at an appropriate rate.
- Passive oxygenation may include the use of a nasal cannula attached to separate oxygen tank and flowing at 10-15 lpm.
- Properly sized adjuncts – OPA, NPA
- Laryngoscope handles and blades Mac and Miller – ensure proper functioning.
- Video laryngoscope if available
- ETT tube holder
- Water soluble lubricant
- ET Tube range of sizes 6.0-9.0 mm
- Empty 10 cc syringe
- Stylet
- Endotracheal Tube Introducer or "Bougie"
- Stethoscope
- Suction Device, ready to suction.
- Supraglottic airway – King Airway or i-Gel (sized, ready, perhaps open)
- In-line end-tidal carbon dioxide attached to the BVM

Steps for Setup

If in the ambulance:

1. Clear off the counter space next to the airway seat in the ambulance.
2. Start by placing the needed equipment on the shelf.
3. Keep all equipment as sterile/aseptic as possible by opening packages and leaving the equipment in the package.
4. Communicate with your EMS team to see how to further help in the process of intubation set up.

If in the field:

1. Clear an area near the head of the patient.
2. Gather all needed equipment.
3. Place equipment near head of patient
4. Keep all equipment as sterile/aseptic as possible by opening packages and leaving the equipment in the package.
5. Communicate with your EMS team to see how to further help in the process of intubation set up.

Intubation Set Up Skill Verification Table

Intubation Setup	1 (Instructor)
Initials	

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3.8: Helicopter Operations

There are two primary parts to utilizing air transportation for scene calls. The first is the decision to use a helicopter, and the second is coordinating the helicopter landing once you decide that it's needed.



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There are some general guidelines for deciding if you need a helicopter for your patient(s):

- If you have a critical/unstable medical or trauma patient and getting to definitive care quickly is critical and the use of air transport will save more than 10 minutes of transport time.
  - Consider the time it takes to establish a landing zone and transfer care.
  - Consider traffic and extended ambulance response times.
- Mass casualty incidents where you may need additional patient transport capabilities despite the time savings that helicopters may provide.

Coordinating a helicopter to assist patient treatment it starts with a call to the dispatcher. Dispatching air transportation is as simple as requesting the resource from dispatch and confirming what radio channel will be used to communicate with the aircraft. Most EMS departments have predetermined designated landing zones. These may include local fields, parking lots and roadways. Keep in mind that in most cases you will need to transport your patient to a safe and/or designated landing zone instead of directing the aircraft to land at your scene location.

If you are too far away from a predetermined landing zone and need to identify a new and safe landing zone, look for the following criteria:

- Flat ground which is at least 100ft x 100ft
- Free of power lines and trees or any other intrusion
- Free from loose gravel or sand or another surface that may not remain stable in high winds

When communicating with air transportation include a description of the location and any potential hazards they may encounter on their approach to land. Include landmarks and other identifiable information to aid in locating your landing zone. If coordinating a night landing, be sure to ask the flight crew about using your ambulance or fire apparatus lights or not to mark the landing zone as you may inadvertently blind the flight crew who may be using night vision goggles during their landing. Unless your protocols or your local helicopter program advises otherwise there is no need to provide any hand signals to assist the pilot in landing the aircraft.

Prior to helicopter arrival, consider removing loose clothing or items that may be blown in the rotor downwash. Items may include eyewear, gowns, EMS equipment or other nearby items.

Once the helicopter is on the ground, make eye contact with the pilot and wait for their instructions prior to approaching the aircraft. Often, the flight crew will come to you, get a report, examine the patient then give instructions on how the patient will be moved to the helicopter. Some organizations require that rotors be fully powered down prior to loading/unloading. Always follow the

flight crew instructions when operating around the aircraft.

In your day-to-day life, take some time to look for landing zones. Identify the hazards and rehearse how you will communicate your location.

Discuss the use of helicopter operations either in a scenario or aside.

Helicopter Operations Skills Verification Table

Air Medical Operations	1	2 (instructor)
Initials		

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CHAPTER OVERVIEW

4: Airway and Breathing Skills

- 4.1: Oxygen Tank Assembly
- 4.2: Nasal Cannula
- 4.3: Non-rebreather Mask
- 4.4: Suctioning
- 4.5: Bag Valve Mask (BVM)
- 4.6: Continuous Positive Airway Pressure (CPAP)
- 4.7: Gel Insertion
- 4.8: King Airway Insertion
- 4.9: Choking Adult / Child

Thumbnail: Man being treated for smoke inhalation. (Unsplash License; Acton Crawford via Unsplash)

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4.1: Oxygen Tank Assembly

Oxygen tanks are carried on all EMS response vehicles and in the equipment bags. Oxygen tanks come in several different sizes and the regulators and tanks themselves work similarly. As an EMT you will be responsible for ensuring the oxygen tanks on your response unit are full and in good working order. If they are found to be "low" it will be your responsibility to change them out with a full tank. Your department's standard operating procedures ("SOP's") should dictate when they should be changed out. The pressure in most full oxygen tanks will read 2000 psi. This is significantly higher than compressed air out of a workshop style compressor or in the wheels of vehicles. The extreme pressures and properties of medical grade oxygen make oxygen tanks especially dangerous in certain situations.

There are two main safety concerns when working with oxygen.

1. Open flames – never have an open flame around pressurized oxygen. Oxygen will accelerate fires and has an explosion risk. Never let anyone smoke around your oxygen tanks.
2. Fall hazards – Never leave a tank standing unsecured. The greatest probability is that the tank falls and hurts someone, most notably a patient who is on the ground. There is also a theory that a falling tank can explode and become a missile-like projectile.

When changing an oxygen tank make sure you have proper PPE. At minimum you should wear safety glasses as there is a risk of an "O-ring" shooting off if done improperly.

1. Starting with an empty tank and regulator attached.
2. Be sure the tank is turned to the "OFF" position. On most tanks this is accomplished by turning the valve on the top clockwise until it stops.
3. Bleed any pressure in the regulator. If you are changing a main oxygen tank on the ambulance, be sure to bleed the lines by opening a regulator on the inside of the patient compartment.
4. Wait until the hissing sound stops. This means your pressure has equalized.
5. Turn the regulator back to the "OFF" position.
6. Remove the regulator from the top of the tank by twisting the set screw counterclockwise.
7. Lift the regulator assembly off the top of the tank and store it nearby, out of the way of the replacement full tank.
    1. Main oxygen tanks are extremely heavy and awkward to carry.
    2. Follow your department SOPs for safety when unloading and loading the main tank.
    3. Place your empty tank in the area designated for empty tanks.
8. Retrieve and place the full tank in position.
9. Quickly crack and close the valve to remove any debris or dust from the oxygen tank. Note, if the tank is full, this step should make a loud "hiss". If it does not, confirm you retrieved the tank from the area with full tanks, not the empty tank area.
10. Place the regulator assembly onto the full tank ensuring the pins line up with the holes on the tank. You may need to rotate the tank to align with the regulator.
11. Ensure the presence of an "O-ring", if one is not on the regulator or tank you will need to replace it from the stockroom.
12. Tighten the set screw to fasten the regulator to the tank ensuring the pins stay aligned and the set screw sits in the divot. Do not excessively tighten.
13. Open the tank using the valve on the top, turning counterclockwise all the way and ½ turn back clockwise.
14. Turning it all the way on and then turning it back a ½ turn to ensure proper flow and prevent damage to the tank when being changed.
    - If you hear a hissing:
        - Check the regulator is turned to "OFF" – an open regulator will allow oxygen to flow.
        - If it is confirmed "OFF" Turn the tank valve back off and check the placement of the pins, set screw and O-ring on the regulator. Adjust as necessary.
        - If you are still hearing a hissing sound, replace the O-ring and try again.
        - Regulator is not working correctly. It is likely your alignment of the pins is incorrect, but you should seek help from someone experienced.
15. Check regulator pressure. Pressure should read 2000 psi or similar. You should not hear leaks in a correctly attached regulator assembly.



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Oxygen Tank Assembly Skill Verification Table

Oxygen tank assembly	1	2	3	4	5 (instructor)
Initials					

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4.2: Nasal Cannula

A nasal cannula, abbreviated, “NC,” is used for mild shortness of breath or may be prescribed to a patient with chronic obstructive pulmonary disease (COPD).

1. Set flow rate at 2-6 lpm on the oxygen canister.
2. Plug in the oxygen port of the nasal cannula to the oxygen canister port.
3. Position yourself at the front of the patient.
4. Pinch the tubing in each hand and rotate the nasal tips so that the tab is down (see “A” arrow) into the patient’s nostrils.
5. Wrap the tubing around the ears (“B”).
6. Slide the chin adjustment snug but not tight under the patient’s chin (“C”).



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Nasal Cannula Skill Verification Table

NC	1 Student	2 Student	3 Student	4 Student	5 Instructor
Flow Rate (lpm)					
Initials					

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4.3: Non-rebreather Mask

A Non-Rebreather Mask, NRB, is used for moderate to severe shortness of breath.

1. Set oxygen flow rate at 10-15 lpm on the oxygen canister.
2. Plug in the oxygen tubing to the oxygen regulator.
3. Place your thumb over the reservoir inlet inside the mask to inflate the bag.
4. Do not place it on a patient without the bag of the mask inflated.
5. Place the NRB mask on the patient's face with the bag down & nose piece over the bridge of the nose.
6. Place the head strap around the back of their head and tighten until snug.



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Non-Rebreather Mask Skill Verification Table

NRB	1 Student	2 Student	3 Student	4 Student	5 Instructor
Flow Rate (lpm)					
Initials					

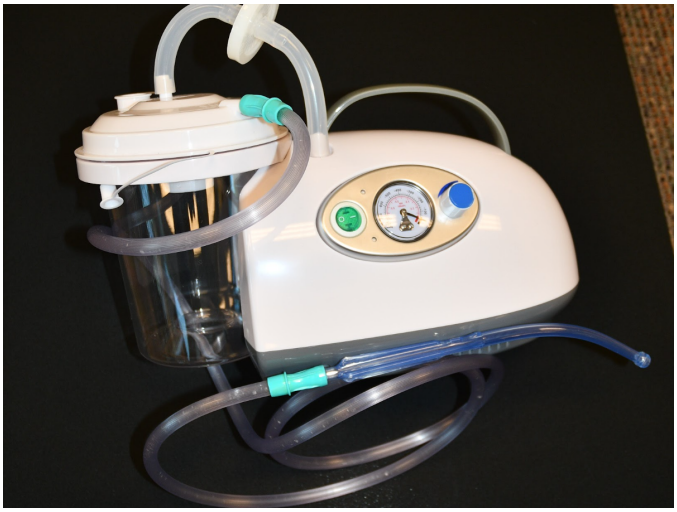
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4.4: Suctioning

Suction is crucial when a patient has limited responsiveness and is unable to clear their airway on their own. It is important to act quickly to decrease the likelihood of secretions from entering the lungs causing aspiration.

1. Immediately roll the patient onto their side (recovery position), use gravity to your advantage.
2. Turn on the suction device.
3. Insert suction tip into mouth, only as deep as you can see.
4. Begin suctioning by placing your finger over the hole in the side of the suction tip.
5. Back the catheter out of the mouth.
6. Avoid aggressive or prolonged suctioning – this can stimulate the Vagus Nerve at the back of the throat which can drop heart rate to dangerous levels.
7. Each event of suctioning should not last more than 10 seconds.
8. Continue to suction until the airway is clear.



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Suctioning Skill Verification Table

Suction	1	2	3	4	5 (instructor)
Initials					

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4.5: Bag Valve Mask (BVM)

A BVM is used for patients who are in respiratory failure. The BVM is always to be used in conjunction with manual airway maneuvers such as the NPA, OPA, and/or intermediate/advanced airways. Every time you use this device, think *"I need an adjunct and/or intermediate airway & I need ALS."* Despite proper technique and tools this will cause gastric distention and eventually vomiting. Be prepared to suction!

Side note on manikins – The manikins you use in class were designed to be breathed for; humans, not so much. Follow these steps carefully as breathing for humans is MUCH harder than it is on a manikin.

1. Recognize the need for assisted ventilations (low respiratory rate, respiratory effort, or tidal volume).
2. Select the appropriate size mask & bag for the patient.
3. Connect BVM to oxygen at a flow rate of 15 lpm.
    1. If available, attach HEPPA filter to exhaust port to reduce the spread of COVID and other airborne infectious diseases.
4. Place patient supine on a firm surface.
5. Position yourself at the head, your shoulders should be squared with the patient.
6. Place the mask in your non-dominant hand.
7. Use your thumb and index finger in "C" technique as shown below – be sure to keep fingers on hard plastic to create a good face seal.
8. Place the nose of the mask on the bridge of the patient's nose.
9. Lower the mask over the patient's mouth.
10. Using the middle, ring, and pinky finger in the "E" technique along the bottom of the jawbone.
11. Lock your elbow and lean back, bringing the patient's face "up" into the mask this is called the "sniffing position".
12. In your dominant hand, hold the oxygen bag out to the side of the patient.
13. With the head remaining tilted into the sniffing position gently squeeze the bag until you see chest rise.
14. The goal is to deliver each breath over 1 second to minimize gastric distention or lung trauma.
15. Deliver breaths for an adult once every 5-6 seconds or children every 2-3 seconds.
16. Include adjunct airways as indicated as soon as possible.
17. If resources exist, use two-person BVM technique
    1. One rescuer holds the mask with both hands in the "E / C" technique or thumb down technique.
    2. The other rescuer squeezes the bag at above mentioned rates, just enough to see the chest rise.

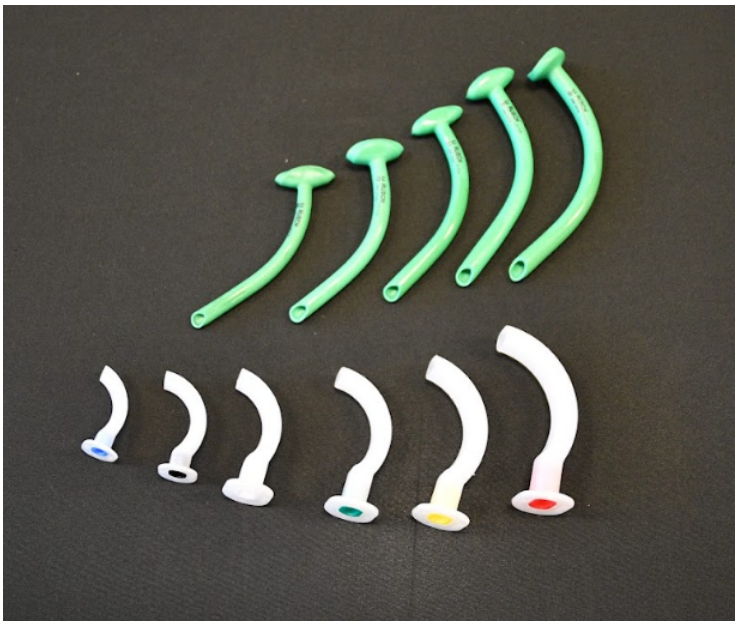
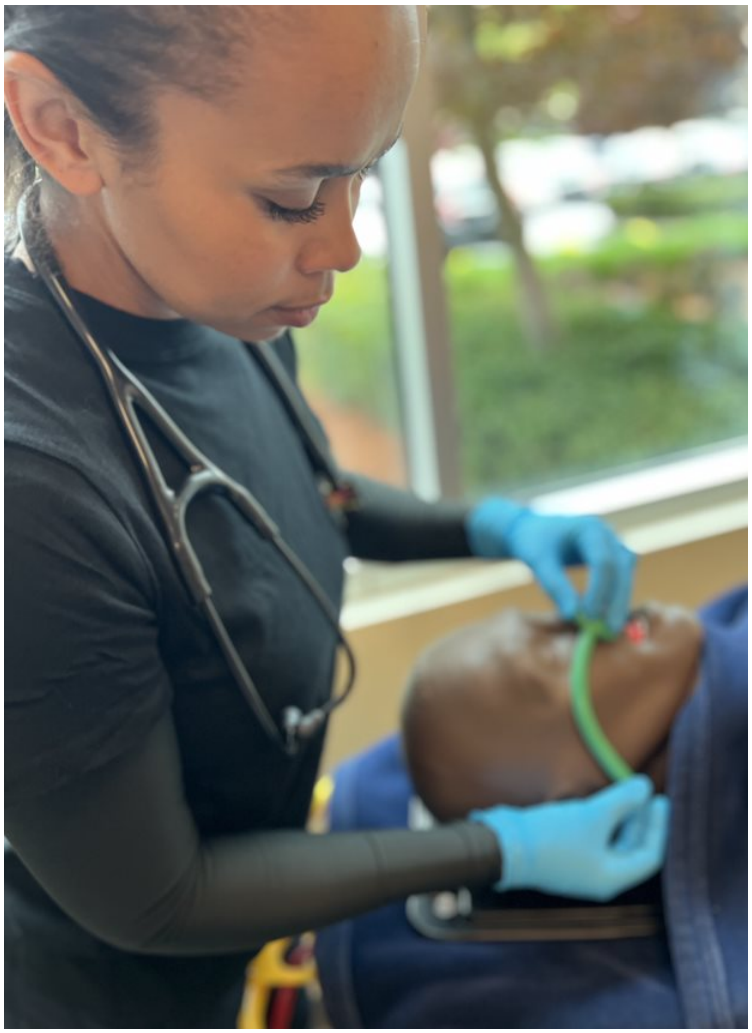
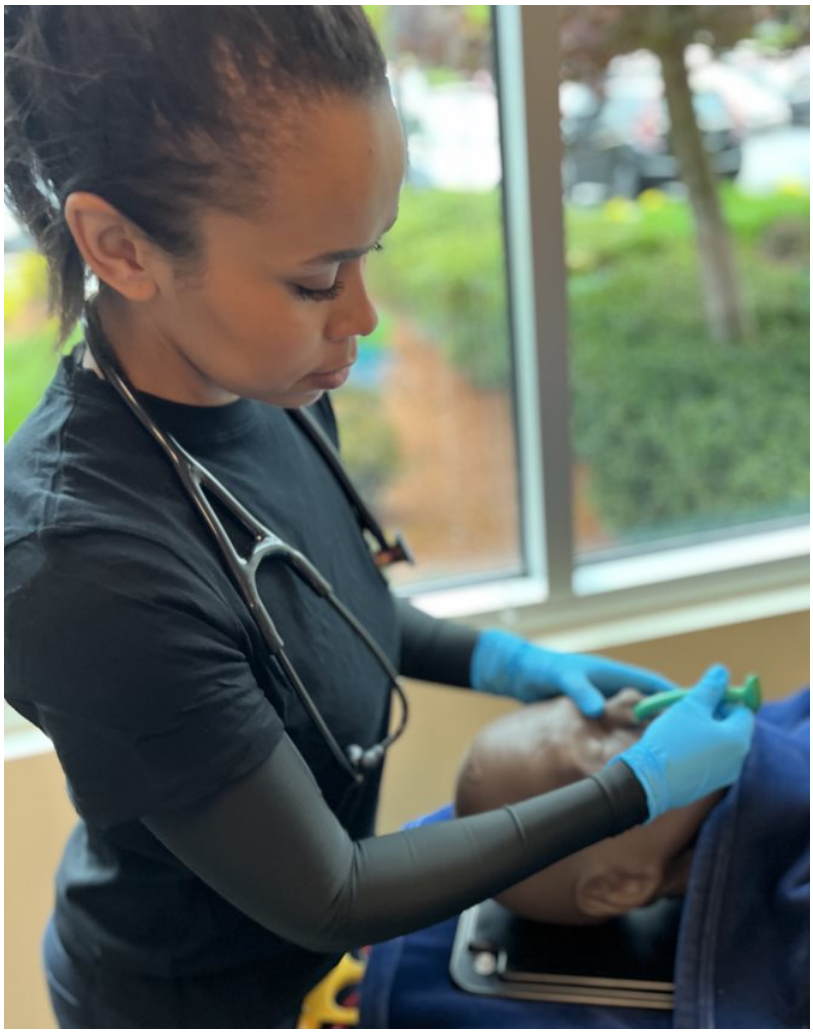


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NPA Insertion. Images by Holly Edwins, licensed under CC BY-NC-SA 4.0.



OPA Inserted Image by Holly Edwins, CC-BY-NC-SA.



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Infant BVM. Image by Holly Edwins, licensed under CC BY-NC-SA 4.0.

BVM Skills Verification Table

BVM 1-person	1	2	3	4	5	6	7	8	9	10 (instructor)
Adjunct/airway used										
Initials										
BVM 2-person	1	2	3	4	5	6	7	8	9	10 (instructor)
Adjunct/airway used										
Initials										

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4.6: Continuous Positive Airway Pressure (CPAP)

Continuous Positive Airway Pressure has been shown to rapidly improve gas exchange and decrease work of breathing and dyspnea. CPAP can greatly reduce the need for advanced airway procedures in patients who suffer from shortness of breath secondary to CHF/pulmonary edema or COPD. Ask an old-timer EMS professional about intubation rates before CPAP, they'll attest to the effectiveness of this life-saving device.

For use in patients complaining of moderate to severe respiratory distress meeting ALL the following criteria:

1. Is awake and can maintain an open airway.
2. Has a systolic blood pressure above 90 mmHg (MAP of 65 mmHg).
3. Is over 12 years old and can fit the CPAP mask.

Contraindications:

1. Respiratory arrest
2. Non-cooperative patient
3. Suspected pneumothorax
4. Hemodynamically unstable – BP< 90 systolic
5. Presence of tracheostomy
6. Inability to maintain mask seal.
7. Active vomiting

Procedure:

1. Explain and coach the patient on the procedure.
2. Ensure adequate oxygen supply to ventilate device and adjust to maintain 5mmHg.
3. Place the patient on continuous pulse oximetry.
4. Place the CPAP over the mouth and nose.
5. Secure the mask with the provided straps.
6. Check for air leaks.
7. Monitor and document the patient's respiratory response to the treatment, titrate to 10 mmHg as necessary.
8. Continue to coach patient to keep mask in place and readjust as needed.
9. If respiratory status deteriorates, remove device, and consider bag valve mask ventilation.



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CPAP Skills Verification Table

CPAP	1	2	3	4	5 (instructor)
Initials					

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4.7: Gel Insertion

For use in respiratory failure without the presence of a gag reflex. Always used in conjunction with a Bag Valve Mask (BVM).

1. Confirming the gag reflex is not present with the use of an OPA or by simply attempting the i-Gel.
2. Pre-oxygenate using BVM and adjuncts while device is being prepared– this process increases the amount of oxygen circulating in the blood and gives us a reservoir of oxyhemoglobin and “buys” us time while we are inserting the airway device and not breathing for the patient.
3. When choosing the proper size i-Gel, assess the patient for their “ideal” body weight. Ex: 6’ male ideal body weight is ~160 lb. = 70 kg. See i-Gel for Kg weight.
4. Lubricate the distal tip with water-based lubricant.
    1. Do not apply lubricant to the sealing surface of the i-Gel.
5. Remove the OPA if present.
6. Grasp the patient’s tongue and lower jaw with your hand and open mouth by pulling forward.
7. Insert i-Gel with the opening facing up.
8. The distal tip of the i-Gel will “seat itself.” You will see a bulging of the soft tissues in the neck like a “bullfrog” when the i-Gel is inserted to its proper depth.
9. Look to see that the teeth are at the bite block of the device and do not let go of the device until it is properly secured to the face.
10. Be aware that it may take a few minutes for the i-Gel to get warm enough in the airway for a complete seal. Best practice is to have one person holding i-Gel until it is well seated/remaining in place while another responder is giving breaths (step 8) and confirming correct placement (step 9).
11. Attach BVM and deliver breaths.
12. Assess proper placement by using a stethoscope and auscultating for the presence of lung sounds as well as the absence of epigastric sounds.
13. Capnography is always recommended with any supraglottic airway device.
14. Additional confirmation needed – increase in SpO2, improvement in skin color, presence of good chest rise.
15. Ongoing assessment is needed with every ventilation. Whichever team member is assigned to the BVM needs to continually assess for effectiveness of ventilations.
16. If gag reflex returns and/or vomiting begins, immediately turn the patient onto their side, remove the device and suction as needed.
    1. Return to BVM with a mask when airway is clear.



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i-Gel Placement Skills Verification Table

i-Gel	1 Student	2 Student	3 Student	4 Student	5 Instructor
Initials					

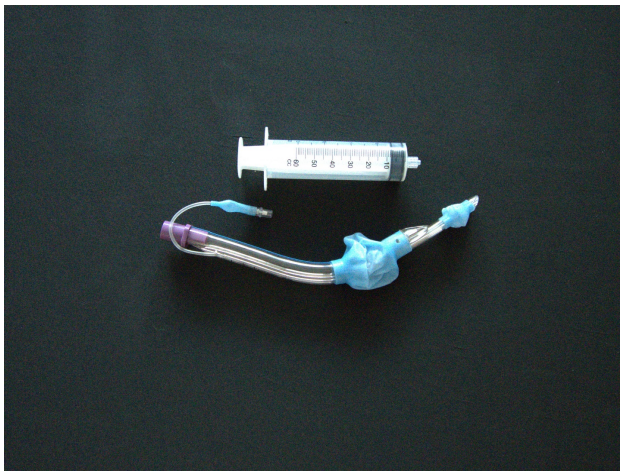
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4.8: King Airway Insertion

For use in respiratory failure without the presence of a gag reflex. Always used in conjunction with a BVM.

1. Confirm lack of gag reflex with OPA insertion.
2. Pre-oxygenate using BVM and adjuncts while the device is being prepared.
3. Select proper size based on manufacturer recommendation.
4. Remove from packaging.
5. Inflate distal cuffs to ensure there are no leaks – deflate both cuffs before inserting.
6. Lubricate distal tip with water-based lubricant.
7. Remove the OPA if present.
8. Grasp the patient's tongue and lower jaw and pull forward to open the mouth.
9. Insert King Airway up to the colored connection.
10. Inflate distal cuffs to manufacturer recommendation & remove syringe.
11. Failure to remove the syringe will result in the cuffs deflating and ineffective seal.
12. Attach BVM and deliver small "puffs" via BVM while retracting King Airway from the patient.
13. Stop retracting when you see chest rise and resistance on the bag is decreased.
    1. Note – you may see the balloon in the back of the mouth, this is normal.
14. Confirm placement using stethoscope and auscultating lung sounds and the absence of epigastric sounds.
15. Additional confirmation needed – increase in SpO2, improvement in skin color, presence of good chest rise.
16. Ongoing confirmation needed with every ventilation. Whichever team member is assigned to the BVM needs to continually assess for effectiveness of ventilations.
17. If gag reflex returns and/or vomiting begins, immediately turn the patient onto their side, remove the device and suction as needed.
    1. Return to BVM with a mask when airway is clear.



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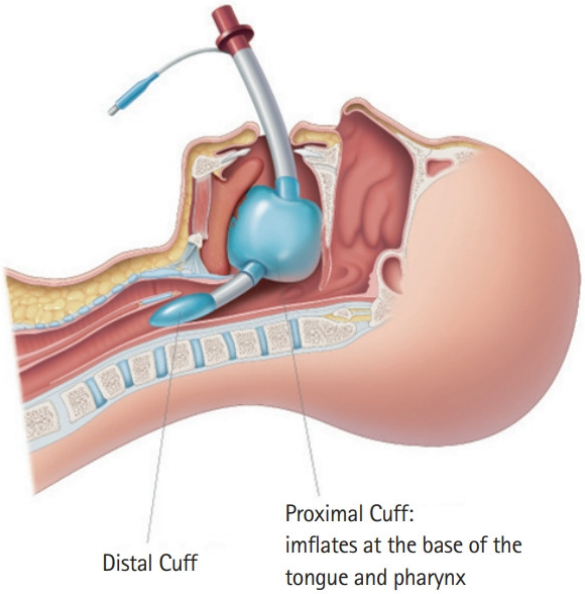


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King Airway Skills Verification Table

King Airway	1	2	3	4	5 (instructor)
Initials					

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4.9: Choking Adult / Child

An adult or child can choke on food or other small objects. When you begin your assessment if the adult or child can only nod or grab their throat with no verbal communication you will need to start the foreign body airway obstruction management.

As you begin your assessment of the patient, if they are still able to breathe or speak, they do not qualify for the abdominal thrusts.

1. Position yourself behind the patient.
2. Stretching your arms around the adult/child at the waist.
3. With one of your hands make a fist, placing the thumb side on the abdomen of the patient just below the xiphoid processes and directly above the umbilicus.
4. Grasp the fist with your other hand.
5. Abdominal thrusts consist of upward quick motions into the abdomen.
6. Each abdominal thrust needs to end by allowing the abdomen to re expand.
7. Repeat thrusts until the trapped object is removed from the airway.
8. Reassess patients for injuries from choking or abdominal thrusts.
9. If the patients become unresponsive at any time during your abdominal thrusts, lower the patient carefully to the ground.
10. Assess the patient's mouth for foreign body and start chest compressions.

*Note: if you do not see foreign body on inspection of the patient's mouth do not perform blind finger sweeps.

Adult and Child Choking Skills Verification Table

Choking	1	2	3 (instructor)
Adult/Pediatric			
Initials			

Choking Infant

An infant can choke on small objects and or food particles. When you begin your assessment, if the patient is able to cough or cry, they do not need back slaps and chest thrusts. If the infant patient is unable to cry or cough, start the back slaps and chest thrusts to remove the object they are choking on.

1. Hold the baby, placing the baby face down on your arm.
2. Keep infant's head lower than body to use gravity to help remove foreign bodies.
3. Be sure to support the head of the infant with your hand.
4. Provider can kneel to the ground to help this process by supporting your arm with your leg.
5. Deliver five back slaps between the patient's shoulder blades with the heel of your other hand, taking less than 5 seconds.
6. Continue to support the infant's head and neck, rotating them to face up position in your other arm.
7. Check the mouth to see if the object is visible. If so, remove the object and proceed as indicated.
8. Keep the infant's head below their body.
9. Place 2 fingers below the nipple line on the sternum.
10. Perform 5 chest thrusts, pushing straight down ⅓ to ½ the depth of the chest.
11. Continue to repeat the cycle of 5 black slaps and 5 chest thrust until the foreign body is dislodged or the infant becomes unresponsive.
12. Once you see the object in the mouth you can remove the object.
13. If the patients become unresponsive at any time during your abdominal thrusts, lower the patient carefully to the ground, attempting to protect the patient from trauma.
14. Assess the patient's mouth for foreign body and start chest compressions following current guidelines.

*Note: if you do not see foreign body on inspection of the patient's mouth do not perform blind finger sweeps.

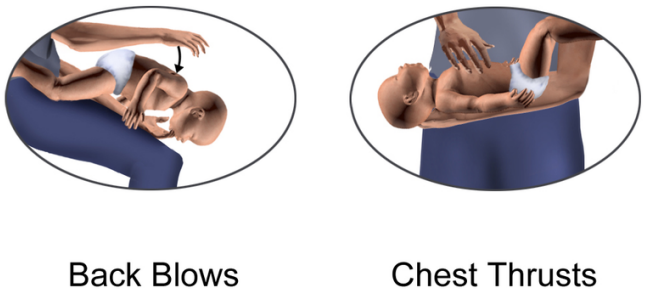


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Choking Infant Verification Skills Table

Choking	1	2	3 (instructor)
Adult/Pediatric			
Initials			

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CHAPTER OVERVIEW

5: Dynamic Multi-Skill Assessments

5.1: Dynamic Multi-Skill Assessments

Thumbnail: Man being treated for smoke inhalation. (Unsplash License; Acton Crawford via Unsplash)

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5.1: Dynamic Multi-Skill Assessments

The Dynamic Multi-Skill Assessment is an exercise that reviews and or tests your ability to perform many of the major components of a real-life patient scenario. Your ability to manage a dynamic patient scenario requires the mastery of many individual skills. Individual skills that you have learned in other sections of this book can be lumped into several mini-scenario sections.

For this exercise, grab an instructor to run you through a mini scenario and multi-skill assessment. For each of the following you will be placed as a team-member on the scene of a call. You will be directed to initiate the following treatments as the scenario evolves:

Vital Signs

One of the most common skills requested of an EMT is to accurately take and record vital signs. It's also one of the most critical things to do correctly and in a timely and efficient manner. For this section you will be given a medical or trauma patient and asked to take a set of vital signs including a heart rate, blood pressure, respiratory rate, oxygen saturation, and skin condition and report them to the team lead.

Patient Communications

This section reviews your ability to communicate the major components of patient communication while providing care, including introducing yourself and explaining procedures to a patient suffering from a medical or trauma emergency. You are evaluated on your ability to communicate comfortably and confidently who you are, your professional assessment, and your treatment plan.

Shock Management

In this section your instructor will give you a patient who requires bleeding control or splinting. The patient will progress into hypovolemic shock requiring your further treatment.

Airway Interventions

For this section your instructor will give you a shortness of breath patient who may require ventilation, airway management, and/or suction.

Alive to Dead

In this section your patient will progress from being responsive with a pulse and decompensate into cardiac arrest. It is your job to identify and assess their clinical decompensation and intervene with the appropriate therapy. This may mean doing compressions, initiating ventilations, positioning the patient and/or administering a medication.

Multi-Skill Verification Table

Multi-Skill Benchmark (All Instructor Initials)	1 (Vital Signs)	2 (Patient Communication)	3 (Shock Management)	4 (Airway Interventions)	5 (Alive to Dead)
Initials					

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CHAPTER OVERVIEW

6: Trauma Operations

11: Blood Pressure Auscultation
6.1: Trauma Assessment MARCH
6.2: Bleeding Control (Direct Pressure, Pressure Dressing, Tourniquet, Junctional Tourniquet, Wound Packing)
6.3: Entrapment and Crush Injuries
6.4: Wounds to the Neck
6.5: Sucking Chest Wounds
6.6: Eye Emergencies
6.7: Abdominal Eviscerations
6.8: Pelvic Binder
6.9: Traction Splints
6.10: Impaled Objects
6.11: Extremity Splinting
6.12: Spinal Immobilization
6.13: Spinal Motion Restriction
6.15: Sexual Assault
6.16: Final Trauma Evaluation

Thumbnail: Man being treated for smoke inhalation. (Unsplash License; Acton Crawford via Unsplash)

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11: Blood Pressure Auscultation

Measuring a BP can be tricky at first, but with a little practice you will be nailing these with ease.

1. Gather your equipment.
    1. You will need a properly sized BP cuff. Sizes range from child, adult to large adult. Choose the right size by using the circumference indicators on the cuff. Hint – unless they are very large, or very small you will use the adult size.
    2. You will also need a stethoscope to auscultate (listening via stethoscope) the BP. There are methods to obtain a “palpated BP” or “BP by palp” that does not use a stethoscope. More on that later.
2. Ask the patient to remove any bulky clothing. You can take a BP over T-shirt material; anything more needs to be removed.
3. Place the cuff around the desired arm. You will want to line up the “Artery” marker on the cuff with the anterior/medial (front/middle) side of the patient’s arm.
4. Encourage the patient to turn their palm up. This brings the brachial artery to the surface making it easier to hear. Also encourage them to relax their arm.
5. The patient should not be suspending or holding their arm in the air. Encourage them to rest their arm on their leg or allow the limb to be supported.
6. Place the gauge in a comfortable position to view it while your hands are full. This may mean keeping it attached to the cuff or might be on the bench next to the patient or clipped to their shirt. Whatever works for you.
7. Put on your stethoscope, ears facing forward. Test the bell if necessary (tapping the bell of the stethoscope with fingers to confirm you can hear the tapping sound).
8. Place the bell on the anterior/medial portion of the patient’s arm.
9. Pump up the cuff. Don’t over-do it. Most people feel discomfort around 160mmHg. Pause there and listen. If you hear thumping, keep pumping. Otherwise, it’s time to move to the next step.
10. Release the pressure slowly as you are looking at the BP gauge. This part takes some getting used to. Your speed will quicken as you get practice, but for now, take it slow.
11. While looking at the BP gauge, you are listening for a “thump”. When you hear the first “thump” the number on the gauge at that time is your systolic number.
12. Keep deflating, when you no longer hear the “thump”, the corresponding number on the gauge is the diastolic number.
13. Write it down! Don’t trust yourself to remember any vitals after the call has ended.



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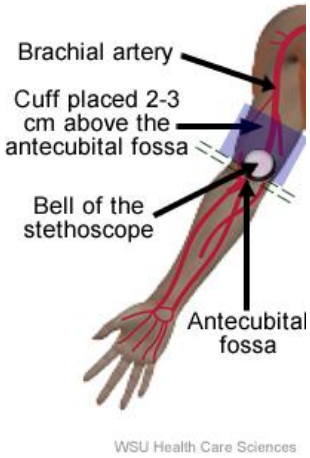


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Blood Pressure by Auscultation Skills Verification Table

BP	1	2	3	4	5	6	7	8	9	10 (instructor)
Blood Pressure Recording										
Initials										

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6.1: Trauma Assessment MARCH

MARCH

There are several common mnemonics in trauma assessments. All have the same principle, which is to find and treat all major life threats as quickly as possible. For this text, we will be using MARCH which is adopted from Tactical Combat Casualty Care ("T-Triple-C "), as it is the most up-to-date assessment tool as of the writing of this text. MARCH stands for:

- Massive hemorrhage
- Airway
- Respirations
- Circulation & C-spine
- Head injury / Hypothermia

We will use the MARCH mnemonic for all trauma with a significant Mechanism of Injury "MOI" or where we determine the patient may be suffering from life-threatening injuries. The MOI is a combination of scene clues and patient assessment that increase index of suspicion for injury patterns and potential hazards. The MOI does not always perfectly match the injury found but can give us clues to update our mental model and triage or appreciate the severity. Our mental model as we approach our patient points to a general impression of the patient's condition. The general impression is one or two words to describe the severity of the patient and can be anywhere from mild distress as would be the case in a broken toe, to critical in the case of GSW to the chest. There is little scientific about our general impression however, it is a step in our assessment that highlights our awareness of the patient's condition.

As you approach the patient, introduce yourself in a calm and reassuring voice. Something like *"My name is Jada. I'm here to help. Where are you hurt?"*. The patient response, or lack thereof tells us the patient's Level of Responsiveness (LOR). LOR is measured using the mnemonic AVPU, standing for Alert, Verbal, Painful, and Unresponsive, more on this in a second. The patient's LOR gives us an indication of severity, further developing our Mental Model.

Getting closer, observe for **Massive Hemorrhage** and control obvious life-threatening bleeding. Remember, as the team lead you can choose to delegate this task to a member of your team. Sometimes massive hemorrhage is obvious as it may be spurting or in the form of a pool of blood. However, don't forget about the blood you cannot see; there are massive internal hemorrhaging signs to look for too. These come in the form of swelling, contusion, pt stating thirst, and of course skin signs such as diaphoresis.

As resources allow the next step in MARCH is to assess and manage **Airway**. This step can be done simultaneously with massive hemorrhage control if resources allow. The team leader should be to quickly assess the airway. The airway may be intact as is the case when they verbally respond to your introduction or may be obstructed by the tongue, blood, teeth or vomit.

When massive hemorrhage and airway have been assessed and addressed by the team, the next task is to assess and manage **Respirations.** Say this out loud, "*One instance of hypoxia a major trauma patient significantly increases the risk of mortality."*

After respirations, the next priority is **Circulation & C-Spine**. At this step, the team lead or other delegate will "cut and cover" to expose an appropriate amount of a critical trauma patient. We "cut" to remove clothing to **inspect** and **palpate** for additional bleeding. Certain cases of including entrapment, remote cold-weather rescue, active shooter, or potentially unsafe scenes may limit the EMS team's ability to remove clothing. This should be the exception, not the rule.

Every red blood cell matters in major trauma. Our patient needs every hemoglobin cell to carry Oxygen and remove carbon dioxide. *Remember, one instance of hypoxia (or in the case of hemorrhagic shock, relative hypoxia) in a major trauma patient significantly increases the risk of mortality.*

C-Spine is short for "cervical spine". In this step the team leader will also evaluate the need and delegate tasks to begin the process of spinal immobilization.

To assess for major bleeding, we need to take a systematic approach, moving from head to toe, exposing and re-covering sections of the body. Some instructors will refer to this process as a "blood sweep", "trunk check", or "rapid trauma" but they all refer to the same step in the assessment process.

The blood sweep can be done in several appropriate ways. However, the authors of this text believe in the following order as it focuses on areas where large, life-threatening bleeding is most possible and is easy to remember. If life-threatening injuries are discovered and they are treatable within the EMT scope of practice. The team leader should immediately delegate appropriate treatments.

- Head – run fingers through hair looking for bleeding.
- Neck – palpate the neck, look for bleeding.
- Chest – expose and assess for equal rise/fall by placing the sides of the hands below the nipple line during respirations, look for bleeding, sucking chest wounds and flail segments.
- Abd – expose and look for major bleeding.
- Pelvis & genitals – assess for major bleeding, priapism, and pelvis stability.
- Legs – Expose femurs for bleeding and assess for isolated femur fractures.
- Arms – assess for major bleeding.
- Back – assessed as the patient is positioned for transport.

For this part of the assessment, we are only looking for life-threats that our team can manage on scene. We may discover distracting injuries, such as a deformity to an extremity or a bone protruding from the skin. Keep in mind that secondary injuries, or non-life-threatening injuries should not be managed on scene. These secondary injuries, such as deformities or deglovings to name a few, should be addressed only after all major life threats have been addressed and preferably during transport, and not while on scene.

Head injury assessments come along with talking to the patient. Key first interactions should include introducing yourself, asking what happened, and what hurts. Their responses should lead you to a quick AVPU assessment. AVPU stands for Alert, Verbal, Painful, and Unresponsive. The details of their response will be further articulated in a GCS assessment in the back of the ambulance. While on scene, simply talking your patient about their condition and through what is happening next is sufficient.

Next, we will control/treat/prevent **hypothermia** by keeping the patient warm by keeping them covered with a blanket and taking appropriate steps to move to the back of the ambulance where we can turn on the heat. *One instance of hypothermia in major trauma results in a significant increase risk of morbidity and mortality.*

As we move to the back of the ambulance our priorities expand to additional information collection.

Things to do on a trauma scene	**Things that wait**
Scene safety	Vital signs – "baseline in back"
LOR assessment	Addressing minor bleeding and non-life-threatening injury such as: • Extremity fracture (except isolated femur) • Soft tissue trauma management
Assess for and mitigate risk of: • Massive hemorrhage • Airway obstruction/compromise • Respiratory disruption • Controlling bleeding & C-Spine • Hypothermia & Head injury	

As the team loads the patient into the ambulance the team lead can begin to assign roles for the next phase of patient care. Many of these items happen simultaneously as team members work on their designated tasks.

Let's tackle History Taking first.

1. Obtain baseline vital signs (must include BP, P, & RR)
    1. Direct one of your crew to obtain vital signs for you. "Crew-member, please get me a set of vitals, BP, Pulse and Respiratory Rate and report back to me your findings" Remember to use closed-loop communications!
    2. This step happens in the back of the ambulance, during transport. **Do not get vital signs on a critical trauma scene.** It is a waste of time; time your patient does not have. The EMT cannot fix most issues discovered by VS in the field; the fix is at the hospital. Within the EMT scope of practice, vital signs in trauma are for identifying trends that can later be used to dictate treatment by paramedics and the hospital.
2. Obtain a SAMPLE history.
    1. If the patient is responsive, ask for a SAMPLE history.
        1. Signs & Symptoms
        2. Allergies, Medications
        3. Past medical history
        4. Last oral intake
        5. Events leading up to the incident.
        6. Here is where you will clarify the *story* of the call. *"So, let me get this straight, you and your buddies were drinking Milwaukee Ice and cleaning your guns when you thought it'd be funny to point it at your own foot and pull the trigger? Got it."*
    2. If the patient isn't responsive, check with bystanders or family members prior to leaving the scene.

Now on to the Secondary Assessment.

Here is where the team lead begins to address some of the issues likely discovered in the blood sweep. The team lead will move from head to toe identifying additional injuries and direct a crew member to fix ones identified earlier. Find a fracture? Have a partner get a splint. Find minor bleeding – bleeding control.

1. Start at the head palpating and inspecting for injuries.
    - Scalp -*"checking for DCAP-BTLS"* (Deformities, Contusions, Abrasions, Punctures, Burns, Tenderness, Lacerations, Swelling)
    - Ears – *"Looking for CSF"* (cerebral spinal fluid)
    - Eyes – *"Looking for PERRL"* (Pupils, Equal, Round, Reactive to Light)
    - Mouth, Nose facial area
        1. *"Looking for blood in mouth and/or loose teeth"*
        2. *"Nasal fractures"*
        3. *"DCAP-BTLS on the face"*
2. Continue your assessment on the neck.
    - *"Looking for Jugular Venous Distention (JVD)/Tracheal deviation"*
    - Palpate the posterior neck if you haven't done so already.
3. Next move to the chest.
    - Inspect the chest.
    - Palpate the sternum and clavicles. Check for equal rise/fall.
    - Listen to lung sounds.
4. Assess the abdomen and pelvis for internal bleeding.
    - Inspect and palpate the 4-quadrants of the abdomen.
    - Assess for stability of pelvis if not done so already (push down, then in)
    - Verbalize checking genitalia for priapism/bleeding *"I'm checking the genitalia."*
5. Lower extremities – Inspect and palpate, CMS (circulation, motor, and sensation).
6. Upper extremities – Inspect and palpate, CMS.
7. Posterior thorax, lumbar and buttocks
    - If you did this during the transport stage, you don't need to do it again.
    - Use your fingers, and walk down the spine feeling for DCAP-BTLS

Reassessment

The team lead is responsible for managing any injuries and treatments throughout transport. For this step, the team lead will go back and re-check any injuries/interventions (i.e., reassess the tourniquet to ensure bleeding is still controlled). Vital signs should be repeated every 5 min for critical patients and 10-15 min on non-critical patients.

Trauma Team Lead Skills Verification Table

Trauma Team Lead	1	2	3	4	5	6	7	8	9	10 Final Instructor
C/C										
Initials										

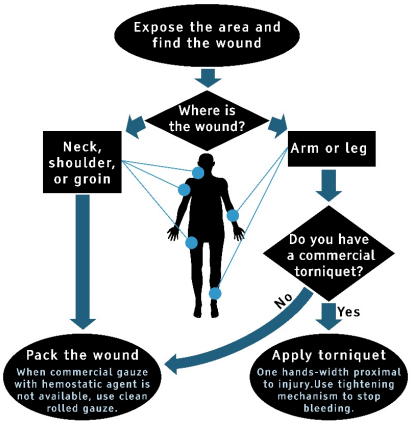
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6.2: Bleeding Control (Direct Pressure, Pressure Dressing, Tourniquet, Junctional Tourniquet, Wound Packing)

The mantra for an EMT's response to bleeding is to *"find it and fix it."* This skill encompasses all severities of bleeding from capillary bleeding which appears as oozing to arterial bleeds that demonstrate blood spurting.

Start by exposing the area to locate the source of the bleeding.



Flow chart by Michaela Willi Hooper, licensed under CC BY-NC-SA 4.0.

Direct pressure technique requires placing an appropriate amount of pressure on the wound. The amount of pressure required will depend on the wound. For bleeding from a large vessel, extreme pressure may be required. Use body weight to assist in providing needed pressures if needed.

Focal pressure may be applied when bleeding from a major vessel is obvious. This includes using just a few fingers to place focused pressure on the vessel.

Pressure dressings include any bandages that apply mechanical pressure without requiring the EMT to hold direct pressure all the way to the hospital. These should only be applied when direct pressure is effective in controlling bleeding, but bleeding continues after direct pressure is removed.

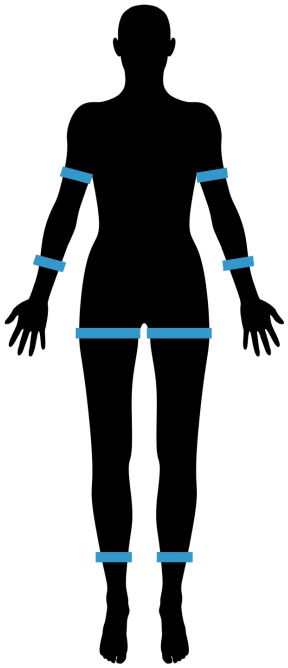
Pressure dressings can be improvised using additional rolled gauze placed directly on the wound and wrapped tightly with additional rolled gauze. Commercial devices are available however, are not widely available in EMS. Do not waste time and red blood cells attempting to control bleeding with a pressure dressing.



Image by Holly Edwins, licensed under CC BY-NC-SA 4.0.

Tourniquets should be applied on a limb anytime direct pressure is insufficient to control bleeding. Many commercial devices are widely available in EMS. There are commercial versions of junctional tourniquets for wounds in the groin and axilla, however, they are not widely available at the time of this text. When presented with junctional bleeding the EMT should use commercial devices if available, otherwise wound packing is recommended. Improvised tourniquets are not recommended unless no other option is available.

1. Appropriate PPE
2. Place the tourniquet approximately 1 hands-width proximal to the injury.
3. Use the tightening mechanism to completely stop bleeding and circulation.
4. Confirm pressure by the absence of bleeding and no distal pulse.
5. Mark the time the tourniquet was placed and transport immediately.
6. Reassess distal circulation often every 3-5 minutes.
7. Tourniquets are painful and patients should receive ALS care for pain medications as available.
8. Additional tourniquets may be applied if necessary.
    1. Upper extremity wounds usually respond with 1 tourniquet.
    2. Lower extremity wounds may require a second.



Tourniquet placement. Image by Michaela Willi Hooper, licensed under CC BY-NC-SA 4.0.

Wound packing should be done for any wound with significant bleeding in the groin, axilla, neck, abdomen, or any wound that is difficult to control with a tourniquet. Do not pack head wounds. Commercial wound packing gauze which includes hemostatic agents are available however, are not always widely available in civilian EMS. When commercial gauze with hemostatic agent is not available the EMT should use clean rolled gauze.

1. Appropriate PPE
2. Apply constant and direct pressure to the wound.
3. Pinch a few inches of hemostatic gauze or gauze.
4. Push gauze deeply into the wound.
5. Continue to add gauze until there is no more room in the wound.
6. Continue direct pressure throughout the procedure and continue pressure after the wound is packed.
7. Apply a dressing covering the packed wound to assist pressure.

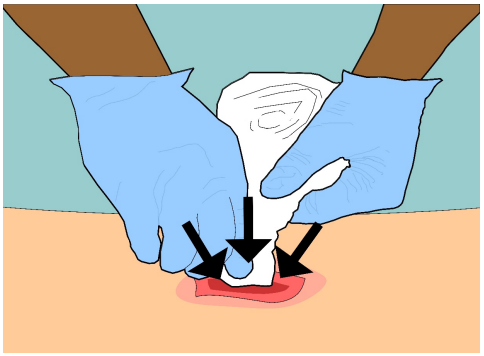


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Direct Pressure Skills Verification Table

Bleeding Cont. Direct Pressure	1	2	3 (inst. Signature)
Location			
Initials			

Cont.Pressure Skills Verification Table

Bleeding Cont. Pressure Dressing	1	2	3 (inst. Signature)
Location			

Bleeding Cont. Pressure Dressing	1	2	3 (inst. Signature)
Initials			

Tourniquet Skills Verification Table

Bleeding Cont. Tourniquet	1	2	3 (inst. Signature)
Location			
Initials			

Wound Packing Skills Verification Table

Bleeding Cont. Wound Packing	1	2	3 (inst. Signature)
Location			
Initials			

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6.3: Entrapment and Crush Injuries

While relatively rare, entrapment and crush injuries have special considerations. Additional resources including specialty teams and ALS is necessary. Next, prior to removing an entrapped limb, place a tourniquet on the limb to prevent sudden blood loss. Additionally, crushed, and entrapped limbs experience significant tissue breakdown leading to a buildup of potassium. If the entrapped limb is suddenly released the potassium may return to the heart through the venous system causing cardiac arrhythmias and death.

Clear team communication and pre-planning for bleeding and cardiac arrhythmias for all crushed injuries and entrapments. Do not remove the object until these potentials for sudden death are addressed.

Entrapment and Crush Injuries Skills Verification Table

Entrapment & Crush Injuries	2 (instructor)
Initials	

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6.4: Wounds to the Neck

While rare, wounds to the neck pose a risk of introducing an air embolism into the bloodstream causing further risks to the patient. To treat this injury, start by providing bleeding control techniques outlined in this text (avoiding tourniquets, of course!). In addition, you will need to include an occlusive dressing to mitigate risks of air embolism. Use a commercial chest seal if available, otherwise an improvised occlusive dressing **taped on all 4 sides** will suffice. Please look up the term subcutaneous air (sub-Q air) to understand its pathology and how to assess the patient for it. Anytime there is penetrating trauma to the neck, near the trachea, or near the lungs, there may also be sub-Q air.

Wounds to the Neck Skill Verification Table

Neck wounds	1 (Instructor)
Initials	

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6.5: Sucking Chest Wounds

Treat an open pneumothorax with either an occlusive dressing OR commercial chest seal device (Ascherman).

If not using a commercial chest seal, you make sure to leave a corner of dressing un-taped. Place tape on all sides of the bandage and leave one corner open. With the corner being open this will allow air to escape, lessening intrathoracic pressure in the chest.

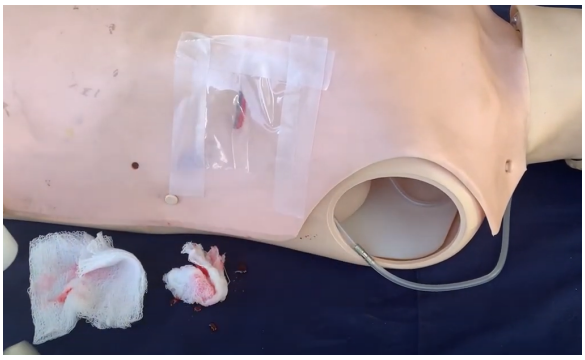


Image from a CU Basic Emergency Care YouTube video, shared under a Creative Commons Attribution (CC-BY) License.

Exhibit 1: Occlusive Dressing note the dressing is taped on only three of the 4 sides.



Image source: Health Sciences Media Division, US Army Medical Department C&S, Fort Sam Houston, Texas. From "Treat an Open (Sucking) Chest Wound," A1701-93-000086, public domain image.

Image source: Health Sciences Media Division, US Army Medical Department C&S, Fort Sam Houston, Texas. From "Treat an Open (Sucking) Chest Wound," A1701-93-000086, public domain image.

Exhibit 2: Ascherman (commercial chest seal). Note there is a piece of tubing that acts as a valve.

Sucking Chest Wound Skills Verification Table

Sucking Chest Wound	1 Student	2 Student	3 Student	4 Student	5 (instructor)
Location & technique used					
Initials					

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6.6: Eye Emergencies

The eyes work together to track objects. Therefore, where you have an injury to one eye you must think of the injury in both eyes. Be cautious of eye movement in the non-injured eye in both foreign body and/or impaled object situations.

Equipment:

- Rolls of Gauze
- Hard shield if available
- Tape

Trauma to eye and impaled objects:

1. Do not remove impaled objects.
2. Have the patient close the non-affected eye.
3. Elevate the patient's head 30 degrees to reduce intraocular pressure.
4. Cover the non-affected eye as well as injured eye to reduce movement of the injured eye.
5. Carefully secure any impaled object that is in the eye with rolls of gauze or a paper cup with a hole in the bottom.
6. Wrap both eyes with gauze around head to secure.
7. Remind the patient to not move their eyes to prevent possible further damage.

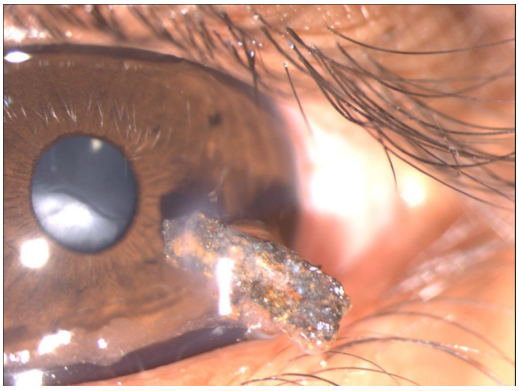


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Eye Emergency Bandaging Skills Verification Table

Eye Bandaging	1	2 (Instructor)
Initials		

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6.7: Abdominal Eviscerations

Open abdominal wound treated with moist gauze dressing and direct pressure to stop bleeding. Then, if protocols indicate, cover moist gauze with an occlusive dressing (this can be the plastic that the trauma pad came in, plastic wrap, you might need to be creative depending on the size of the evisceration).

Abdominal Evisceration Skills Verification Table

Abdominal Evisceration	1 Student	2 Instructor
Initials		

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6.8: Pelvic Binder

A pelvic binder is used in unstable pelvis fractures. S/S of an unstable pelvic fracture include pelvic instability upon assessment, crepitus, pain, and mechanism of injury. Secure an unstable pelvis fracture with a commercial (SAM) pelvic binder if available. Apply splint around the waist, directly on top of the pubic symphysis. Place the splint under the patient behind the buttocks and on top of symphysis pubis, centered across the greater trochanters. If you do not have a commercial binder a sheet may be used, however care to ensure adequate pressure is difficult. Pelvic binders should NOT be used for hip/femur fractures or dislocations.

Pelvis Binder Skill Verification Table

Pelvic Binder	1	2 (instructor)
Initials		

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6.9: Traction Splints

A traction splint is used to prevent further vascular injury from isolated, mid-shaft femur fractures. A traction splint can be placed bilateral if needed. Contraindicated if there are fractures in the pelvis, knee, or lower leg.

An isolated midshaft femur fracture is considered life threatening due to the potential blood loss from a severed femoral artery. A traction splint reduces the risk of injury to the vasculature that lies alongside the femur bone and with better alignment of the bone pieces, it may decrease pain as well. The splint should be applied as soon as possible on stable patients and as a priority while transporting the critical patient. Traction splints can take several minutes and focus to apply, and with a critical patient, i.e., patient with other obvious life threats, traction splint application is recommended during transport.

To place a traction splint:

1. Confirm isolation of injury by completing the trauma assessment. Compare the injured side to the uninjured side if applicable.
2. Direct your partner to stabilize the leg and/or instruct the patient not to move.
3. Assess Circulation Motor and Sensation “CMS” in affected leg.
4. Measure splint to unaffected leg if applicable
5. Place provided ankle hitch around the ankle of the affected side.
    1. Makeshift ankle hitches are appropriate if commercial device is unavailable.
6. Place the proximal end of the splint, known as the ischial strap, against the bony prominence of the pelvis and secure the strap tightly, as indicated by the manufacturer.
7. Attach ankle strap to the distal end of the splinting device.
8. Pull traction until either.
    1. 10% of patients body weight (in lbs.) of traction is applied.
    2. Marked relief of pain
9. Secure additional straps in between the ischial strap and ankle strap ensuring the splint is secured above and below the approximate injury site
10. Secure both legs together with middle straps, if possible, unless the patient cannot tolerate this, if so, then let the uninjured leg be in a position of comfort for the patient.
11. Reassess CMS
12. Reassess traction placement every 5 minutes including asking for the patient’s pain level.
13. Tension may decline as the patient’s muscles fatigue and lengthen. You may need to pull tension to re-establish therapeutic traction.

Traction Splint Skill Verification Table

Traction Splint	1	2	3	4	5 (instructor)
Device used					
Initials					

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6.10: Impaled Objects

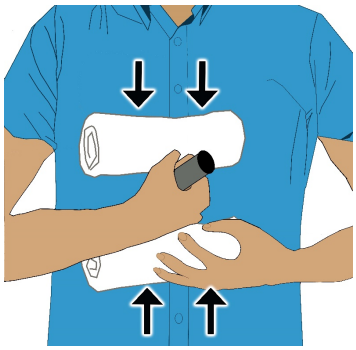
Occasionally trauma patients will suffer penetrating trauma where the object remains impaled and is visible. This is most common in stabbings. It is important to leave the object in place. Removal of the object can result in significant and uncontrollable bleeding.

Try this experiment to demonstrate the potential bleeding from removing an impaled object:

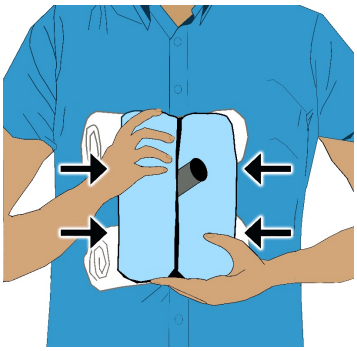
- Take a plastic bag and fill it with water.
- Next swiftly stab a pencil through the bag below the water level leaving the pencil in place. Notice how there isn't much leaking?
- Now pull it out and see what happens…

In addition to leaving the impaled object in the patient, it is important to help support the object so the object doesn't move, which can cause severe pain, or that the object doesn't come out on its own. Support for the object can usually be secured by wrapping gauze around the object and patient to secure it in place.

If the object is too large to fit in the ambulance, or makes extrication impossible, specially trained rescue crews will be needed to assist in reducing the object's size to facilitate transport.



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There are few exceptions to the bandage-in-place rule:

- If the impaled object is *obstructing the airway* in such a way that ventilations are ineffective
- Fishhooks can be removed if local protocols allow.
  - To remove a fishhook, depress the "eye" of the fishhook down to the skin, releasing the barb.
  - String fishing line or other strong, thin rope through the loop of the fishhook.
  - In the opposite direction, quickly pull the fishhook out using the line.
  - Bandage as necessary.

Impaled Objects Skill Verification Table

Impaled Objects	1 (Instructor)
Initials	

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6.11: Extremity Splinting

Extremity fractures, sprains and strains should be identified in the primary assessment, while on scene. Splinting and treatment of extremity injuries in non-life-threatening trauma can be done on scene.

In life threatening trauma, only unstable pelvis fractures should be addressed on scene. All other fractures, sprains and strains should be splinted after addressing life threats, and on the way to the hospital.

All EMTs should be comfortable using available splinting materials to successfully splint injuries to the following areas:

- Finger/hand
- Wrist
- Radius/ulna
- Elbow
- Humerus
- Shoulder/collarbone
- Foot/ankle
- Tibia/fibula
- Knee
- Femur (non-isolated/mid shaft)

Successful splints meet 3 criteria:

1. *Assesses Circulation, Motor, and Sensation* ("CMS") before/after applying splint – no change
2. Immobilizes *above and below* the injury
3. Places injured site in *position comfort/function* and does not cause additional pain

Extremity Splinting Skill Verification Table

Injury Splinting	1	2	3	4	5	6	7	8	9	10 (instructor)*
Location										
Initials										

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6.12: Spinal Immobilization

If EMS providers suspect spinal injury is present based on mechanism of injury, (MOI) and/or one of the criteria listed in Spinal Motion Restriction.

A. Altered mental status.

B. Evidence of intoxication.

C. Distracting pain/injury/emotional distress (i.e., extremity fracture).

D. Neurologic deficit (numbness, tingling, paralysis).

To perform spinal immobilization, follow these steps:

1. Hold manual cervical spinal immobilization.
2. Assess for circulation, motor, and sensation (“CMS”) in all four extremities.
    1. Note results.
    2. Changes in CMS before/after splinting should be noted as a potential result from the splinting process.
3. Place appropriately sized C-collar.
4. Place a long backboard on the injured side to facilitate rolling away from injuries, if possible.
5. Using additional EMS personnel, log-roll the patient onto the uninjured side using the following technique or similarly effective technique.
    1. One EMS professional kneeling at the patient’s uninjured side, opposite the backboard, place your hand on the patient’s shoulder furthest from them. The other hand is placed on the patient’s hip furthest from them.
    2. The next EMS professional should kneel next to the first and place one hand on the patient’s hip furthest from them, and the other hand managing the legs.
    3. On the head’s count the team will roll the patient as one TOWARD them.
    4. The EMS professional managing the shoulders should use their hip hand to assess the spine and pull the backboard under the patient.
    5. On the head’s count, the team will roll the patient back down onto the backboard.
    6. If needed, reposition the patient to the center of the board by sliding the patient diagonally to avoid manipulation of the spine.
6. Place padding in the voids between the torso of the patient and the backboard as needed.
7. Secure straps as indicated by manufacture. See below for common placement.
8. Secure the head last using commercial head blocks and tape, and release manual spinal cervical spinal immobilization.
9. Reassess CMS.

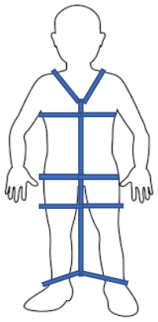
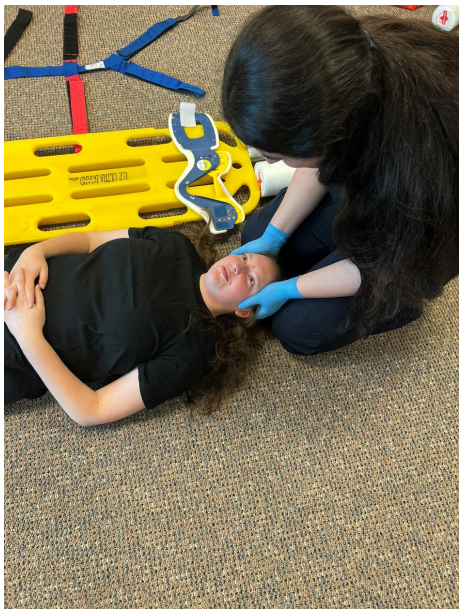


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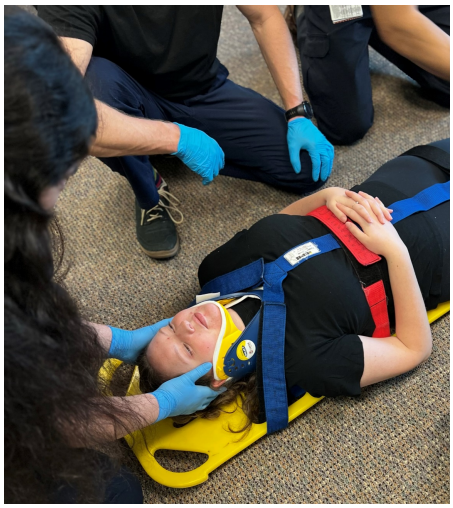
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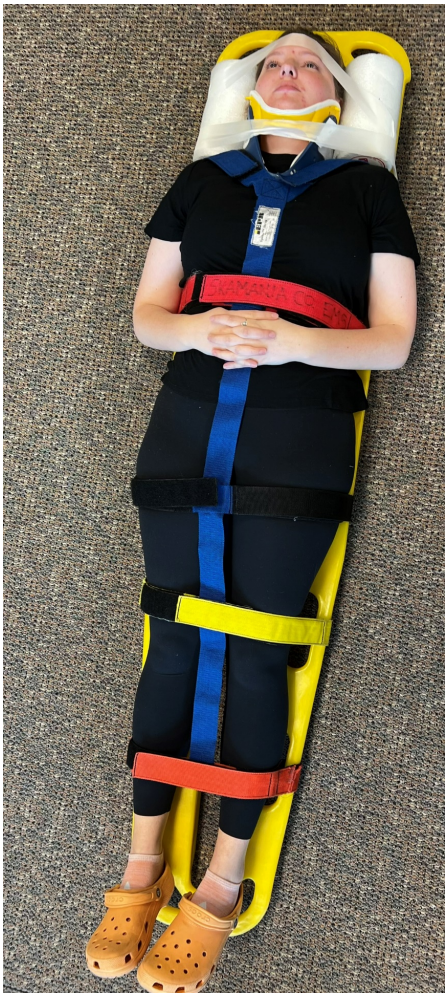
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Spinal Immobilization Skill Verification Table

Spinal Immobilization	1 Student	2 Student	3 Student	4 Student	5 Instructor
Initials					

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6.13: Spinal Motion Restriction

Immobilize the patient by using Full Spinal Immobilization if patient has a significant mechanism with the potential for causing spinal injury and meet ANY of the following clinical criteria:

A. Altered mental status.

B. Evidence of intoxication.

C. Distracting pain/injury/emotional distress (i.e., extremity fracture).

D. Neurologic deficit (numbness, tingling, paralysis) in any extremities.

If none of the above are present, then application of a cervical collar and transport in minimal restriction on the EMS gurney.

Selective Spinal Immobilization Skill Verification Table

Selective Spinal Immobilization	1	2	3	4	5 (instructor)
Initials					

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6.15: Sexual Assault

Sexual assault occurs when a perpetrator intentionally touches another in a sexual manner without consent. In other words, sexual assault (SA) occurs when an individual chooses to take advantage of their power (physical, social, emotional) to coerce or force a sex act. Sexual assault is the act of the attacker, not the victim.

People who are particularly at risk for sexual violence are those who are physically or socially vulnerable already. Women, children, elderly, and LGBTQ+ individuals are at greatest risk of becoming victims. While we may rightfully consider SA to occur when a man forces sexual acts on a woman, it can originate from any gender and victimize any age. Most cases of sexual assault are perpetrated by someone known to the victim.

The nature of sexual assault and mental trauma may result in a delayed call for help. Often there are few if any immediate life threats. Slow down your assessment and treatments and take every opportunity to give the SA victim back their agency to direct treatments. Be an advocate for them. Do not pressure them into assessments, treatments, or decisions that they are not comfortable with.

Some tips for caring for a victim of sexual assault:

- Be an active listener. Let them have the last word. If they raise their voice, lower yours.
- Let them express their emotions. You may see emotions ranging anywhere from anger to laughing and anything in between. The emotions may not be what you would expect, but this is not your place to judge or second guess what has happened. Simply provide the space for them to express whatever it is they feel.
- If they choose not to cooperate – that's okay. Set boundaries only as necessary, such as if they become a physical harm or threat to themselves and others.
- When treating injuries, allow them to participate in their own care and provide them with supplies such as gauze or band aid as needed. When there are no life threats, let them lead the treatment.
- Tell them everything you are doing before you do it and ask for their permission or if they have any questions prior to beginning.
- If they want to change clothes, let them, this grants them back their autonomy. Remember, they are patients first and evidence second. Evidence on clothing whether it's on the body or off the body is still evidence, nonetheless. However, first look for evidence of clothes being worn inside out or backwards and notate those findings, because that is evidence too.
- Save all clothing and transport them to the hospital.
  - Place items **in a paper bag** if available – long term storage of biologic material in plastic bags promotes growth of mold which can degrade evidence.
- There is no rush for the victim to report the assault. DNA evidence can be collected days later. There is time to decide.
  - Vaginal swabs should be collected within 5 days of the assault.
  - Oral or anal swabs should be collected within 24 hours of the assault.
- A sexual assault examination does not equate to reporting. Reporting is solely up to the adult victim of competent decision-making skills. The examination at very least can find, prevent, and treat STIs.
- Sexual assault of a child or minor comes with a few differences in protocol such as the following:
  - There must be mandatory reporting to police and child protective services.

Use the following statements as a guide for communication:

> *"None of what happened to you is okay. I'm here to help. You are in control now. You get to decide what care you want. You get to say "no" to anything that makes you uncomfortable. There are people with specialized training in this that are highly sensitive to your needs and will help you in every way possible. Right now, I am here to help you, and I hear you and see you. I care about your safety and well-being."*

Sexual Assault Knowledge Verification Table

Sexual Assault Victim Care	**1 (instructor)**
Initials	

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6.16: Final Trauma Evaluation

Emergency Medical Technician Final Scenario Score Sheet

	0 Critical fail*	1 Needs improvement	2 Satisfactory completion	3 Proficient
Scene safety / Scene control: Identifies hazards & implements mitigation strategies				
Professionalism: Introduces self, asks names uses proper body language, eye contact, etc.				
Communication: Uses effective strategies to mitigate error				
Assessment: Applies appropriate and adequate physical exam and line of questioning for pt. condition				
Treatment: Provides adequate treatment plan for patient condition and available resources				

Total:	
Minimum 80% or 12/15 with no critical fails	

*Comments:

Instructor name and initials

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CHAPTER OVERVIEW

7: Medical Operations

7.1: Medical Assessment
7.2: Altered Mental Status
7.3: Cerebral Vascular Accident (CVA)/Stroke Recognition
7.4: Sepsis Recognition
7.5: Psychiatric Emergencies and De-escalation Techniques
7.6: Adult Cardiac Arrest Team Lead
7.7: Adult Cardiac Arrest Team Member
7.8: Automatic Compression Devices (LUCAS)
7.9: POLST

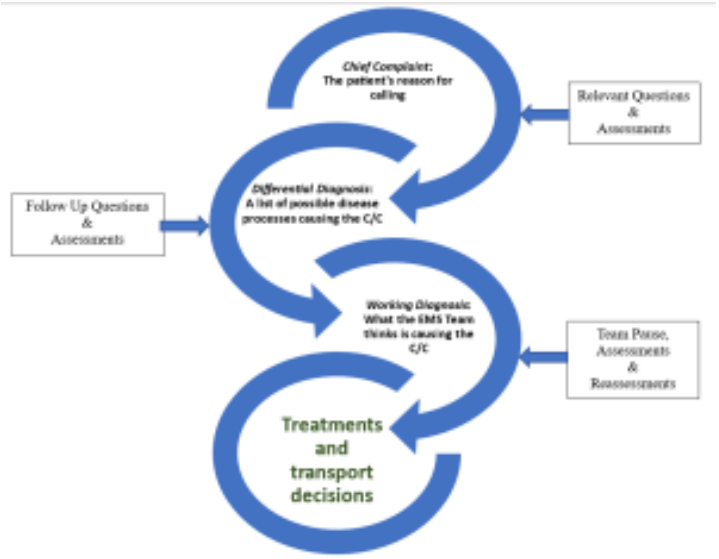
Thumbnail: Man being treated for smoke inhalation. (Unsplash License; Acton Crawford via Unsplash)

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7.1: Medical Assessment

The EMS medical assessment forms to fit the situation and is molded by the information and details that are uncovered in the process. Unlike in trauma, where most threats to life are readily apparent and treatments are algorithmic, the medical assessment relies on the EMT's ability to be a medical detective; observing scene clues, combining them with tailored questions which reveal the nature of illness and guide treatment options. If the trauma assessment is rock and roll, then medical assessments are jazz.

A firm foundation of physiology is essential for the EMT to be effective in assessing the medical patient. The EMT must then listen to the patient's chief complaint ("C/C"), form and ask appropriate questions, listen to the answers, and form a differential diagnosis ("DDx") to establish a working diagnosis.



Flow chart by Christopher Hamper, licensed under CC BY-NC-SA 4.0

It may be tempting to jump to the working diagnosis from dispatch information or the chief complaint. This error is called premature closure and may lead to missing important information that is contrary to your working diagnosis. To prevent premature closure, the EMT must manage information overload.

There are hundreds of pieces of information to take in and try to fit into a story. The ability to manage information overload takes time. Be patient with yourself as you learn this skill. It's okay if you feel uncomfortable leading a call. This is normal. For most in EMS it takes around 3 years of full-time work to feel comfortable with the range of possibilities and challenges a 911 call has to offer.

Here are some tips to help you listen actively and manage information overload under stress. Come back to these as you progress in your practice:

- Take notes on a piece of paper. Your brain will not retain much under stress. Take notes on everything you hear including C/C, vitals, and answers to history questions.
  - Many EMS providers carry a small notebook or folded piece of paper with them in addition to run sheets and electronic charting tools.
  - Always have a pen!
  - Avoid taking notes on gloves – they are nasty and need to be thrown away at the end of a call rendering them useless for recall later.
  - Shorthand is fine, these notes are for you.
- *Notice – Breathe – Control*
  - *Notice* that you are under stress. We all have noticeable reactions to stress; it is part of being human. Just like a master poker player, you need to learn your "tells."
    - See your hands shaking? – *notice this as a sign of stress.*
    - Can't remember what step you are on in your questioning? – *notice.*
    - Voice shaking? – *notice.*
    - Chest tight? – *notice.*
    - Lips tingly? – *notice.*
    - *Notice* when you feel your "tell" and acknowledge you are under the effects of stress.
  - *Breathe.* That's it. Take a deep breath and release. You've noticed you are under stress. One of the typical responses to stress is breath holding. So now that you've noticed, breathe.
  - *Control* something simple. This may be something within yourself such as wiggling your toes, or external such as spinning a ring or snapping a rubber band on your wrist. It might be taking another controlled breath. Whatever action you choose is fine. Controlling something simple will help you distance yourself from the stress of the situation and regain the control of yourself, the call and scene.
- Don't just do something, stand there. If you are leading the call, take a moment to stand there and absorb the information. A 5 or 10 second pause helps. Use the Notice-Breathe-Control techniques while you pause.

Scene Size Up:

As you approach the scene you need to pay attention. Where is the call? Every location has details that may be relevant to your safety and to establishing the working diagnosis. A call for help at a preschool will likely be different than if it were for someone at an airport or in a houseless camp. If you are responding to a residence, notice the neighborhood and pay attention to the upkeep of the patient's lawn. These tidbits of information help tell the story of your patient's situation. Store this information for possible use later. For example, the elderly patient complaining of a ground level fall may tell you that everything is "fine" or "normal" but a quick glance at the once well-kept lawn and out of place pile of dishes tell a story of decline over a longer period of time.

Be careful here! Try not to make gross generalizations of an individual's character based on the environment, rather allow this information to feed into the patient's chief complaint to compare to what you are finding during their story.

EMT School Tip: it is impossible to simulate the variety of environments necessary for a good scenario. For additional details here, ask your proctor, "What does the scene look like?"

BSI & PPE:

As you exit the response vehicle and approach the scene, make sure you don the appropriate PPE.

EMT School Tip: Your program may request that you verbalize PPE or that you don equipment. Follow the guidance of your instructor for this step.

Call for assistance:

Many calls warrant Advanced Life Support (ALS). Not all systems automatically dispatch a paramedic or the appropriate resources. It is encouraged to actively consider calling for additional assistance at the beginning and periodically throughout the call. Calls may change from being safe to unsafe warranting a request for law enforcement. Patients change from stable, BLS interfacility transfers to cardiac arrests which need additional medical resources. Help is generally available through dispatch and can always be canceled if the situation turns out not to require the extra assistance. If you think you might need additional assistance, request it; they can always be turned around if they aren't needed.

EMT School Tip: Unlike the field, most calls in EMT school are critical and instructors also assume you are a single resource, and that ALS and other units must be requested. Verbalize calling for ALS early.

General Impression:

As you get within sight of the patient you can establish your first general impression. A general impression is how sick you think the patient is by observing them in their environment.

EMT School Tip: you will need to ask your proctor "what do they look like as I walk up?"

Determining Level of Responsiveness:

This step happens simultaneously with the introduction. In the field, this will be a subconscious process. However, you are in EMT school, and you will need to externalize everything until it becomes second nature. To externalize level of responsiveness, use the ***AVPU scale:**

A – Alert, patient is alert, responding to you as you approach

V – Verbal, patient only acknowledges you if you directly address them

P – Painful, patient only responds to painful stimuli – **Trapezius Pinch

U – Unresponsive, patient does not respond to any of the above

*If the patient responds to "A" or "V" there is no need to continue the assessment and elicit painful stimuli.

**There are many ways to elicit a painful response. The authors recommend using a standard "trapezius pinch". To perform this skill, pinch approximately 2 inches of the trapezius muscle at the base of the neck and twist. A response to painful stimuli will produce a facial grimace or a response in arms or hands. Experiment on yourself to determine appropriate pressures.

"P/U" Painful & Unresponsive patients:

Take immediate action to correct the situation. Check a pulse, give oxygen, manage airway, breathing and circulation as you find them. The next steps can happen simultaneously or come in a few minutes.

AVPU Skills Verification Table

AVPU Practice	Patient Description	Level of Responsiveness (AVPU)
Initials	50 y/o male complaining of chest pain. Looks at you as you enter the house	
	22 y/o non-binary patient does not show signs of movement when you give them a trapezius pinch	
	88 y/o male pulseless and apneic	
	30 y/o transgender male appears to be sleeping but opens his eyes when you shout his name	
	5 y/o male screaming in pain from falling down the stairs	

The first interaction, introduction:

Assuming the patient is Alert or responsive to Verbal stimuli, the first thing we say to our patient or bystander sets the tone for the whole call. The patient has called us for help generally because they feel out of control and need reassurance from EMS. Start every call off with a reassuring tone of voice, stating your name, that you are here to help and asking their name and preferred pronoun.

The process of establishing a working diagnosis starts with an introduction and **active listening**.

We start with names and pronouns to personalize and humanize people.

Try this, say out loud to a partner:

"Hi, my name is____, I am here to help. Can you tell me your name and pronouns?"

Introductions	1	2
Initials		

Easy, right? Great. Let's move on to the next step, determining chief complaint and age.

Continue with your partner in this template:

"Can you tell me why you called for help today?" – actively listen

"How old are you?" – actively listen

Chief Complaint Skills Verification Table

Chief Complaint	1	2
Document your partner's C/C here:		
Age here:		

Chief Complaint	1	2
Initials		

Easy-peasy. Now that they've told you what is bothering them it is time for you to determine how to proceed.

> Note: if at any time there is an immediate threat to life, address it then and there. Use your life-saving skills to breathe for someone who needs it, administer supplemental oxygen or start CPR. etc. Note, this can be done simultaneously with your introduction/history taking if patient condition dictates.

EMT School Tip: This is a great time to do a quick "Team Pause."



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History taking:

The next few questions follow the pneumonic, **SAMPLE**. This memory tool will help you collect all the essential information and be a touchstone for when you get stuck in asking questions. Remember to write the answers down!

S – Signs and symptoms. You started this when you asked your C/C. Continue digging into their complaint by asking some follow-up questions.

- Are they experiencing other symptoms today.
- Check for pertinent negatives. Explore some specific questions on these symptoms, shortness of breath, chest pain, weakness, nausea, vomiting, and diarrhea.

A – Allergies. Are you allergic to anything? Follow up, if necessary, "Is it possible you ate *x* today?"

M – Medications. Are you prescribed any medications? Are you taking your medications as prescribed?

P – Past Medical History. Have you experienced this before? If so, what happened then? Do you have any medical problems?

L – Last Oral Intake. When was the last time you had anything to eat or drink? What was it?

E – Events Leading Up to Call for Help. What were you doing when this all started?

Concurrent Tasks:

Your team members are there to help you too! As a team leader, you need to delegate them to specific tasks. These might be assigned at dispatch or decided on scene, in the moment. Tasks that need to happen while you take a medical history may include, vital signs, taking blood glucose, hooking up appropriate oxygen delivery, questioning bystanders, writing down medications, and preparing for transportation.

> *EMT School Tip: Use closed-loop communication whenever possible. See the Closed Loop Communication section of this manual for more information.*

History Taking Continued:

It's not all about the SAMPLE in history taking. To help us get a bit more detail about the present illness we will use the mnemonic OPQRST. This mnemonic is especially helpful when questioning patients about pain. However, it can be easily adapted to non-pain related complaints as well.

O – Onset. When did this all start? Did it come on gradually or suddenly?

P – Provocation. Have you done anything to make it better? Does anything make this better? Worse?

Q – Quality. Can you describe the feeling for me?

R – Radiation. Does this feeling radiate anywhere?

S – Severity. On a scale of 1-10, one being mild, ten being the worst imaginable, where would you put this discomfort?

T – Time. Does this happen to you every time you do "X" (season, activity, ingestion, etc.). This is different from onset/events.

Transport Decision:

Transport can take place in the call whenever it makes the most sense. There are several key factors to consider when deciding when to transport and what transport code (code 1, normal driving. Code 3, lights and sirens. There is no Code 2. It was eliminated when we stopped driving lights but no sirens.)

For most medical patients, we have a roughly 30 min maximum on scene time. Though when the patient is suffering from a time-sensitive condition such as a myocardial infarction (MI) or stroke (CVA) we attempt to limit scene times to less than 10min. These conditions also warrant a C-3 transport to an appropriate facility (more on destinations later). Patient severity and time from the hospital or advanced life support should also factor into the decision making for when and how fast to transport a patient to the hospital. Ask your instructors about local EMS systems and decision making.

Secondary Assessment:

The secondary assessment in medical calls is different from that of the trauma assessment. In medical assessment the EMT will dig deeper into the chief complaint and perform a focused physical assessment based on the working diagnosis. Here are some examples of secondary assessments that should be performed for different patient types:

- **Acute Coronary Syndrome** – Palpate the chest to identify if pain is reproducible. Check the ankles for edema. Repeat lung sounds.
- **Respiratory Complaints** – Repeat lung sounds, identify position of comfort (i.e., sit them up). Re-evaluate oxygenation status and adjust as necessary.
- **Altered Mental Status** – Repeat GCS scale. Repeat CBG as indicated.
- **Gastrointestinal** – Palpate abdomen (no need to repeat), ask about bowel movements (last, frequency, straining, color, or blood) listen to lung sounds, identify position of comfort. Check pedal pulses.
- **Back** – Visual inspection for bruising, rashes and palpate for pain as indicated.
- **Genitourinary** – Palpate abdomen, ask about urination habits (frequency, color, smell), identify position of comfort.
- **Obstetric** – Ask about prenatal care, pregnancy history, palpate abdomen, ask about water breaking, contraction frequency & duration, if labor is imminent – visually inspect.
- **Gynecologic** – "Is there a chance you could be pregnant?", last menstrual cycle, "normal" bleeding for patient.
- **Male Reproductive** – Trauma history, visual inspection if necessary.

Reassessment:

For this step, the team lead will re-check any interventions and reassess symptoms. Vital signs should be repeated every 5 min for critical patients and 10-15 min on non-critical patients.

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7.2: Altered Mental Status

Altered mental status (AMS) is a description of a patient's mental status when it deviates from a patient's mental baseline. Said another way, the patient may have been acting mentally 'normal', and now they are acting 'abnormal.' The first step in understanding AMS is determining the patient's baseline mental status. Asking family, friends, and others on scene as well as using scene clues to point you toward the patient's normal level of functioning can be useful in making a baseline determination. Note that some patients may be altered at baseline and determining if they are indeed suffering from AMS can be difficult to impossible without someone else on scene who knows the patient's mental status at baseline.

Once the initial presence of AMS is suspected, it is time to start collecting clues as to the cause of AMS that can lead to a working diagnosis, and hopefully a treatment plan. Many experienced EMS field providers advocate for the use of the "O_2, Glucose, Pump, SITS" mnemonic, developed by an ER physician and EMS medical director in Oregon, Dr. Jeff Disney. It provides a nice cognitive aid to help systematically think through many of the common causes for AMS. The mnemonic is a prioritized set of steps to assess for the presence of life-threatening causes of AMS.

Let's break it down. The team leader should delegate the assessments and treatments of any significant findings. Something else to remember is that once you find something significant it is still important to continue down and complete the mnemonic as to not miss possibly combining or multiple factors.

O_2 – Check oxygenation.

- Is the airway open and clear?
- Are they breathing adequately?
- What is the SpO_2?

Glucose – Check the capillary blood glucose level.

Pump – Is there perfusion to the brain?

- Check pulse.
- Check blood pressure.
- Check skin condition.

S.I.T.S.

- Structural – assess for structural damage to the head such as from trauma or internally from a stroke
- Infection – explore major sources of infection (urine/UTI, respiratory/pneumonia, surgical/healing injury site, pressure sores, meningitis, recent illness, or new antibiotic prescriptions)
- Toxin – overdose/underdose (illicit drugs, prescription drugs, alcohol withdrawal) or possibly an environmental toxin (carbon monoxide)
- Seizure / Psychiatric – Seizures are usually a symptom of something else (i.e., hypoxia/trauma) or possibly a patient condition.
    - Psychiatric – ask about psychiatric history and recent behavior.

Now you try. On your next dispatch for "unknown problem" or "altered mental status" give O_2, Glucose, Pump, SITS a try.

Altered Mental Status Skills Verification Table

AMS – O2, Glucose, Pump, SITS	1	2	3	4	5 (instructor)
Cause					
Initials					

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7.3: Cerebral Vascular Accident (CVA)/Stroke Recognition

A CVA occurs when there is a blockage or rupture of an artery in the brain. Most strokes originate from an occlusion and are painless. However, some are accompanied with a headache. Patients complaining of severe headaches should be screened for a CVA and the provider should maintain a high index of suspicion for hemorrhagic stroke. Symptom resolution within 24 hours indicates a possible transient ischemic attack (TIA) and is predictive of a CVA in the future. Complete the Portland Prehospital Stroke Screen (PPSS). If positive, proceed to C-STAT and transport as indicated.

PPSS - PORTLAND PREHOSPITAL STROKE SCREEN			
1. Age over 45 years	Yes	No	
2. No prior history of seizure disorder	Yes	No	Unknown
3. New onset of neurologic symptoms in last 24 hours	Yes	No	Unknown
4. Patient was ambulatory at baseline (prior to event)	Yes	No	Unknown
5. CBG between 60 & 400	Yes	No	
Neurological examination	**Normal**	**Abnormal**	
FACIAL SMILE/GRIMACE (ask patient to smile/show teeth) **Normal:** both sides of face move equally well **Abnormal:** one side of face does not move as well as the other	Yes	Right	Left
ARM DRIFT (patient closes eyes and hold both arms out palms up) **Normal:** both arms move the same or do not move at all **Abnormal:** one arm does not move or drifts down compared to other	Yes	Right	Left
HAND GRIP (have patient squeeze both hands simultaneously) **Normal:** equal grip strength **Abnormal:** unequal grip strength	Yes	Right	Left
SPEECH (have patient repeat "*You can't teach an old dog new tricks*") **Normal:** no difficulty in repeating **Abnormal:** patient has difficulty finding words, speaks in long meaningless sentences, and/or cannot understand or follow simple verbal instructions	Yes		
If questions 1 – 5 are all answered "Yes" or "Unknown" and at least 1 of the 4 neurological examination findings are abnormal the patient is considered to have a POSITIVE screen. Continue to C-STAT evaluation.			

C-STAT – CINCINNATI STROKE TRIAGE ASSESSMENT TOOL		
	POINTS	**DEFINITION**
GAZE		Condition where both eyes move differently to each othet.
Absent Present	0 2	
ARM WEAKNESS		Cannot hold up arm(s) for 10 seconds.
Absent Present	0 1	
LEVEL OF CONSCIOUSNESS		Incorrectly answers at least one of two LOC questions AND does not follow at least one of two commands.
Absent Present	0 1	
**** C-STAT positive is defined as a score ≥ 2 ****		
If PPSS and C-STAT is positive, transport to nearest Interventional Stroke Center		

Image source: Multnomah County EMS Protocols. Used with permission.

CVA Recognition Skill Verification Table

Stroke assessment	1	2	3 (instructor)
Result			
Initials			

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7.4: Sepsis Recognition

Sepsis is an out-of-control infection. It can be tricky to detect, and prehospital recognition relies heavily on the history of present illness (HPI). Indicators for increasing your index of suspicion include the following:

- Recent infection – check for antibiotics on medication lists.
- Abdominal distension and tenderness with positive rebound tenderness.
- Strong smell of urine – check catheter bag for discolored urine and ask about urinary tract infection (UTI) history.
- Recent illness – cough, cold/flu/covid symptoms.
- Fever/hypothermia – not all sepsis has a fever.
- Recent surgery.
- Rashes – i.e., cellulitis.
- Diabetes with skin lesions.
- Pressure sores and wounds.
- Immunocompromised – chemotherapy & AIDS.
- Animal bites, especially cat scratches.

Systemic Inflammatory Response Syndrome, or "SIRS" criteria: **If you have an index of suspicion for sepsis**, you should consider SIRS criteria. **If any ONE of the following are positive**, consider activation of a "sepsis alert" and transporting to appropriate receiving facility.

- Systolic BP <90 mmHg
- Heart Rate >90/min
- Respiratory rate >20/min
- GCS <15
- Temperature $>100.4^0$ F or $<96.0^0$ F

Note: Some EMS agencies have access to field lactate monitors. Local protocols will dictate usages and ranges for clinically significant elevation (usually above 4 mmol/L)

Sepsis Recognition Skill Verification Table

Sepsis Recognition	1	2 (instructor)
Initials		

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7.5: Psychiatric Emergencies and De-escalation Techniques

As an EMS professional, you will have the opportunity to assist patients in crisis. Each patient will present uniquely as “crisis” can look different for each person and each precipitating factor. On arrival, some may feel relief, while others may feel threatened.

The initial approach of the EMS team matters when responding to someone in crisis. In addition to ensuring the scene is relatively safe for you to approach the team should consider the following safety precautions:

- Provide extra space when approaching and don’t get too close.
- Have multiple exits.
- Don’t let the person get between you and the exit.
- Keep equipment and personnel clear in case a hasty exit becomes necessary.
- Do not swarm the patient with multiple team members.
- Select one individual to engage while the others hang a few feet back.

People experience a state of crisis for a variety of reasons. The crisis may be precipitated by several individual or combining factors including, but not limited to, history of trauma/PTSD, sexual or physical assault, life stress, prior mental illness, recreational over/underdose, medication over/underdose, or because of a medical condition (See section on Altered Mental Status).

As your team begins the patient interaction, keep the following tips in mind:

- Introduce the team lead / point of contact for the person.
  - Select this individual based on skill, demographics, and appropriateness of the situation. (i.e., if the patient is a male veteran experiencing crisis from PTSD, the team lead might be another person with military experience).
  - You do not need to introduce each individual team member until they become relevant to the patient.
- Keep a low tone of voice that is calm, reassuring, and compassionate.
- Ask the person’s name. Use the name they give you.
- Do not attempt to touch the patient unless required and permission is given.
- Physically lower yourself to eye level with the patient.
- Slow down. If ABCs are present and there is no life threat, you have time.
- Do not buy into hallucinations, however, acknowledge it and don’t dismiss it.
  - Try a relevant variation to the following: *“I understand that you see bugs. I do not see them. That sounds scary. We care about you and I would like to try to help you with that.”*
- Building rapport is the priority.

De-escalation is an art. It is effective in helping patient’s trust you but unfortunately won’t always work. As you build rapport remember to:

- Ask slow carefully thought-out questions to gain further information.
- Listen to the patient’s requests fully. Comply if you can and if it is safe to do so.
- Explain all that you are doing before each task is performed.
- Refrain from sudden motions and elevated voices.
- Encourage patients to be a part of any decisions that may affect them, and where possible provide them options on how the care team can move forward so they have some agency in the treatment decisions.

If de-escalation is not effective, keep your distance, call for ALS and police assistance. Remain on scene within sight of the patient and restrict bystander access. You may need to participate in physical restraint with the ALS team. The process of physical restraint needs planning and chemical sedation available through ALS.

Practice de-escalation techniques by communicating with a partner or small group in class. Discuss with your teammates how you felt in your communication delivery and discuss how they felt as a patient to train in a better communication style.

De-Escalation Technique Skills Verification Table

De-Escalation	1	2	3	4 (instructor)

De-Escalation	1	2	3	4 (instructor)
Initials				

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7.6: Adult Cardiac Arrest Team Lead

When treating a patient in cardiac arrest the role of the Team Lead is critical to organizing and coordinating the treatments needed to provide the patient with the best chance of survival. As an effective team leader, you must recognize the condition and act quickly and efficiently to increase the chances of survival.

Once cardiac arrest is identified, your responsibility as Team Leader is to ensure that the correct priority treatments are accomplished, either through delegation if you have sufficient team members, or by you directly if you don't have resources to delegate. The high priority treatments during a cardiac arrest include the list below, however the first two treatments below (CPR and AED) are the most critical:

1. Chest Compression task* – delegate to a team member (or better yet, two team members if you have the resources), ensure that high quality compressions are being performed and only stop compressions when the AED advises the team to do so. Also, if your resources allow, switch the team member performing compressions every time the AED advises you to stop compressions for a rhythm check (about every 2 minutes).
2. Apply the Automated External Defibrillator (AED)
3. Request your dispatcher to send an ALS response unit code three to your location and let them know CPR is in progress
4. Airway task
5. History – Look for a DNR / POLST, find and write down the medications
6. Think of possible causes of the cardiac arrest that might be reversible (Hs and Ts)
7. If an ALS crew is enroute to assist you, prepare to give a brief summary hand-off report to the crew upon their arrival. Keep if brief and targeted by focusing only on the high-level details including:
    1. How you found the patient (example: Pt found down upon our arrival).
    2. Estimated time down without CPR being performed (if known).
    3. If a bystander was doing CPR when you arrived (example: daughter was performing CPR upon our arrival).
    4. Where you are in your cardiac arrest management (example: we've currently working on our 3rd round of CPR. The AED shocked on the first round and advised no shock on the second round. We do not have an airway placed yet and we are currently asking about a DNR or POLST form).
    5. Would you like to take PIC and how can I help you?

*Note: high-performance CPR has been known to cause CPR induced consciousness (eye opening, purposeful movement, speech). Continue CPR and reassess pulses only when the AED advises, "no shock advised."



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Flowcharts are a helpful tool to visualize the concepts and decision making necessary within this set of skills. Unfortunately, due to copyright restrictions we are unable to provide them here.

The authors recommend you or your instructor find an up-to-date version of this flowchart from the American Heart Association. A simple web search on **cardiac arrest algorithm AHA** should do the trick. If you are viewing the online version of this lab manual, this link will take you to the AHA CPR algorithms.

Adult Cardiac Arrest Team Lead Skill Verification Table

Cardiac Arrest Team Lead	1	2	3 (instructor)
Initials			

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7.7: Adult Cardiac Arrest Team Member

When treating a patient in cardiac arrest the role of the Team Member is critical to executing the treatments needed to provide the patient with the best chance of survival. As an effective Team Member, you must understand, and be able to perform, all the BLS tasks that need to be performed during a cardiac arrest so that your team leader can effectively delegate you.

The high priority treatments during a cardiac arrest include:

1. Notice when the patient condition changes and warrants re-evaluation.
2. Communicate your concerns to your team leader and state the need to re-assess ABC's.
3. Perform your assigned task to the best of your ability & communicate challenges/successes. Critical tasks that you may be delegated to perform during a cardiac arrest include:
    1. Airway – use your airway skills – BVM, OPA/NPA, King/iGel effectively (see corresponding instructions).
    2. Compressions – Congrats, you're the most important member of the team – Compress 100-120/min, effective depth of at least 2", communicating compressions with the team member on Airway, 30:2 ratio, and remember to switch compressors at every AED "analyze" step.
    3. Automated External Defibrillator (AED) – Properly connect and turn on the device and relay all instructions that it provides to you to the rest of the team.
    4. If the AED indicates that shock is advised, continue to perform compressions while the AED is charging, assuring you and your team members are not touching the patient when the shock is being delivered.
    5. Team Lead / Other duties as assigned – Look for a DNR / POLST, find and write down the medications, think of possible causes, encourage timely compression changes.
4. Use closed loop communication skills with your team leader when you are assigned a task to perform (see the closed loop communication section of this manual for more information).
5. Be sure to notify your team leader if you have completed a requested task and are now available to be assigned to another task if appropriate.

Cardiac Arrest Team Member Skill Verification Table

Cardiac Arrest Team Member	1	2	3 (instructor)
Initials			

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7.8: Automatic Compression Devices (LUCAS)

Automatic compression devices deliver mechanical chest compressions for patients in cardiac arrest. These devices deliver high-quality chest compressions, allowing the EMS team to focus on other necessary patient care tasks. There are several versions of these devices on the market with similar features. Defer to manufacturer recommendations for device specific application steps.

To begin mechanical compressions:

1. Assess the presence of a carotid pulse for no more than 10 seconds watching for chest rise and fall.
2. Begin manual chest compressions if pulseless.
3. Deploy mechanical compression device from bag or storage case.
4. Coordinate with team members to place the back plate behind the patient.
5. Pull the release rings to open the lock clips on the device.
6. Maintain manual chest compressions throughout deployment with minimal interruptions.
7. Approach the patient from the opposite side of the rescuer performing chest compressions.
8. Ensure the backplate is centered on the sternum.
9. Attach the mechanical compression device to the backplate starting with the side closest to you. Then connect the opposite side.
10. Turn on the device.
11. Press the “ADJUST” button to lower the suction cup to the patient’s chest.
12. Press the “START” button and select compression timing ACTIVE 30:2 or ACTIVE continuous compressions.
13. Apply the neck strap behind the patient’s neck with the padding side towards the patient.
14. Apply the arm straps around the wrist of the patient bilaterally securing arms to the device.
15. The 3 straps must be applied for stabilization of the device to the patient.

Additional considerations:

- Can only be applied if the patient fits the manufacturer’s size requirements for the device.
- Minimize interruptions in chest compressions. (Review coronary artery perfusion during CPR.)
- Follow manufacturer’s recommendations for analyzing and shocking while mechanical compression device is active.
- If device failure occurs, return to manual compressions being sure to rotate compressors every 2 minutes.
- Moving the patient:

a. Pause the device while you lift the patient to the gurney or backboard for extrication from the scene.

b. Handles are located on the side of the device to lift the patient and device. Consider using a backboard to move the patient from the ground to the stretcher.

c. Immediately resume compressions once the patient is safely moved to the stretcher.

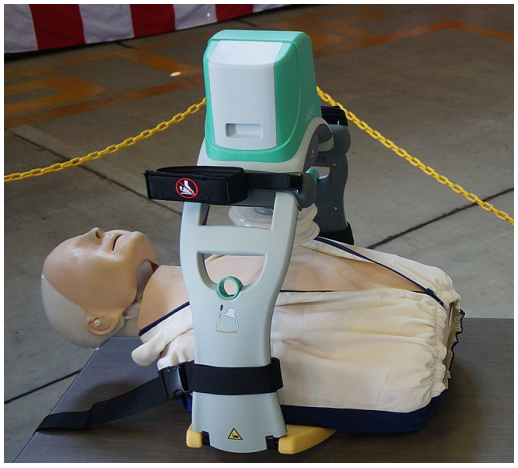


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Lucas Device Skill Verification Table

Mechanical Compression Device	1 Student	2 Student	Instructor (Signoff)
Initials			

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7.9: POLST

The Portable Orders for Life-Sustaining Treatment (POLST) registry was created for individuals to document in advance the types or extent of medical treatment that they would like performed in the event that they are incapacitated and unable to communicate their wishes to the emergency medical term.

Someone is entered into the POLST registry once they complete an official POLST form with their medical provider. The POLST form is a set of medical resuscitation orders that facilitate appropriate treatment by paramedics and emergency personnel in the event of a medical emergency. It is generally intended for patients who are medically frail, terminally ill or have chronic or progressive illness.

The Oregon POLST Registry is a secure electronic record of a patient's POLST orders. The POLST registry serves as a backup, allowing emergency health care professionals treating a patient to access POLST orders if a paper POLST form cannot be found.



Image source: Oregon POLST Registry. Used with permission.

Some situations in which you should look for a POLST form or access the POLST Registry on scene:

- If the patient is medically frail, terminally ill or has chronic illness.
- You locate an OPR magnet or sticker with a Registry ID.
- If a bystander, family member, or caregiver states there may be a POLST form but cannot provide a copy.

Ways to access electronic POLST orders:

- Call the confidential POLST Registry Hotline
- Search the Oregon Registries for EMS (OREMS) app on your mobile device.

What patient information will you need when calling the Registry Hotline or searching the app?

- Full name
- Date of birth
- Registry ID
- Last 4 digits of SSN
- Gender
- Age
- Address

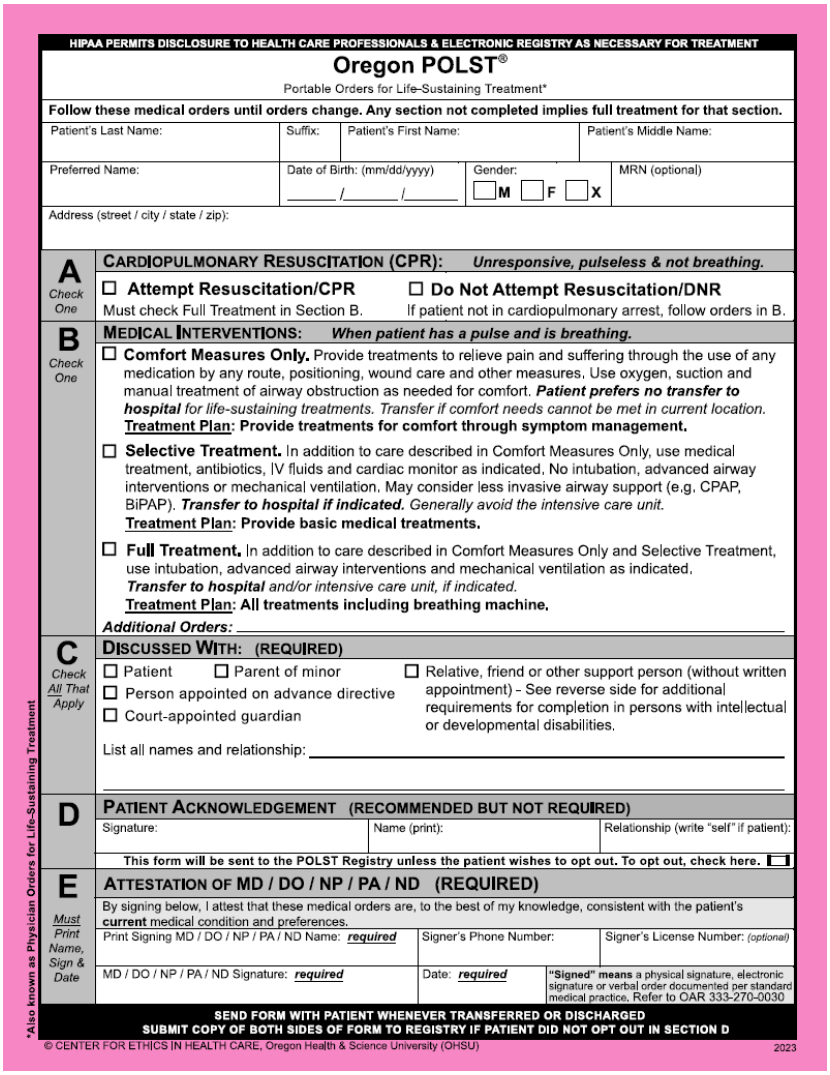
What if I have questions about the POLST orders?

Registry staff cannot interpret POLST orders. If there is a question about how to proceed with the POLST information provided, contact Online Medical Control (OLMC). Hospital staff should follow their standard protocols.

Additional information and further reading:

Oregon POLST Resources (including EMS scope of practice rules)

POLST Guidance for Oregon HCPs POLST FAQs for EMS



HIPAA PERMITS DISCLOSURE TO HEALTH CARE PROFESSIONALS & ELECTRONIC REGISTRY AS NECESSARY FOR TREATMENT

Oregon POLST®

Portable Orders for Life-Sustaining Treatment*

Follow these medical orders until orders change. Any section not completed implies full treatment for that section.

Patient's Last Name:	Suffix:	Patient's First Name:	Patient's Middle Name:
Preferred Name:	Date of Birth: (mm/dd/yyyy) ____/____/____	Gender: ☐M ☐F ☐X	MRN (optional)
Address (street / city / state / zip):			

A *Check One*

CARDIOPULMONARY RESUSCITATION (CPR): ***Unresponsive, pulseless & not breathing.***

☐ **Attempt Resuscitation/CPR** — Must check Full Treatment in Section B.

☐ **Do Not Attempt Resuscitation/DNR** — If patient not in cardiopulmonary arrest, follow orders in B.

B *Check One*

MEDICAL INTERVENTIONS: ***When patient has a pulse and is breathing.***

☐ **Comfort Measures Only.** Provide treatments to relieve pain and suffering through the use of any medication by any route, positioning, wound care and other measures. Use oxygen, suction and manual treatment of airway obstruction as needed for comfort. ***Patient prefers no transfer to hospital*** *for life-sustaining treatments. Transfer if comfort needs cannot be met in current location.*
Treatment Plan: Provide treatments for comfort through symptom management.

☐ **Selective Treatment.** In addition to care described in Comfort Measures Only, use medical treatment, antibiotics, IV fluids and cardiac monitor as indicated. No intubation, advanced airway interventions or mechanical ventilation. May consider less invasive airway support (e.g. CPAP, BiPAP). ***Transfer to hospital if indicated.*** *Generally avoid the intensive care unit.*
Treatment Plan: Provide basic medical treatments.

☐ **Full Treatment.** In addition to care described in Comfort Measures Only and Selective Treatment, use intubation, advanced airway interventions and mechanical ventilation as indicated.
Transfer to hospital *and/or intensive care unit, if indicated.*
Treatment Plan: All treatments including breathing machine.

Additional Orders: _____

C *Check All That Apply*

DISCUSSED WITH: (REQUIRED)

☐ Patient ☐ Parent of minor
☐ Person appointed on advance directive
☐ Court-appointed guardian
☐ Relative, friend or other support person (without written appointment) – See reverse side for additional requirements for completion in persons with intellectual or developmental disabilities.

List all names and relationship: _____

D

PATIENT ACKNOWLEDGEMENT (RECOMMENDED BUT NOT REQUIRED)

Signature:	Name (print):	Relationship (write "self" if patient):

This form will be sent to the POLST Registry unless the patient wishes to opt out. To opt out, check here. ☐

E *Must Print Name, Sign & Date*

ATTESTATION OF MD / DO / NP / PA / ND (REQUIRED)

By signing below, I attest that these medical orders are, to the best of my knowledge, consistent with the patient's **current** medical condition and preferences.

Print Signing MD / DO / NP / PA / ND Name: ***required***	Signer's Phone Number:	Signer's License Number: *(optional)*
MD / DO / NP / PA / ND Signature: ***required***	Date: ***required***	**"Signed" means** a physical signature, electronic signature or verbal order documented per standard medical practice. Refer to OAR 333-270-0030

SEND FORM WITH PATIENT WHENEVER TRANSFERRED OR DISCHARGED
SUBMIT COPY OF BOTH SIDES OF FORM TO REGISTRY IF PATIENT DID NOT OPT OUT IN SECTION D

*Also known as Physician Orders for Life-Sustaining Treatment

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2023

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CHAPTER OVERVIEW

8: Pharmacology

8.1: Intramuscular injection
8.2: Intramuscular Autoinjector
8.3: Epinephrine (1-1,000)
8.4: Oral Medications
8.5: Inhaled Medications and Nebulizers
8.6: Intranasal (IN) Medication Administration

Thumbnail: Man being treated for smoke inhalation. (Unsplash License; Acton Crawford via Unsplash)

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8.1: Intramuscular injection

Medication administration by intramuscular injection (IM) is a quick way to administer a medication into the bloodstream through the route of muscle tissue and then into the systemic circulation. The most common IM medication to be delivered by EMS is Epinephrine, given for patients experiencing a serious and life-threatening condition called anaphylaxis. Other medications including vaccines can now be administered IM at the EMT level however, currently this is only practiced in some counties and is protocol dependent.

To administer medications by IM we need to identify the target tissue for injection. If injection is too shallow the absorption of medication will be slow. Too deep and we run the risk of hitting the periosteum (tissue surrounding bone) and causing excessive pain. Please reference anatomical illustrations of the skin before proceeding. Note, the musculature we are referring to is skeletal muscle. EMTs do not administer medications into cardiac or smooth muscles.

Follow these steps to administer a medication through the IM route:

1. Ensure the patient is suffering from a condition warranting administration (Anaphylaxis, etc.)
2. Lay out your equipment. For this procedure you will need:
    1. IM needle with 1ml syringe (larger syringes can be used, though it is not recommended as the small volume of drug being given IM makes ensuring dose accuracy difficult).
    2. Alcohol prep pad.
    3. Medication to be administered – ensure it is the proper medication and it is not expired.
    4. Sharps container.
3. Identify your site of injection. Common IM injection sites are:
    1. Deltoid, lateral quadricep, and gluteus maximus muscles.
4. Clean the site using the alcohol prep pad.
    1. Start in the center of your selected site.
    2. Wipe the alcohol pad in small, expanding, concentric circles.
    3. Let the alcohol moisture on the skin evaporate DO NOT WIPE OR TOUCH THE SITE
5. Draw your medication.
    1. While the alcohol is evaporating open the packaging on the syringe.
    2. Uncap your needle and medication vial.
    3. Insert needle into the rubber port on the top of the medication vile.
    4. Invert the medication vial/syringe combo taking care not to withdraw the syringe from the vile.
    5. Draw medication into the syringe to just above desired dose.
6. Remove air bubbles from the syringe.
    1. Pull the syringe/needle out of the vial.
    2. Keep the needle pointed up to facilitate movement of any bubbles to the top.
    3. If necessary, gently flick the syringe to move bubbles to the top.
    4. Eject air and excess medication by pressing the plunger up.
7. Ensure intended dose is what you have drawn up in the syringe.
    1. Sometimes in the process of removing air you accidentally eject more medication than you intend. Repeat steps 5-6 if necessary.
8. Final confirmation of medication “rights”.
    1. Right medication, dose, route, patient condition and timing.
9. Insert needle at 90^0 into selected site, where you cleaned.
    1. Insert deep enough to access the muscular tissue but not so deep that you strike bone.
    2. Quick insertion is helpful in reducing pain from the procedure.
10. Inject the medication by depressing the plunger on the syringe fully.
11. Remove the needle and place directly into sharps container.
12. Document the time, medication and dose given.

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8.2: Intramuscular Autoinjector

Medication administration by an intramuscular injection (IM) autoinjector is the quickest and easiest way of getting a medication into the bloodstream for systemic distribution. The most common IM autoinjector medication to be delivered by EMS is Epinephrine for patients experiencing anaphylaxis. Other rescue medications can be administered IM autoinjector however, these are rarely encountered outside of HAZMAT teams.

The autoinjector was developed for military applications and does not necessitate removal of clothing. However, you need to ensure the injection doesn't find a wallet or phone; it will not penetrate more than a few layers of thin clothing.

Auto Injector epinephrine is a common medication prescribed to the public. However, these devices, while effective, are extremely expensive in the United States and patients may hesitate to use them for fear of replacement costs. In such cases, if your service carries epinephrine, you should use the medication in your kit and let the patient keep their prescription. However, if you don't carry it, do not hesitate or wait until ALS arrives to provide this life saving medication.

To administer medications by IM autoinjector follow these steps: *NOTE – if practicing on other students or manikins, confirm your epi-pen is marked "Trainer" before proceeding.

1. Ensure the patient is suffering from a condition warranting administration (Anaphylaxis, etc.)
2. Ensure injector is not expired, has clear liquid, and is prescribed to the patient.
3. Identify your site of injection. Ideal placement for autoinjector IM sites is:
    1. Lateral thigh, into the quadricep muscle or the gluteus maximus.
4. When holding the autoinjector, be sure to **keep your fingers off the end**!
    1. An accidental discharge into your thumb will not only hurt but may also cause medical complications from administration of epinephrine into a small area.
    2. An accidental discharge will also cost your patient valuable time and create a second patient for your team.



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5. Final confirmation of medication "rights"
    1. Right medication, dose, route, patient condition, and timing.
6. Remove safety cap from back of the device.
7. Place the needle end against the injection site.
8. Press firmly until you hear the "click".
    1. If you do not hear the click, ensure that you have the needle end on the patient.
    2. Again, **keep your fingers off the ends**.
9. Hold in place for ~10 seconds.
10. Remove and place directly into sharps container.
11. Document the time, medication and dose administered.

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8.3: Epinephrine (1-1,000)

Class: Sympathomimetic

Me. Mechanism of Action: Epinephrine stimulates alpha-1 (α-1) (heart) and beta1 and beta 2 (β-1 and β-2) (lungs) receptors. Because of these effects the drug causes: peripheral vasoconstriction (α); increased heart rate, contraction force (β_1); and bronchodilation (β_2). Inhibits mast cell degranulation (immune system response)

Onset: 6-15 minutes IM

Indications: Anaphylaxis

Contraindications: None when used in emergency situations

Side Effects: Increased myocardial oxygen demand, ischemia, tachydysrhythmias, and anxiety

Dosage: 0.3 mg IM (1:1000) repeated as needed

IM Injection Skill Verification Table

Epinephrine	1 – Autoinjector	2 Autoinjector	3 Autoinjector	4 Autoinjector (instructor)	5 IM Injection (instructor)
Initials					

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8.4: Oral Medications

Acetylsalicylic Acid (Aspirin, ASA)

Classes: Platelet inhibitor (In the pre-hospital setting aspirin is only given for its platelet inhibitor properties.)

Mechanism of Action: Inhibits platelet aggregation for the life of the platelet (7-10 days)

Onset: 5-30 minutes

Indications: Suspected acute coronary syndrome

Contraindications: Active GI bleeding, allergy, children

Dosage: 324 mg PO (4 baby chewable aspirin)

Route: Oral – instruct patient to chew tablets until fully dissolved

Note: Aspirin given at the onset of an acute MI reduces mortality. Aspirin is the most effective treatment paramedics/EMTs can offer. Don't forget to give aspirin to patients with cardiac chest pain!

Acetylsalicylic Acid Skill Verification Table

ASA Administration	1	2	3	4	5 (instructor)
Initials					

Glucose, Oral administration

Class: Carbohydrate

Mechanism of Action: Increases blood glucose in a hypoglycemic patient.

Onset: 5–30 minutes

Indications: Hypoglycemia in conscious, cooperative patient

Contraindications: Patients who cannot protect their airway.

Dosage: 1 tube PO (15-24 g). May repeat as needed.

Route: Oral – instruct patient to suck on glucose goo until fully dissolved in the mouth



Equipment images by Jamie Kennel and Carmen Curtz, licensed under CC BY-NC-SA 4.0.

Glucose, Oral Administration Skill Verification Table

Oral Glucose Administration	1	2	3	4	5 (instructor)
Initials					

Activated Charcoal

Class: Adsorbent

Mechanism of Action: Adsorbs toxin molecules to the outside surface of charcoal. The combined complex is then excreted from the body.

Indications: Selected ingestions. In most protocols, activated charcoal may be given for aspirin and acetaminophen ingestions < 2 hours. For all other ingestions, OLMC or poison center consultation is usually required.

Contraindications: Altered Mental Status (AMS)

Side Effects: Abdominal cramping, constipation

Dosage: 1 g/kg, max 50g, PO, supplied in bottles of 25-50 g in slurry with water or sorbitol

Route: Oral – instruct the patient to swallow as much of the dose as possible. Placing a straw at the back of the tongue will help with the taste.

Activated Charcoal Skill Verification Table

Activated Charcoal Administration	1	2	3	4	5 (instructor)
Initials					

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8.5: Inhaled Medications and Nebulizers

Inhaling substances is a fast-acting way to get a drug into the body. The speed and ease of administration make this route a preferred method of illicit drug use as well as a great way to administer lifesaving breathing treatments. There are three main ways the EMT administers inhaled medications: Metered-Dose Inhaler, Medication Nebulizer, and Medication Mask Nebulizer.

Metered-Dose Inhaler (MDI) – These are widely available to the public through prescriptions for Asthma and COPD. The primary medication administered through an MDI is Albuterol (see Albuterol). There are other inhaled medications available, but Albuterol is the only MDI medication EMTs can assist in administering.

To assist a patient with administering MDI device:

1. Ensure the patient is suffering from a condition warranting administration (Asthma, COPD, etc.).
2. Ensure its the correct medication & that it is prescribed to that patient.
3. Identify the availability of a spacer.
4. Shake MDI for approx. 10 seconds.
5. Instruct patient to exhale completely.
6. Place inhaler mouth port in patient's mouth.
7. Instruct patient to breathe in fully.
8. As the patient breathes in, press the inhaler down to release medication.
9. Instruct patient to hold breath as long as possible.
10. Repeat as necessary up to limit by protocol & scope of practice.



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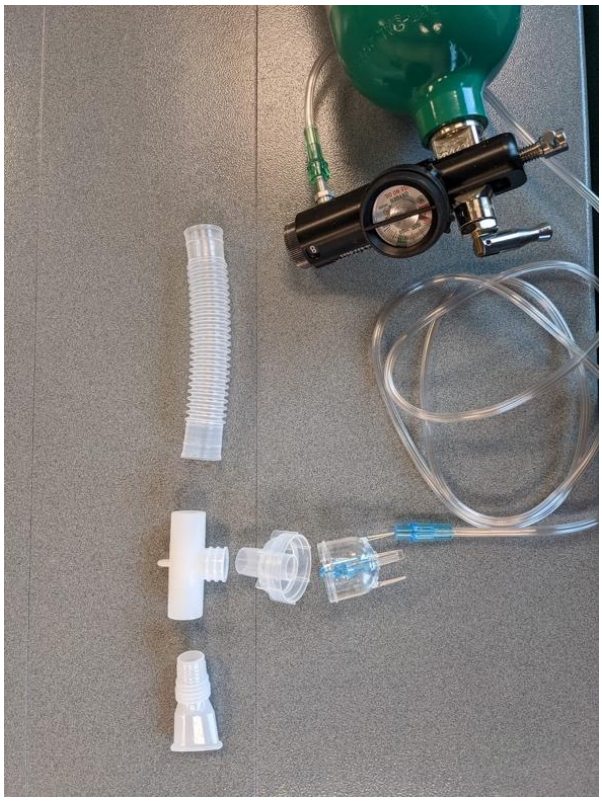
Medication Nebulizer "Med-Neb" – These are generally only available to patients with severe asthma or COPD. They may be carried on your ambulance or rescue unit and are readily available with ALS services. Some assembly is required, and this device requires oxygen to deliver medications.

To set up a Med-Neb:

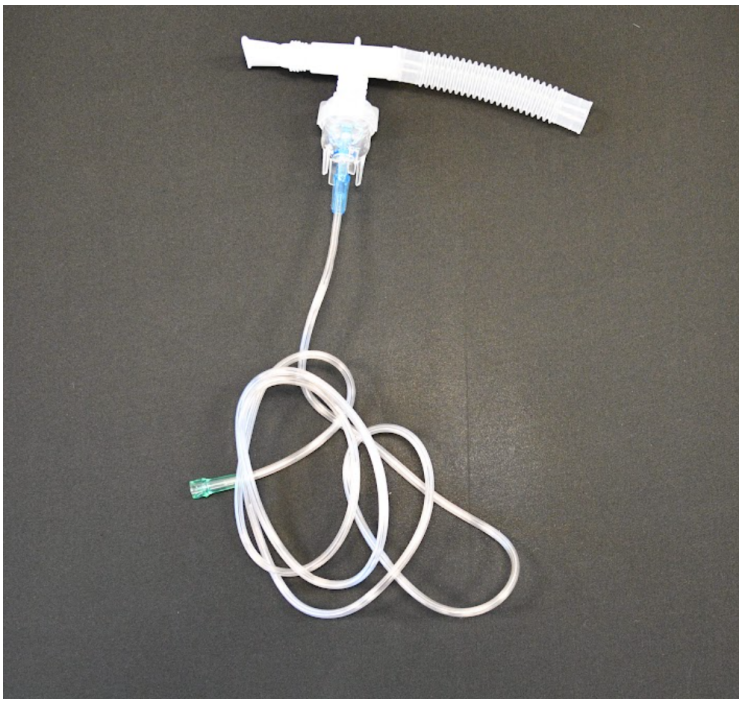
1. Assemble equipment (see photo below).
2. Insert medication into "acorn" by tearing the top off of a "fish" and squeezing all the contents into container.
    1. Medication will depend on protocol, though the two common medications are Albuterol and Ipratropium Bromide (see Albuterol & Ipratropium Bromide).
3. Screw container together with the rest of the med neb – Note if you skip this step, you will create a mess of medication when you turn on O2.
4. Attach oxygen tubing to bottom of "acorn" and set flow rate between 6-8 lpm.
5. Instruct patient to hold the med neb in their mouth and take full breaths through the mouthpiece (smaller plastic piece connected to the "T" versus the longer tubing spacer on the other side of the "T").
6. Repeat as necessary, up to your limit by protocol & scope of practice.



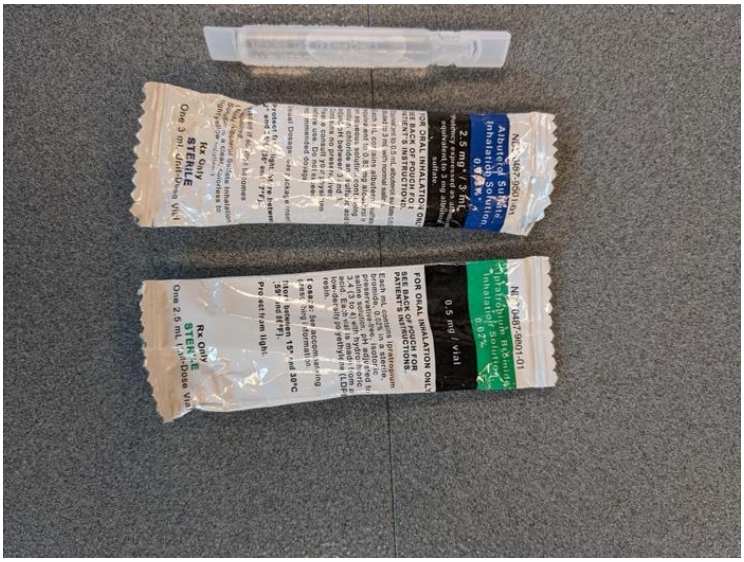
A person using a nebulizer. Image by Nickolas Oatley, licensed under CC BY-NC 2.0.



Med-neb equipment disassembled. Equipment images by Jamie Kennel and Carmen Curtz, CC BY-NC-SA 4.0.

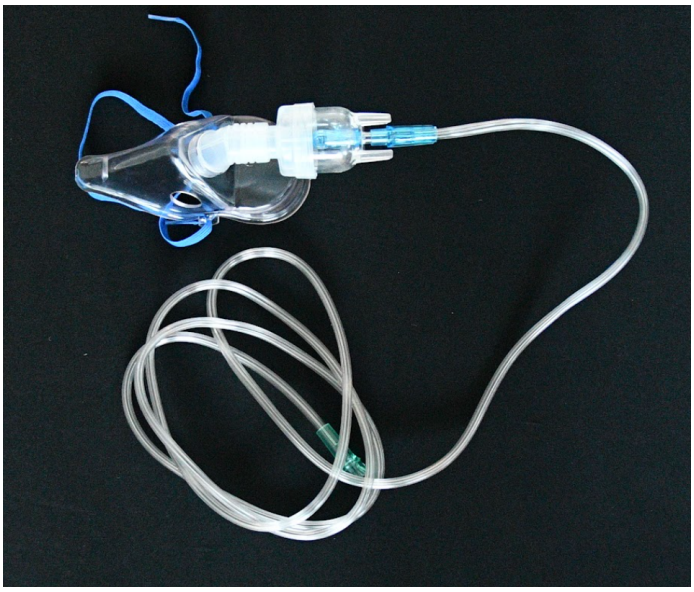


Med-neb equipment. Equipment images by Jamie Kennel and Carmen Curtz, CC BY-NC-SA 4.0.



Single dose vial, often called a “fish.” Equipment images by Jamie Kennel and Carmen Curtz, CC BY-NC-SA 4.0.

Medication Mask Nebulizer – A medication mask is a variation of the Med-Neb that removes the need for the patient to keep the mouthpiece in their mouth. It delivers the same medications at the same rate as the Med-Neb without the hassle of reminding a forgetful patient and keeps their hands free for other necessary interventions.



Equipment images by Jamie Kennel and Carmen Curtz, licensed under CC BY-NC-SA 4.0.



Same acorn unit as the Med-Neb unit, but now attached to a specialized mask. Equipment images by Jamie Kennel and Carmen Curtz, licensed under CC BY-NC-SA 4.0.

Albuterol (Ventolin)

Class: Sympathomimetic (beta-2 agonist)

Mechanism of Action: Bronchodilation by stimulating beta-2 receptors of the bronchi. Has minimal beta-1 (heart) stimulation.

Onset: Immediate

Indications: Known asthma exacerbation, known COPD exacerbation

Contraindications: None in prehospital setting

Side Effects: Hypertension, tachycardia, anxiety, palpitations

Dosage: 2.5 mg in 3 ml saline, supplied in plastic “fish” to be administered in med-neb. Or 1 “puff” of MDI every 3-5 min

Albuterol Skill Verification Table

Albuterol Administration	1	2	3	4	5 (instructor)

Albuterol Administration	1	2	3	4	5 (instructor)
Method of Administration					
Initials					

Ipratropium Bromide (Atrovent)

Class: Anticholinergic bronchodilator, parasympatholytic, antimuscarinic

Mechanism of Action: Ipratropium is a form of atropine given by inhalation. It antagonizes muscarinic cholinergic receptors in the bronchi, producing bronchodilation

Onset: 5-15 minutes

Indications: Known asthma exacerbation, known COPD exacerbation

Contraindications: None

Precautions: Delayed onset of action; not used as sole bronchodilator in emergent setting

Side Effects: Palpitations, anxiety, dizziness

Dosage: 500 mcg nebulized. Usually administered with a β2 agonist (albuterol).

Atrovent Skill Verification Table

Ipratropium Bromide	1	2	3	4	5 (instructor)
Method of Administration					
Initials					

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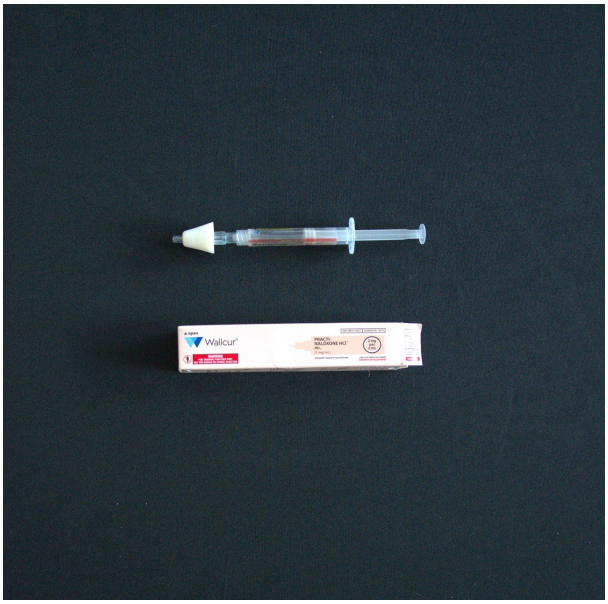
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8.6: Intranasal (IN) Medication Administration

The intranasal route for medication administration is extremely effective in providing life-saving medications without the inherent dangers associated with using needles in potentially unsafe situations. The main medication administered through the intranasal route by EMTs is naloxone hydrochloride (brand name Narcan). There are other medications that can be given IN however, none of them are in the EMT scope of practice.

To administer Narcan intranasally:

1. Determine indication for Narcan administration
    1. suspected narcotic overdose – respiratory depression, altered mental status, constricted pupils.
2. Attach nasal atomizer to Narcan preload (this with create a mist upon administration).
3. Place atomizer at tip of one nostril.
4. Administer ½ of the intended total dose by spraying the solution into the first nostril.
5. Switch nostrils and administer the second ½ of the dose.
6. Repeat steps 3-5 as necessary.



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Naloxone Hydrochloride (Narcan)

Class: Opioid antagonist

Mechanism of Action: Competitively blocks opioid analgesics from their receptor sites, reversing their effects. Respiratory depression, sedation, analgesia, and euphoric effects will be reversed.

Onset: 2–5 minutes when given IM, and 2-3 minutes when given IN

Duration: 1-4 hours

Indications: Symptomatic opioid overdose (respiratory depression)
Coma of unknown etiology to rule out (or reverse) opioid depression

Contraindications: None

Precautions: Can precipitate severe withdrawal symptoms in individuals physically dependent on opioids. Use repeated small doses (0.5 mg IN) in patients taking chronic prescription narcotics.
The duration of some opioids is longer than naloxone and the patient must be monitored closely. Repeated doses of naloxone may be required. Patients who have received this drug should be transported to the hospital because coma may reoccur when naloxone wears off.

Side Effects: Nausea, vomiting (if administered rapidly). Narcotic withdrawal symptoms: dizziness, hypertension, tachycardia, sweating, nervousness, abdominal cramps, headache, weakness, joint and muscle pain, insomnia, and untreated pain

Dosage: 0.2–2 mg (IM, Nasal), repeated to a max of 8 mg. Naloxone is shorter acting than most opiates, repeated doses may be required

Larger doses may be required to reverse the effects of synthetic narcotics (propoxyphene, buprenorphine, butorphanol, nalbuphine, or pentazocine)

Not useful in cardiac arrest even if cardiac arrest was a result of respiratory arrest caused by narcotic OD. Naloxone will not restart an arrested heart.

Naloxone Skill Verification Table

Narcan Administration	1	2	3	4	5 (instructor)
Initials					

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CHAPTER OVERVIEW

9: Pediatric and Obstetrics

9.1: Obstetrics and Childbirth

9.2: Pediatric Cardiac Arrest

9.3: Health Emergency Ready Oregon (HERO) Kids Registry

Thumbnail: Man being treated for smoke inhalation. (Unsplash License; Acton Crawford via Unsplash)

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9.1: Obstetrics and Childbirth

Imminent delivery is a common reason for requesting aid. As a prehospital healthcare provider, one of the most important decisions you will make for a patient experiencing symptoms of an imminent delivery is the decision to transport for a hospital delivery or to assist the mother with delivery of the baby on scene.

Decision to deliver:

Before we can make this decision, there are several questions that help us determine the proper treatment and none should be rushed. After scene safety, our next priority is to quickly establish a rapport with the patient. We will need to do some invasive examinations and expose the patient's body in a very vulnerable way.

Try saying this out loud:

> *"Hello, my name is _____ I am an EMT. I am here to help you. What is your name?*
>
> *I need to ask some questions to best take care of you.*
>
> - *What is your due date?*
> - *Are you currently having contractions?*
> - *Do you feel the urge to push?"*

If the patient has the urge to push, then continue with this…

> *"I know we have just met, but I'm here as a healthcare professional to help you through this process. I need to perform a visual exam to see if the baby's head is crowning. I will not be inserting my fingers or hand into your vagina unless I absolutely must. Do you have any pain or pressure in your vaginal or rectal area?"*

To perform the physical exam:

1. Inform the patient and trusted bystander of the need for visual inspection.
    1. *"I understand that you might be having your baby. I need to visually inspect for bulging of the perineum for evidence of the baby's head."*
2. Clear the room of unnecessary personnel and bystanders or move to a more private location (i.e., back of ambulance)
3. Position patient semi-fowlers or fowlers, knees bent, feet apart.
    1. Drape a blanket or sheet over the abdomen and knees. Keep modesty a priority.
    2. Visualize, but do not touch the vagina.

Timing Contractions

Time contractions from the beginning of one to the beginning of the next. Contractions are considered frequent if they are less than 2 minutes apart and are lasting more than 1 minute.

Decision points

- If the patient is experiencing contractions at increasing intensity and duration and the interval between contractions is shortening, birth may be imminent.
- If you can see the baby's head, on scene delivery of the baby is recommended.
- If no crowning is noted, transport is recommended.
- If any other part of the baby is presenting i.e., the arm, leg, buttocks, see Breech presentation for next steps.
- If the cord is presenting before the baby or alongside the presenting part of the baby, this is of the highest mortality rate and must be treated with emergent transport. See prolapsed cord for specific treatment plan.

Transport of a pregnant patient & avoiding supine hypotension syndrome

Pregnancy changes a person's body to accommodate a growing fetus. The following are normal changes that occur during pregnancy:

- Increased respiratory drive. As the uterus grows to accommodate the growing fetus, pressure is placed onto the diaphragm making it harder for the patient to take a deep full breath. Quality of breathing becomes shallow and slightly increases as late term pregnancy progresses.
- Increase in heart rate. The increase in HR is to accommodate the normal increase in circulating blood volume.
- There may also be obvious and painful swelling of extremities: wrists, hands, ankles, feet.
- Position the pregnant patient on their left side. This is the safest position to reduce the risk of supine hypotensive syndrome. This position protects the inferior vena cava from compression that would decrease cardiac output and cause hypotension amongst other untoward and dangerous symptoms.

Preparing to assist a field delivery.

If the need to stay on scene and deliver is recognized, take the following steps to prepare for delivery:

1. Don additional PPE including eye protection, gowns, face shield, booties, and gloves.
2. Call for an additional unit, preferably ALS.
3. Continue to ask SAMPLE, natal, and prenatal questions.
4. The position the pregnant patient takes during labor can vary to meet the comfort or desire of the patient. Various positions can be and, in some cases, should be considered by providers, to assist with delivery. Traditional delivery, or semi-fowlers delivery, is not the only way to position a laboring patient.
    1. Ample space around the patient is recommended.
    2. Traditional positioning: sitting, supported at 45^0 angles, knees bent, feet apart, and glutes at edge of surface, unless on the floor.
    3. Patient's partner or trusted companion should be positioned beside the patient, holding hands for comfort.
5. Place sheets and incontinence pads under the buttocks.
6. Have towels, warm blankets, and gauze nearby and accessible.

Assisting in field delivery

1. Encourage short shallow breaths between contractions "butterfly breathing."
2. Encourage pushing at the peak of contractions.
3. Place the palm of your hands on the crowning head of the baby and avoid adding pressure.
4. Guide the baby out of the vaginal canal by directing the head downward until one shoulder is delivered.
5. Next, gently lift the baby either up or down to allow the second shoulder to deliver.
    1. Baby will be slippery! Maintain a gentle but firm grasp!
6. Using a towel or blanket, rub the baby dry and stimulate. This will encourage a vigorous baby. Continue to stimulate and warm. These two actions are extremely important in acclimating the newborn.
7. If the baby has little to no crying and is taking longer to acclimate, then consider suction using a bulb syringe. Suction the mouth and then the nostrils. Remember, NOT ALL babies need suctioning. Most of the amniotic fluid is forced from the mouth and nose as the baby's chest is compressed during descent through the vaginal canal. This is nature's way of

clearing the oropharynx and nasopharynx of fluid.

8. Place baby skin to skin with the parent. Encourage suckling. Continue to wipe the outside of the baby's mouth to clear secretions and remember to warm, warm, warm the baby. Warming the baby is a necessary and mandatory intervention.

Continue to Post Delivery Care

Nuchal Cord Care

A nuchal cord occurs when the umbilical cord is wrapped around the neck of the baby during delivery. This can prevent exchange of oxygen by tamponading blood flow through the umbilical cord as well as preventing the neonate from breathing or crying through asphyxiation.

1. When a nuchal cord is identified, slide fingers between the cord and neck of the neonate and gently pull the cord over the head.
2. Proceed with delivery as indicated.

Prolapsed Cord care

If a prolapsed cord is present, assess the cord for pulsation. If the umbilical cord is pulsating, discourage the mother from pushing, wrap the cord in damp gauze, transport emergently to the nearest facility capable of performing a cesarian section and continually reevaluate for the presence of umbilical pulse.

If the umbilical cord has no pulse

1. Place mother on her knees and elbows with her buttocks in the air.
2. With a gloved hand, place 2 -3 fingers in the vaginal canal.
3. Using the palm side of your gloved hand puts pressure on the neonate's head.
4. As you find the head reach about the head to feel for the cord.
5. Slightly manipulate the head off the cord until pulses return.
6. Leave your gloved fingers inserted in this position to allow for pulses to continue in the umbilical cord.
7. Have team members apply saline soaked dressing to the prolapsed cord which is presenting out of the vaginal opening.
8. Transport in that position code 3 to the nearest appropriate facility.

Post Delivery Care

1. If the baby is not breathing once warm and dry you will need to continue rubbing the baby's back and perhaps flicking the soles of their feet.
2. After 1 – 3-minutes, place 1 clamp on umbilical cord 6-8 inches away from baby
3. Place a second clamp ~2 inches distal from the first clamp.
4. Once the cord has no pulse, use the scalpel to cut the cord in between the two clamps.
5. Cord can be cut emergently once umbilical clamps are on, if and only if mother or baby are in distress. Otherwise, there is no rush to cut the cord until the baby has vigor. Remember to keep the baby at peri-level or pelvic level until the cord is cut.
6. You now have 2 patients with the birth of the neonate.
7. Split the EMS team into 2 teams.
8. 1 team assessment and treatment of mother.
9. 1 team assessment and treatment of neonate/s.
10. APGAR (see attached guide) at birth and again at 5 minutes.
11. Birthing patients will continue to have mild contractions as they prepare to deliver the placenta typically within 5 -15 minutes.
12. If there is significant vaginal bleeding from the vagina, use fundal massage and if possible, encourage suckling.
    1. To perform fundal massage, place the palm of your hand on the fundus of the uterus, just below the umbilicus.
    2. Massage in very firm downward pressure and circular motion until bleeding slows.
    3. Call for ALS assistance.
13. After delivery of the placenta, check for completeness of placenta. Any tears or pieces missing should be placed in a plastic bag and taken to the hospital.

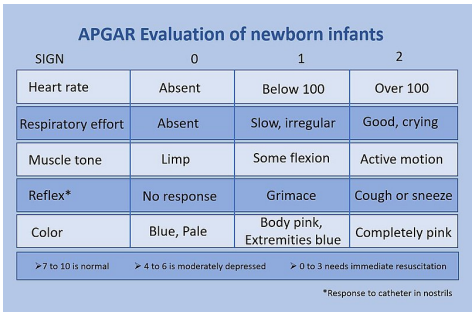


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Obstetrics and Childbirth Skill Verification Table

Childbirth	1 Student (normal)	2 Student (abnormal)	3 Student (abnormal)	Instructor (Signoff)
Initials				

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9.2: Pediatric Cardiac Arrest

In our absolute worst-case scenarios, our pediatric patient is found or progresses into cardiac arrest. As an effective team leader, you must recognize the condition and act quickly and efficiently to increase the chances of survival. The changes with children relate to their size and cause of cardiac arrest:

1. Children (1 month – puberty) are more likely to experience cardiac arrest for respiratory reasons and therefore we will breathe at quicker intervals than adults.
    1. This is especially true with neonates (birth-30 days)
        1. Compression / Ventilation ratio of 3:1
2. Decrease the depth of compressions to 1/3 of the depth of the chest and use 1 hand instead of 2.
3. When performing alone, for children 1mo – puberty, we keep the 30:2 compression/ventilation ratio.
    1. When another rescuer arrives, we move to 15:2 compression/ventilation ratio.



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Flowcharts are a helpful tool to visualize the concepts and decision making necessary within this set of skills. Unfortunately, due to copyright restrictions we are unable to provide them here.

The authors recommend you or your instructor find an up-to-date version of this flowchart from the American Heart Association. A simple web search on **pediatric cardiac arrest algorithm AHA** should do the trick. If you are viewing the online version of this lab manual, this link will take you to the AHA CPR algorithms.

Pediatric Cardiac Arrest Skill Verification Table

Ped Cardiac Arrest	1 – Member	2 – Lead	3 – Lead (instructor)
Initials			

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9.3: Health Emergency Ready Oregon (HERO) Kids Registry

The HERO Kids Registry is a voluntary, no-cost system that lets any Oregon family share critical information about their child's health in the event of an emergency. The information can be quickly and easily accessed by emergency medical services (EMS) and hospital emergency department (ED) providers, so they have the information they need when they need it. This registry provides timely medical information to EMS providers to assist in treatment plans and destination decisions.

The HERO Kids Registry is available to any Oregon child or young adult ages 0-26. HERO Kids is especially useful for medically complex children and young adults who experience chronic health conditions, developmental disabilities, and/or mental or behavioral health conditions. EMS can get the following information from the HERO Kids Registry: alerts, allergies, medications, medical and/or behavioral conditions, approach considerations, parent, or legal guardian contact information, and much more.

EMS providers may be notified by 9-1-1 dispatcher, parent, legal guardian, patient, school staff and/or caregiver that the child or young adult is registered in HERO Kids. EMS providers may also see a HERO Kids sticker or backpack tag on one of the child or young adult's belongings or see a copy of the completed HERO Kids Registry form posted on the refrigerator in the patient's home.

1. Collect at least two of the following identifiers for patients ages 0-26:
    1. Registry ID #
    2. Full name
    3. Date of birth or approximate age
    4. Gender
    5. Last 4 of Social Security Number
2. Call the confidential HERO Kids provider hotline, **or**

Enter the patient's demographic information into the Oregon Registries for EMS (OREMS) app.

Note: *If you need the provider hotline or OREMS app login credentials, request by sending an email to herokids@iohsu.edu or calling the HERO Kids business office at 833-770-4376.*

Information will be available in less than 90 seconds.

HERO Kids Registry	1	2	3 (instructor)
Initials			







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CHAPTER OVERVIEW

10: Medical Patient Assessment Team Lead Final Evaluation

10.1: Medical Patient Assessment Team Lead Final Evaluation

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10.1: Medical Patient Assessment Team Lead Final Evaluation

Grab an EMS instructor and team to run through a scenario as a team lead. Your team can assist you on this call and actively participate.

Emergency Medical Technician Final Scenario Score Sheet

	0 Critical fail*	1 Needs improvement	2 Satisfactory completion	3 Proficient
Scene safety / Scene control: Identifies hazards & implements mitigation strategies				
Professionalism: Introduces self, asks names uses proper body language, eye contact, etc.				
Communication: Uses effective strategies to mitigate error				
Assessment: Applies appropriate and adequate physical exam and line of questioning for pt. condition				
Treatment: Provides adequate treatment plan for patient condition and available resources				

Total:	
Minimum 80% or 12/15 with no critical fails	

*Comments:

Instructor name and initials

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