



BROWN



# Pocket Guide to Support Rwandan Trauma and Medical Emergency First Responders



U.S. Embassy in Rwanda

**This guide is intended to be a very concise resource to remind first responders who have been trained in first aid and post-crash care in Rwanda.**

**It is not intended to be a comprehensive, stand-alone textbook but we hope it will reduce anxiety among learners and improve the quality of care provided by trained first responders.**

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This guide was created by Rwandan emergency medicine physicians. Email [tuwurinde@gmail.com](mailto:tuwurinde@gmail.com) to contact the authors. It is licensed under Creative Commons, February 2024.



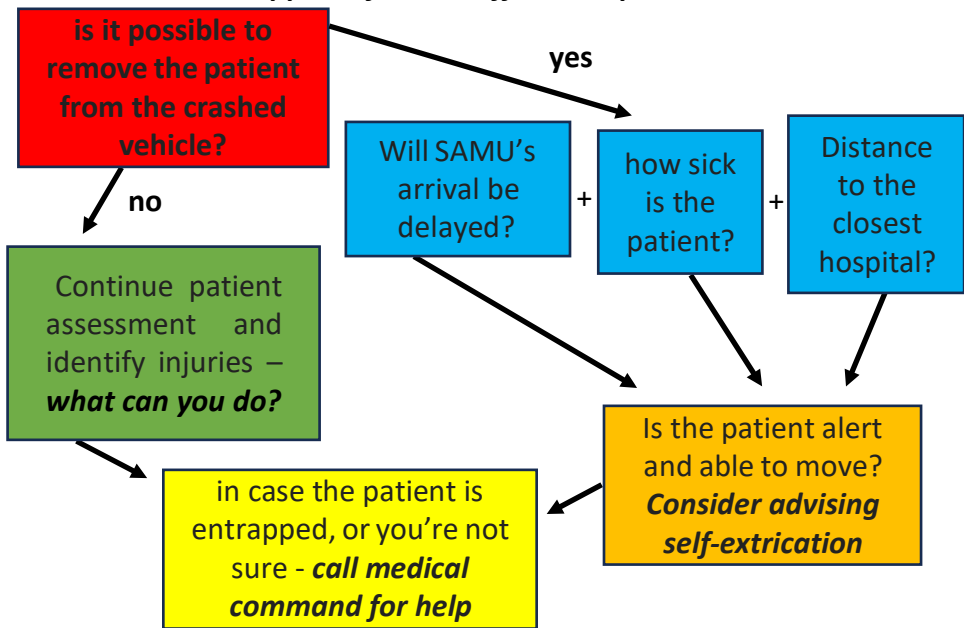
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**Calling Medical Command for extrication and transport decision support of road traffic crash patients**



Consider the flow chart so you have critical answers ready when you call – it's ok if you don't have all the answers, but you should be considering them - every situation will be different

<b>Medical Command Contacts - RMH Emergency Department</b>	
First call	<b>+250 788 330 215</b>
Backup	<b>+250 788 330 260</b>
SAMU	912
Explain you are calling to urgently speak to an emergency doctor	



**You can't help anyone if you get hit by a car at a road traffic crash scene - prioritize safe traffic control**



**FIRST THING'S FIRST - FIND AND SORT ALL THE PATIENTS WITH TRIAGE**

do not get distracted by one, quickly perform triage of each. After triage you will find and treat additional life threats during primary assessment.

*If they are walking around without assistance*, they are well enough to await further assessment - they can be useful! tell them to hold pressure on a wound to stop bleeding on themselves or others



*If they are unconscious*, open their airway, are they breathing on their own? *If they are breathing*, assess for have very fast breathing, sweating or confusion they need immediate transport

**Breathing every 2 seconds is very fast and will look abnormal**, most of us breath only 10 times a minute, **Being sick or injured and sweating is a sign of shock** - it is called diaphoresis and should be taken seriously unless there is a very clear other cause of the sweat.



**How to check perfusion and cap refill time**



Try it on yourself - push firmly on the end of your finger (nail or skin) until a portion of it turns white because you cut off blood flow with the pressure, hold that for 5 seconds and let go. The color comes back almost instantly, unless you are in shock and then it will take longer than 2 seconds

**Transport rapidly if you find they are breathing faster than 30 times per minute, their cap refill is slow, or they can not follow commands**

<b>R</b>	Respiration	RR < 30
<b>P</b>	Perfusion	Cap refill < 2s
<b>M</b>	Mental status	Can do commands

Patients with any of the RPM features beyond the limits belong in the 'red' category.

<b>M</b>	<b>MASSIVE HEMORRHAGE</b>	OBJECTIVE: Stop Blood Loss	<ul style="list-style-type: none"> <li>• Direct pressure</li> <li>• Pressure bandage(s) - Not over joints/breaks</li> <li>• Tourniquet(s) - High and tight</li> <li>• Wound packing - Hemostatic agent preferred</li> </ul>
<b>A</b>	<b>AIRWAY</b>	OBJECTIVE: Ensure Clear Airway	<ul style="list-style-type: none"> <li>• Listen for breaths, See if chest rises and falls</li> <li>• Recovery position - Patient lying on side</li> <li>• Chin lift or jaw thrust if no head/neck injury</li> <li>• Check for obstructions - Heimlich Maneuver</li> </ul>
<b>R</b>	<b>RESPIRATIONS</b>	OBJECTIVE: Functional Breathing	<ul style="list-style-type: none"> <li>• Check front and back for torso punctures</li> <li>• Treat with occlusive dressings (chest seals)</li> <li>• Assess for respiratory distress</li> <li>• Sitting up position makes breathing easier</li> </ul>
<b>C</b>	<b>CIRCULATION</b>	OBJECTIVE: Continue Assessment	<ul style="list-style-type: none"> <li>• No movement, no breathing → start CPR</li> <li>• Call for help and an AED</li> <li>• Compressions only is better than dead</li> <li>• Push hard, allow chest recoil, 100 per minute</li> </ul>
<b>H</b>	<b>HEAD INJURIES &amp; HYPOTHERMIA</b>	OBJECTIVE: Prevent Body Heat Loss	<ul style="list-style-type: none"> <li>• Check for head wounds</li> <li>• Assess consciousness (AVPU)</li> <li>• Use heat-reflective or dry regular blankets</li> <li>• Insulate from cold ground or wet clothing</li> </ul>

Based on the Tactical Emergency Casualty Care (TECC) Tactical Field Care (TFC) Guidelines

## BEGIN WITH HEMORRHAGE CONTROL AND BLOOD SWEEP



Treat any obvious massive hemorrhage with limb tourniquets, wound packing, pressure bandages, or junctional tourniquets, as appropriate

After treating obvious massive hemorrhage, do a rapid head-to-toe check for any unrecognized life-threatening bleeding

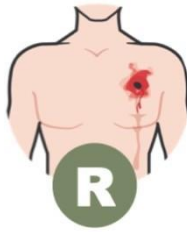


- Check the **neck, axillary, and inguinal** areas
- Check the **arms, legs, abdomen, chest, and back**

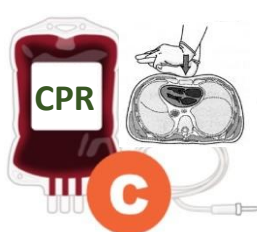
## REST OF MARCH SEQUENCE



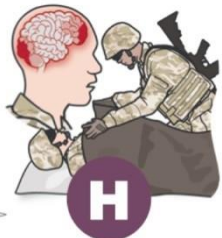
Relieve any airway obstructions or pending airway obstructions with maneuvers; head tilt chin lift or jaw thrust if head trauma. Clear foreign bodies or vomit from mouth by turning on side in recovery position



Treat open chest wounds with a 3-sides sealed occlusive dressing (plastic or aluminum foil coated paper sealed with tape).  
Position to relieve respiratory distress.



No movement + no normal breathing = begin CPR. Call for help and an AED, compressions only for adults. 30 compressions then 2 breaths if <8 years or drowning.



Use active and passive measures to prevent or treat hypothermia  
Assess and document all head and penetrating eye injuries

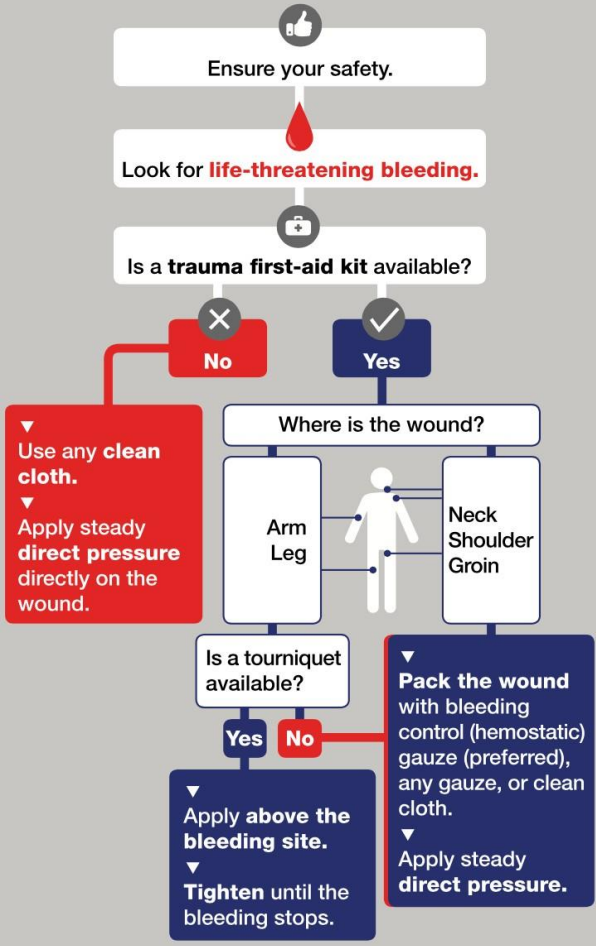


SAVE A LIFE

STOPTHEBLEED.ORG

## Save a life

What everyone should know to stop bleeding after an injury



Scan this code to view the free online trainings



You can't help others if you are injured or dead, *keep yourself safe.*



Show others how to help you stop the bleed if there are too many injured or you can not reach a patient trapped in a crashed vehicle.





**Deep wounds** must be filled with gauze to apply pressure and stop bleeding effectively - **pushing on the top of a hole will not stop bleeding**

### WOUND PACKING

**Do not remove a tourniquet to see if bleeding has stopped, write the time it was applied so the hospital knows**



Identify **exact source** of bleeding and **APPLY direct pressure UNTIL** gauze is placed

Pack the wound **maintaining CONSTANT** direct pressure within **90 SECONDS** to be effective

Fill and pack the wound tightly, ensuring gauze extends 1-2 inches above the skin



**HOLD** direct pressure for at least **3 MINS (this is necessary, even with the active ingredient in hemostatic gauze)**

When packing a large wound, more than one hemostatic gauze and/or **additional gauze** may be **needed**



Carefully **observe** to determine if bleeding has been **controlled**

Once you are sure the bleeding has **stopped**, apply a pressure bandage

## 1 APPLY PRESSURE WITH HANDS



## 2 APPLY DRESSING AND PRESS



## 3 APPLY TOURNIQUET



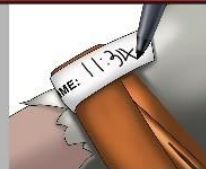
**WRAP**



**WIND**

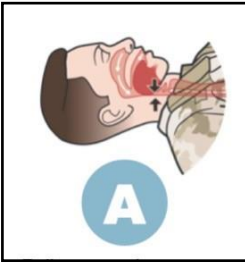


**SECURE**



**TIME**

**CALL SAMU FOR HELP – 912**



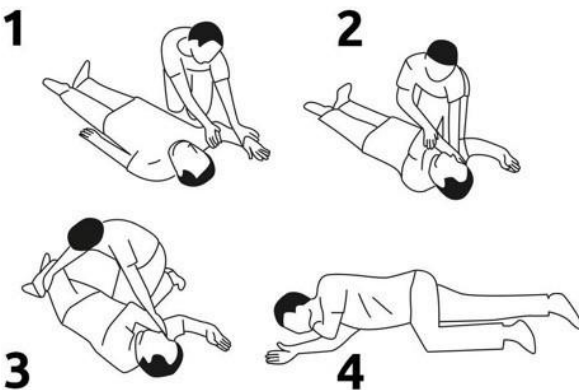
When people are unconscious, they may not be able to breathe if their tongue blocks the airway



First responders can hold an airway open without any tools - the jaw thrust maneuver moves the neck minimally in case it is injured

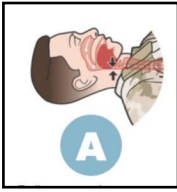


You can remove vomit or foreign bodies from the mouth by turning an unconscious person on their side into **the recovery position**, just like you would someone unresponsive but breathing, after cardiac arrest



After opening the airway, you can check to see if they begin to breath by putting your cheek near the mouth





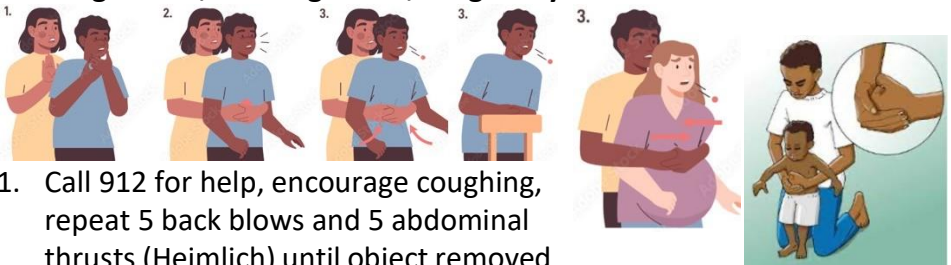
**The universal sign of choking** is shown, encourage coughing if the patient can, it is the best way to clear the airway of an obstruction - back blows may help while coughing and be read to provide abdominal thrusts

### Choking Infant (small enough to pick up, <1 year)

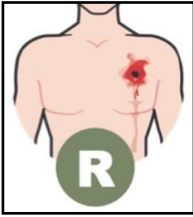


1. Call 912 for help, look in the mouth and if able to see object and it is easy to grasp, remove it. Do not try to remove what you can't see by sweeping your finger in the mouth, you may push it in further and make it impossible to remove.
2. Brace infant on your arm face down and give 5 back blows between the shoulder blades
3. Flip infant on to their back on your other arm and give 5 chest thrusts in the center of the chest
4. Continue rotating sets of 5 back blows and 5 chest thrusts until object is removed or infant becomes unconscious
5. Look in the mouth and remove visible objects before giving a breath, begin 30:2 chest compressions and breaths of CPR

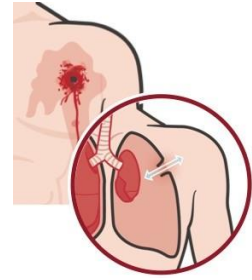
### Choking Adults, Choking Alone, Pregnancy & Children



1. Call 912 for help, encourage coughing, repeat 5 back blows and 5 abdominal thrusts (Heimlich) until object removed
2. Use a chair if alone, go above the belly in a pregnant woman, and kneel behind small children but the cycles are the same. If the patient loses consciousness lay on the floor and begin CPR



**Chest wounds** can cause air to be trapped inside the chest - this **can kill quickly** - look for a wound that **bubbles air and sucks in**, the skin around it may crackle when you push on it, they may cough up blood

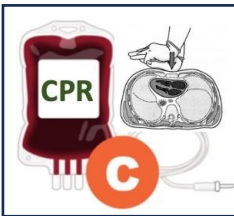


you can prevent collapse of the lung by **applying a dressing that will stop the wound from sucking in more air but allow air to escape the chest** - use plastic or foil so **air can't enter through the dressing**, apply tape on 3 sides and allow air to escape through one corner, when the wound sucks in it will pull the dressing over it



Patients with **difficulty breathing** may be in the **tripod position** as shown - it makes breathing easier - be concerned when you find patients in this position, they are having a lot of difficulty and may worsen rapidly. **Helping a patient to sit forward with their feet down can improve their breathing.**

## **BASIC LIFE SUPPORT (BLS) - CIRCULATION SUPPORT**



First responders must recognize **CARDIAC ARREST**, when the heart stops beating normally, and death occurs but can be reversed if good quality **cardio-pulmonary resuscitation (CPR)** is performed while awaiting other treatment and patient transport.



**Step 1**  
Tap and shout.  
Look for no breathing or only gasping.



**Step 2**  
Yell for help.  
Send someone to call emergency services.



**Step 3**  
Begin CPR.



Don't check for a pulse, check for signs of life - **no movement and no normal breathing is cardiac arrest** - gasps are not normal, it is **TOO SLOW**

# BASIC LIFE SUPPORT (BLS) - CIRCULATION SUPPORT

## Hands Only CPR for Adults (>8 y/o)

The latest research shows that chest compressions alone are the most effective way for an untrained bystander to save a life after an adult collapses from cardiac arrest. The technique shown here should not be performed on infants, children, drowning victims, or in cases involving a drug overdose. Otherwise, here's what to do.

- 1 Call 912, cardiac arrest, ask for an AED



- 2 Kneel beside victim's chest. Loosen clothing if practical.



- 3 Place the heel of one hand in the middle of the victim's chest.



- 4 Cover first hand with your other hand, locking fingers.



- 5 Push down hard and fast. Try to maintain at least 100 pushes per minute.

Lock your elbows and push with all your weight, depressing the chest 2 inches each pump.

Don't worry about hurting the victim - you're trying to save a life.

Continue until medical help arrives.



SOURCES: American Heart Association; www.azshare.gov

DAVID BUTLER/GLOBE STAFF

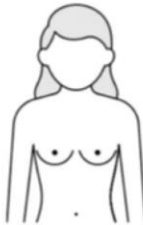
## Using an Automated External Defibrillators (AED)



1. Turn on device & follow audio instructions.



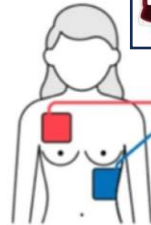
4. Allow the AED to analyze the person's heart rhythm.



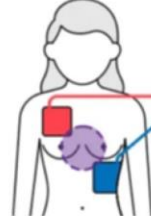
2. Expose the person's bare chest, including bra.



5. Make sure no one touches the person as the AED delivers a defibrillation shock.



3. Apply the electrode pads to the person's dry skin.

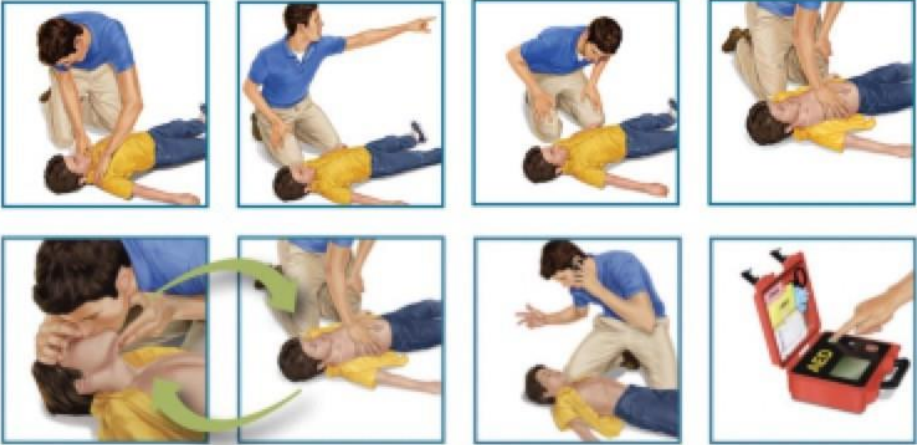


6. The AED will instruct you when it is safe to continue Hands-Only CPR after the shock has been delivered.



# BASIC LIFE SUPPORT (BLS) - CIRCULATION SUPPORT

## 1 Handed CPR & Rescue Breaths for Children (1-8 y/o)



1. Open airway and give 2 breaths, yell for help

2. Repeat sets of 30 compressions and 2 breaths for 5 sets, call 912 and resume sets of 30:2

3. When the AED arrives turn it on and follow prompts, use pediatric pads



## 2 Finger CPR & Rescue Breaths for Infants (<1 y/o)



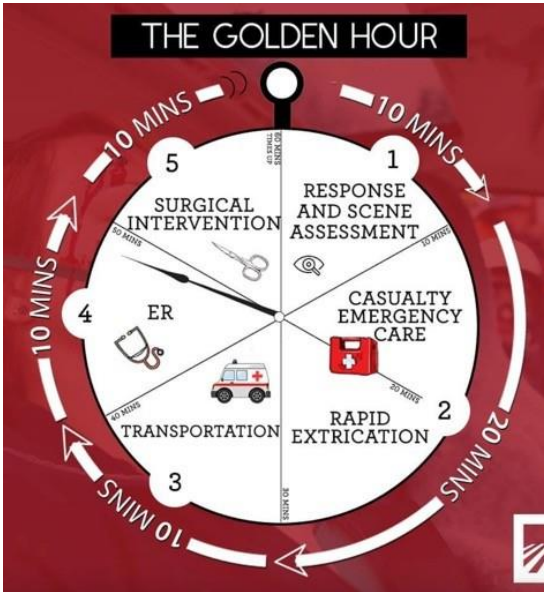
1. Flick feet bottoms, open airway and give 2 breaths, yell for help

2. Repeat sets of 30, 2-finger compressions and 2 breaths for 5 sets, call 912 and resume sets of 30:2

3. When the AED arrives turn it on and follow prompts, use pediatric pads and place front and back to avoid overlapping



# MANAGING TRAUMA AND INJURIES

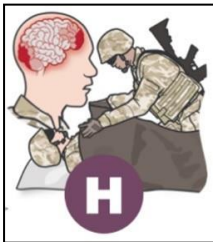


*Delays to emergency and surgical care kill and disable injured patients*

Preparing a patient for immediate transport upon arrival of SAMU by removing them from a crashed vehicle can reduce delays and save lives.

Ambulance transport is not always required, call medical command if you are uncertain.

## TECHNIQUES TO ASSESS RESPONSIVENESS ALTERED MENTAL STATUS



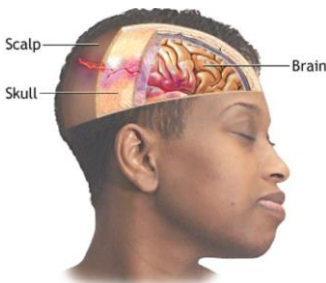
ASSESS THE MECHANISM OF INJURY



COMMUNICATE WITH THE CASUALTY

- A** lert
- V** erbal Stimuli
- P** ainful Stimuli
- U** nresponsive

**Brain injuries often present with altered mental status** - Speak loudly in the ear of a patient, they may open their eyes in response to **verbal stimulation**. If they don't, try pinching their skin or rub the breastbone hard enough to cause a response to **painful stimulation**. If no reaction, they are **unresponsive**.

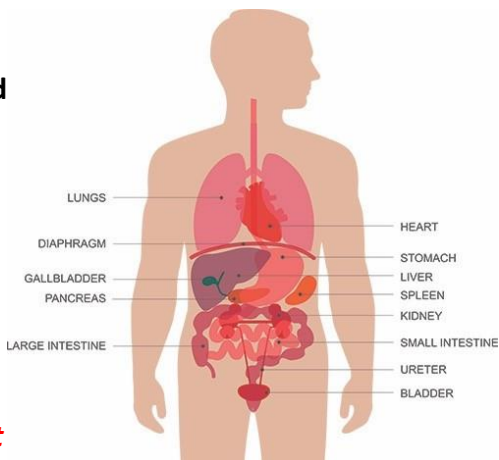


**Scalp wounds** to the skin of the head under the hair can bleed too much. **Control the bleeding with pressure**, like any other bleeding. **Rarely the bones are broken under the wound**, and you may feel them move. If so, cover the wound with clean gauze and push gently to control bleeding so you do not damage the brain underneath.



## Road Traffic Crashes, Removing Injured from Vehicles & Transport Decisions

**Even if you see no wounds** there are many internal organs at risk - **look for swelling, discoloration of the skin, and pain** - these injuries often require a surgeon and specialized hospital, consult medical command if you're unsure - **rapidly transport if you suspect a chest or abdominal injury**. 50% of victims trapped in a crashed vehicle have serious injuries that may kill them if not treated rapidly, while <1% have a cervical spine injury - **don't delay transport to immobilize the neck**

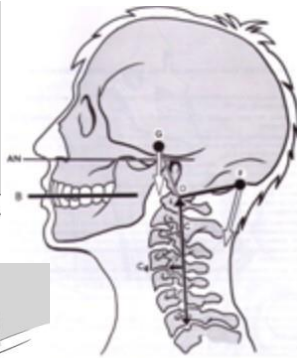


**Vehicle extrication by fire rescue can take a long time - is it possible to remove the injured without cutting the car?** Consider these steps:

1. Can you open the door with the handle from the inside? break the window if needed
2. Can you cut off the seatbelt or release it?
3. Can the patient remove themselves by crawling out an open window?

If they can crawl out, apply an improvised cervical collar to limit their neck movement. Research shows pain causes people to contract their muscles and help protect existing injuries. **If your patient is unconscious or totally unable to move themselves you must pull them out if possible** - they are HIGHLY likely to have a time dependent, life-threatening injury

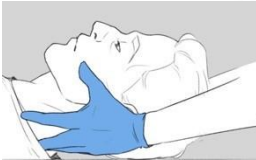




## **Improved Cervical Spine Immobilization with a Towel**

Studies show that cervical collars reduce neck movement during extrication

They also show that a towel can reduce movement as much as a special collar



Good alignment of the Head and Neck



1. Manually stabilize and obtain good alignment of the head and neck, use your hand to measure the distance between the chin and junction of the front of the neck and chest
2. Roll up the towel to the width you measured with your hand
3. Center the towel across the front of the neck and loosely wrap both ends around back to create a brace for the neck

## **Drowning and Neck/Cervical Spine Injuries**

Be aware that in shallow pools a drowning person may have dove in, hit their head on the bottom and have a cervical spine injury - you must rescue them from drowning first, but if you suspect they could have a diving injury try to immobilize and protect the cervical spine when you move the victim.



**YOU CAN'T RESCUE A DROWNING PERSON IF YOU BECOME A VICTIM - BE SMART, DROWNING PEOPLE PANIC AND PULL RESCUERS UNDER WATER**

## DROWNING CHAIN OF SURVIVAL

A call to action



David Szpilman, Jonathon Webber, Linda Quan, Joost Bierens, Luiz Morizot-Leite, Stephen John Langendorfer, Steve Beerman, Bo Lefgren  
Creating a drowning chain of survival. Resuscitation (2014), <http://dx.doi.org/10.1016/j.resuscitation.2014.05.034>

Remove the drowning victim from the water as rapidly as you can safely and **begin CPR if they have no signs of life** - even adults need rescue breaths if they drowned - make sure to dry their chests to make the AED pads adhere to skin



### AIRWAY/ASSISTANCE

**A**

- Check airway. Check breathing.
- Call for medical assistance
- If casualty is not breathing and you are alone, give CPR for one minute, then call emergency services.



### BREATHING

**B**

- If in the water, give one rescue breath every 5 seconds.
- If on land and casualty is breathing, put in recovery position.



### CIRCULATION (CPR)

**C**

- If not breathing, give CPR.
- 30 chest compressions, then 2 rescue breaths.
- Repeat until help arrives.
- Use defibrillator if available.



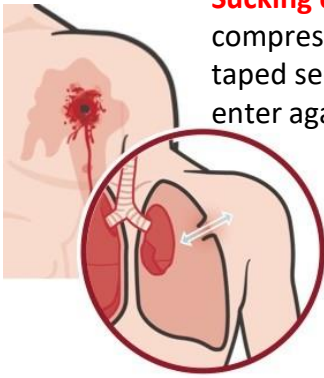




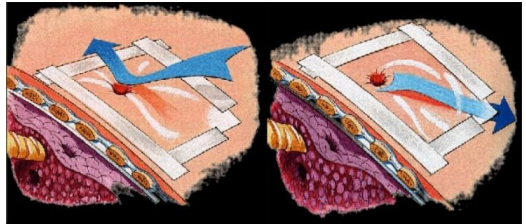
**07 COVER** exposed bowel with moist, sterile abdominal dressings, if available.



**Intestines may exit via open abdominal wounds** - this requires surgery, transport rapidly to a hospital where surgery is possible - rinse the intestines with clean water and cover with a clean, wet dressing. **Objects may be impaled in a wound, do not remove it, you may do more damage.** Immobilize it with padding and gauze.



**Sucking chest wounds** cause air trapping and lung compression - an occlusive (plastic or foil paper) dressing, taped securely on 3-sides, allows air to escape but not enter again - rapid transport is required to save lives.



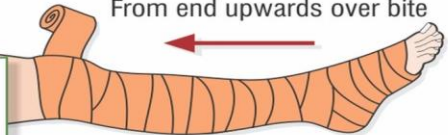
# SNAKE BITE

**1. STOP ALL MOVEMENT! - CALL 912**



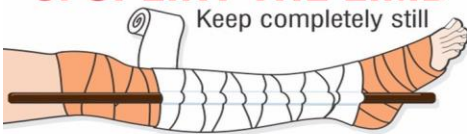
**2. PRESSURE BANDAGE**

From end upwards over bite



**3. SPLINT THE LIMB**

Keep completely still

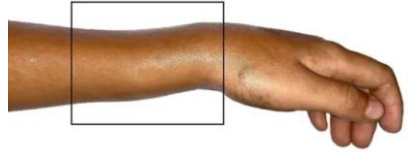


**4. GET TO HOSPITAL**

Preferably by ambulance

## Fractured bones

cause swelling, deformities, & pain - assess skin warmth, movement and feeling further down from the fracture.

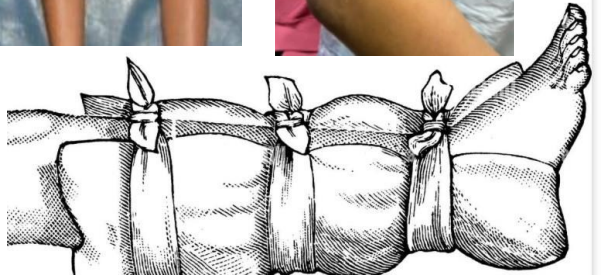


Cyanosis

Blue fingernails due to lack of oxygen in blood



If it feels cold you should attempt to straighten the fractured bones by pulling traction, then use sticks, a cushion, cardboard or other firm material to apply a splint.

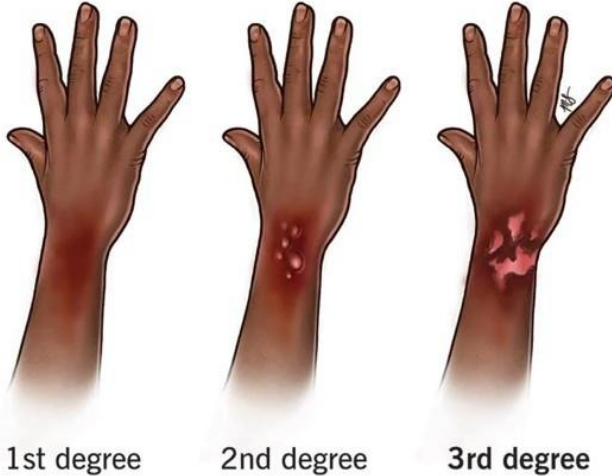


Sometimes a fracture is open through a wound and at high risk of infection - gently apply a clean dressing wet with water and splint, do not push bones back in the wound, they must get to a hospital for antibiotics and cleaning rapidly.





**Burns of the skin** happen due to heat (thermal), chemical or electrical exposure - 1<sup>st</sup> is least severe with only redness, warmth and pain - 2<sup>nd</sup> is the same as 1<sup>st</sup> plus blisters - 3<sup>rd</sup> degree burns all the way through down to fat and nerves under the skin, it can appear discolored and dry or red and wet, there is often little or no pain



**Burns must be cooled, it will take longer than you expect it to -** after it is cool apply clean, wet gauze (to prevent sticking) and advise additional medical care if 2<sup>nd</sup> degree or worse



**First aid is only to begin treatment and evaluation, burns should be treated by a healthcare provider unless very minor**



# RECOGNIZING AND MANAGING MEDICAL EMERGENCIES



**Difficulty in breathing or shortness of breath** can be caused by many different problems, but the first aid you can provide for all of these is limited no matter the cause. First, recognize that people who can't breathe often sit in a tripod position, will be anxious, can't speak and will be sweating. Ask the patient and family if they have a heart condition or breathing problem like asthma - you may be able to provide some treatment with your first aid kit.

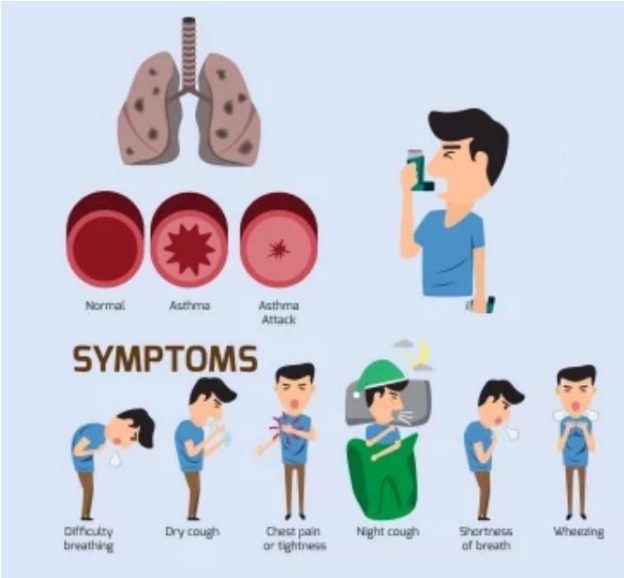
**Help them to breathe better by allowing them to be in the position of comfort, assist them to one of these if they don't know what to do**



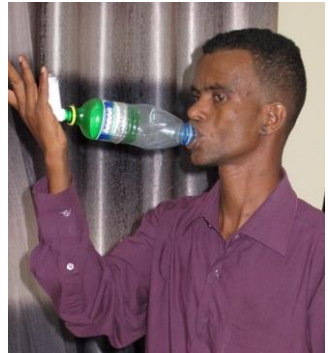
Do they report a history of asthma? Ask if they use any inhalers or puffers, medication they breathe in to control their asthma - you can help them to use it or use your own albuterol.



# RECOGNIZING AND MANAGING MEDICAL EMERGENCIES



Plastic bottles can be cut and made into spacers to make inhalers more effective and easier to use



## Asthma First Aid

For Salbutamol (eg. Ventolin<sup>®</sup> or Asmol<sup>®</sup>)

-  **1** Keep calm and sit up straight
-  **2** Have 4 doses of reliever inhaler  
Use a spacer if possible, one dose into the spacer at a time, taking four breaths after each dose.
-  **3** Wait 4 minutes  
If there is no improvement, have four more separate doses of reliever inhaler as above.

Your albuterol will not solve the problem completely but will help make sure they survive to the hospital - Children and infants may need a mask to use the inhaler properly, but bottles can be modified to make this as well.



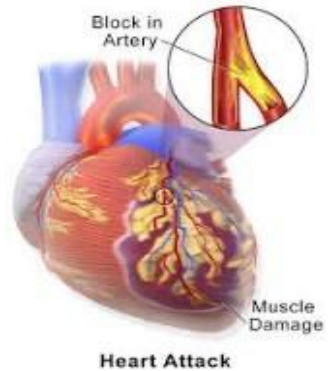
# RECOGNIZING AND MANAGING MEDICAL EMERGENCIES

## Symptoms of Heart Attack



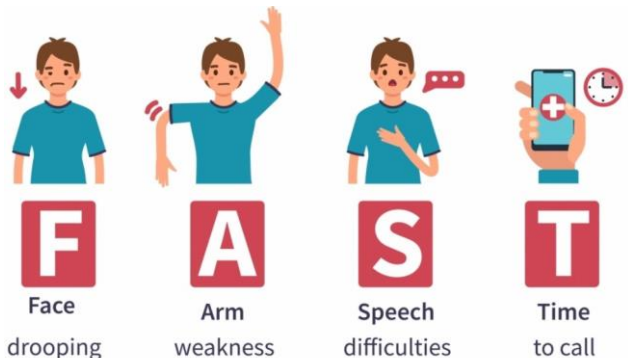
Heart problems may also cause difficulty in breathing, but they are much more common in older people than in young people.

**When you think someone could have a heart attack you can treat them with 3 aspirin tablets,** which helps to prevent the block in the artery growing larger - transport rapidly even if you treat.



**A stroke is a brain attack,** caused by a blocked or burst open blood vessel in the brain - the faster a person with a stroke gets to hospital for treatment the more likely they are to survive the stroke.

Quickly assess patients who report not being able to move or talk normally, and with any change in their mental status or ability to react normally



# RECOGNIZING AND MANAGING MEDICAL EMERGENCIES

Many people have seizures chronically and they can happen acutely due to infection, injuries, strokes or toxins - you can help people having a seizure

## Seizure First Aid

What to do in the event of a seizure

- 1** **STAY** with the person and start timing the seizure. Remain *calm* and check for medical ID. 
- 2** Keep the person **SAFE**. Move or guide away from *harmful objects*. 
- 3** Turn the person onto their **SIDE** if they are not awake and aware. *Don't block airway*, put something small and soft under the head, loosen tight clothes around neck.
- 4** Do **NOT** put *anything* in their mouth. Don't give water, pills or food until the person is awake. 
- 5** Do **NOT** *restrain*. 
- 6** **STAY** with them until they are awake and alert after the seizure. *Most seizures end in a few minutes.* 

There are many more medical emergencies you might be asked to respond to, but these are more common and there are ways first responders can help prevent death and further damage - when in doubt, you can call medical command for support!

Medical Command Contacts - RMH Emergency Department	
First call	+250 788 330 <b>215</b>
Backup	+250 788 330 <b>260</b>
SAMU	912