

# Community Emergency Response Team



## Disaster Medical Operations Part I

# Community Emergency Response Team

-  Personal safety is **ALWAYS** the number one priority
-  Show up prepared
  - Wear appropriate clothing and footwear, have **WATER**
  - Wear PPE – your personal protective equipment ...gloves, helmet, goggles, mask, boots, etc.
  - Have at least one communications device: cell, radio, etc.
-  Work as a team
-  Size-up - maintain situational awareness
-  The CERT goal is to do the  
**Greatest Good for the Greatest Number**
-  *Hope for the best but plan for the worst!*




- 👤 Identify “**Three Killers**” **ABC**
- 👤 Apply techniques for
  - Opening **Airways**
  - Controlling **Bleeding**
  - Treating (**C**irculatory) **Shock**
- 👤 Conduct triage under simulated emergency conditions



“Logic clearly dictates that the needs of the many outweigh the needs of the few.”

Spock in [The Wrath of Khan](#) (1982)







# Death from Trauma

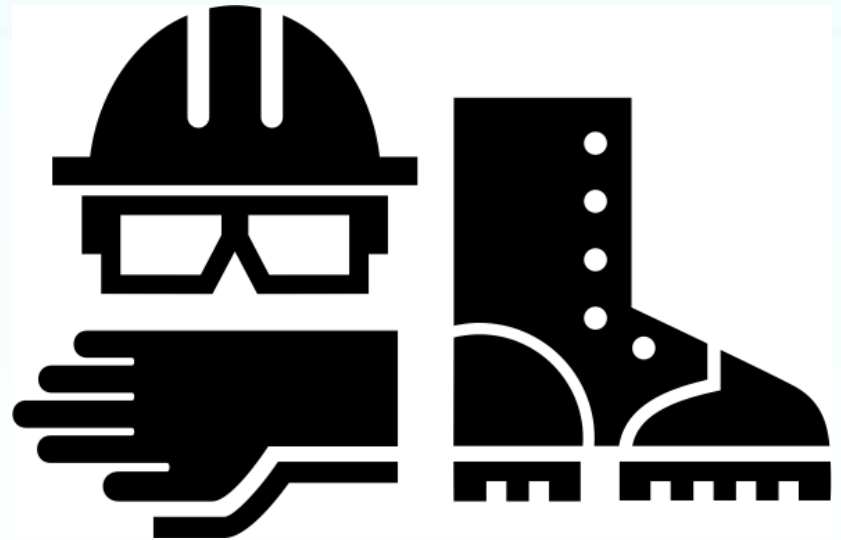
-  Overwhelming and irreversible damage to vital organs, death within minutes
-  Excessive bleeding, death within seconds or minutes
-  Infection or multiple organ failure, death in several days or weeks

***40% could be saved!***

**90% of disaster survivors are rescued  
by other survivors!**

# PPE – Personal Protective Equipment

-  Helmet
-  Goggles
-  N95 mask
-  Work gloves
-  Sturdy shoes or boots
-  Non-latex exam gloves



# PPE – Types of Masks



VENT





## How to put on / take off an N95 mask



# Demo & Practice - PPE – Gloves

- 🧤 How to put on / take off surgical gloves
- 🧤 Practice !
- 🧤 New gloves for every patient – if you can
- 🧤 Wash or sanitize hands after removing gloves



[https://www.youtube.com/watch?v=xTYioOo\\_\\_6U](https://www.youtube.com/watch?v=xTYioOo__6U)





**IF IT'S WET or STICKY and  
NOT YOURS**

**DON'T TOUCH IT!**

## **A**irway Obstruction

- Lack of oxygen can cause brain damage and death in very few minutes

## **E**xcess **B**leeding

- Tissues die if not supplied with oxygen
- Can happen in as little as 20 seconds

## **S**hock (**C**irculatory collapse)

**Life-threatening conditions must receive  
*immediate* treatment !**

# How to Approach a Patient






- 👤 Size-up: Check the scene for safety
- 👤 Be sure patient can see you
- 👤 Identify yourself
  - Your name, organization and training
- 👤 Request permission to evaluate and treat

“I am \_\_\_\_\_, from \_\_\_\_\_. I have first aid training. May I help you?”

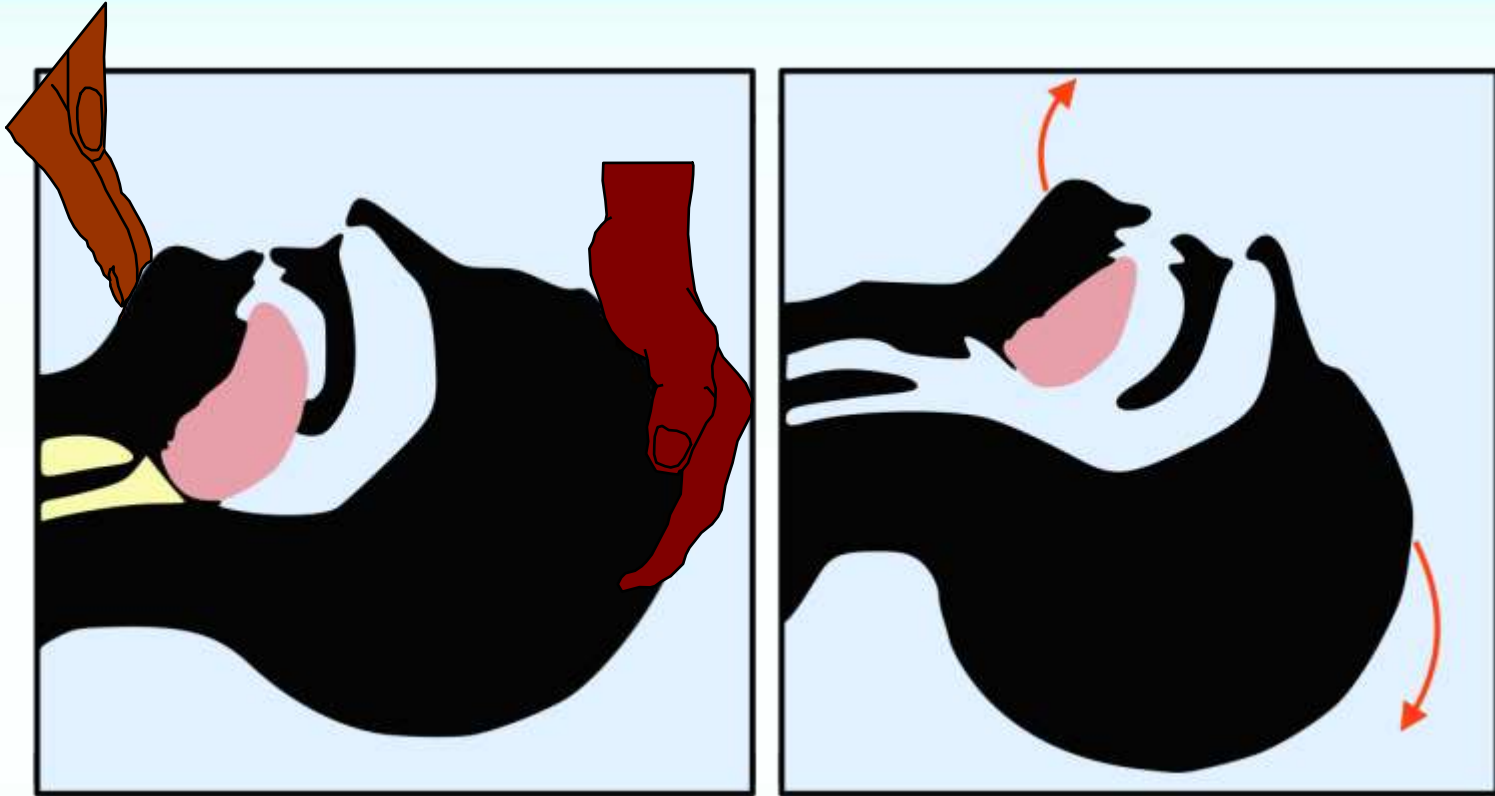
- 👤 Respect cultural differences
- 👤 Protect patient privacy



# Unconscious Patient

-  You have *implied consent* to treat
-  Tap and shout
-  Open airway before checking for breathing
-  Ear over patient's mouth while looking at the chest
  - Look – for chest rise
  - Listen – for air exchange
  - Feel – abdominal movement
-  Evaluate and if necessary, repeat **once** more

# Opening the Airway

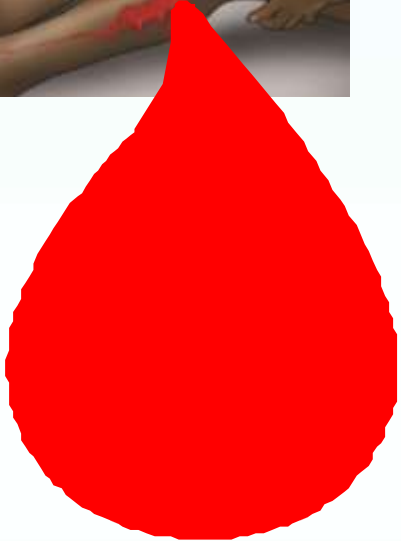


Palm on forehead, 2 fingers under chin and pull the jaw upward while tilting the head backwards slightly

Let's Practice!



## Head Tilt / Chin Lift



 Arterial ... spurting

 Venous ... flowing

 Capillary ... oozing

***Losing one liter can be life-threatening***

# Life-Threatening Bleeding



Spurting



Pooling



Soaking through clothes or  
bandages



Amputation







# Bleeding Control – Direct Pressure

- 👉 Wear PPE (gloves, goggles, mask)
- 👉 Locate the bleeding source
- 👉 Apply firm pressure directly to the source until the bleeding stops
- 👉 Bulky layers between the bleeding source and your hands decrease effectiveness of pressure



# Bleeding Control – Tourniquet

-  Tourniquets can stop life-threatening bleeding from limb injury
-  Their use remains a subject of debate. Tourniquets stop all blood flow so all tissue below the tourniquet will die if patient doesn't get advanced care
-  Tourniquets have low incidence of adverse events provided that patient receives prompt advanced care
-  Tourniquets are now recommended for **uncontrollable life-threatening** limb bleeding. Better to lose a limb than a life

# Bleeding Control – Tourniquet



# Bleeding Control – Tourniquet

- Between limb wound and heart
- 2-3 inches above wound
- Not over a joint
- Twist until bleeding stops
  - *If a pulse below the tourniquet can be felt, twist further, but only until the pulse is gone*
- Leave it in plain sight
  - *Don't bandage over it*
- Label patient's forehead with
  - *Time and Date tourniquet applied*
- Only a physician should remove**



Credit: American Red Cross

# Bleeding Control – Tourniquet



Commercial tourniquets preferred



Improvised tourniquet if no commercial one is available

- Wide (~ 2-3 inches)
- Not stretchy
- Not stiff (no leather belts)
- Strong windlass (stick/lever)






# Stop the Bleed Training

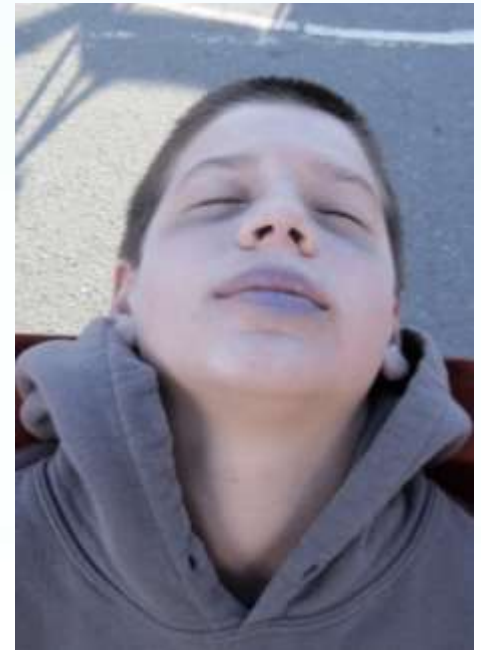


The **Stop the Bleed** campaign is a national initiative – created by the American College of Surgeons with input from first responders and law enforcement – that provides bystanders with the tools and knowledge to stop life-threatening bleeding during the precious moments before first responders arrive.

Ask your instructor about the next class in the area.

-  Result of ineffective circulation of blood
  - Sufficient oxygen not delivered to cells
-  Remaining in shock will lead to death of:
  - Cells
  - Entire organs
  - Tissues
  - Patient
-  Types of shock
  - Hypovolemic shock – blood loss
  - Cardiogenic shock – heart not pumping
  - Septic shock – infection in bloodstream

- 👤 Confused or unconscious
- 👤 Weak, dizzy, restless or irritable
- 👤 Weak, rapid pulse
- 👤 Shallow, rapid breathing
- 👤 Pale, cool, moist skin
- 👤 Blue lips or fingernails
- 👤 Nausea and vomiting



***Treat any unconscious victims for  
SHOCK***








# Shock Treatment

- 🧑‍🚒 Control major bleeding
- 🧑‍🚒 Place in Recovery Position
- 🧑‍🚒 Maintain body temperature
  - Replace wet clothing with dry layers
  - Place something between survivor and ground
  - Shield from elements
- 🧑‍🚒 Loosen restrictive clothing



Left Lateral Recovery Position

# Recovery Position

-  Airway better defended in the “recovery position”
-  Two rescuers if possible
-  Minimize movement of severely injured patients
-  Place pregnant women left side down if possible
-  Check for breathing before moving on

# Recovery Position Demo



# Multi-Casualty Incident Definition



A Multi-Casualty Incident (MCI) is any situation that overwhelms the normal emergency response capability



An MCI is also known as a Mass Casualty Incident  
or a Mass Casualty Event

# Typical Multi-Casualty Incidents

- 👮 Earthquakes
- 👮 Terrorist Events
- 👮 Urban Wild Lands Fires
- 👮 Motor Vehicle Accidents
- 👮 Floods
- 👮 Tornadoes
- 👮 Hurricanes
- 👮 Explosions
- 👮 Train derailments
- 👮 Hazmat



1. Gather Facts
2. Assess Damage
3. Consider Probabilities
4. Assess Your Situation
5. Establish Priorities
6. Make Decisions
7. Develop Plan of Action
8. Take Action
9. Evaluate Progress



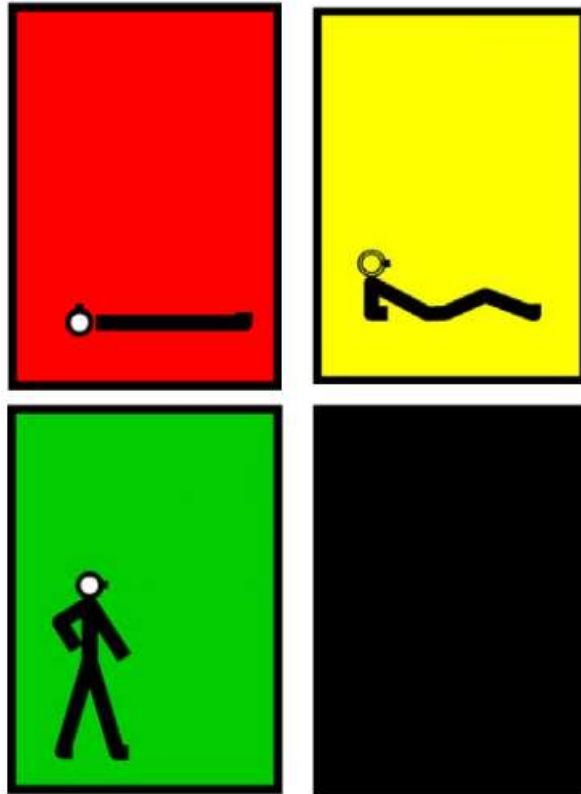
**REMEMBER:  
ALL CERT  
SIZE-UP IS A  
CONTINUAL  
PROCESS**

## **TRIAGE – French term meaning “to sort”**

- 👤 During triage, survivors are evaluated and prioritized according to the urgency of treatment needed
- 👤 Spending a lot of time trying to save one life may prevent a number of other patients from receiving the treatment they need
- 👤 Triage is a *Perishable Skill* and must be practiced regularly



# The START Triage System



**S**imple  
**T**riage  
**A**nd  
**R**apid  
**T**reatment



# START Categories



**GREEN**



**RED**



**YELLOW**



**BLACK** or stripe



Effective January 1, 2019,  
in Contra Costa County,  
the Triage names will  
***NOT*** be used,  
only the **COLORS**






# Triage Steps





1. Size-up
2. Conduct voice triage
3. Follow a systematic route
4. Start where you stand
5. Treatment doesn't start until you and patient are safe
6. Evaluate and tag each patient
7. Document Triage results

**Treat ONLY “Killers”... airway, bleeding, shock**

***REDS are “Immediates”***

and will be transported to higher level of care ASAP

-  No team plan, organization, or goal
-  Indecisive leadership
-  Ignoring personal safety
-  Too much focus on one patient or the “loudest” (screamer) patient
-  Treatment of non-“killer” injuries (rather than triage) performed

-  Walking wounded
-  Do not require immediate/urgent care
-  Use as helpers to care for others
-  Direct **GREEN** patients to the casualty collection point (CCP) or treatment area for detailed assessment and medical care

If life-threatening bleeding is detected at any time in a patient,

**treat the life-threatening bleeding before** proceeding with other steps in the triage assessment

# Triage Patient Assessment - **RPM**

## Three things to check ...



**R**espirations



**P**erfusion



**M**ental Status

**30**

**2**

***Can do***

*Anyone who is **unconscious** is a **RED** by definition!*



## Target Range:

- Adults: **under 30 breaths** per minute
- Children to 12 years: 15 – 45 breaths per minute
  - Depends on the size of the child
  - Infants breath faster than larger children
  - Go by body size, not age



# RPM ... Respirations



## No breathing

- Open airway, if still not breathing, try a second time
- If still not breathing, tag as **BLACK** and move on to next person



## If breathing, count breaths



## Out of range for breaths per minute





- Place in recovery position
- Tag as **RED**, move on to next person



## Within range for breaths per minute

- Go to the next step... **P**erfusion

**30**  
**2**  
**Can do**

-  Target: Reperfusion in **under 2 seconds**
-  Blanch test
-  If capillary refill takes more than 2 seconds  
*OR* no radial pulse
  - Treat obvious severe bleeding
  - Place in recovery position
  - Tag as **RED**,  
and move on to next person
-  Less than 2 seconds
  - Go to the next step... **M**ental Status

30  
2  
*Can do*



Target: Follow simple command



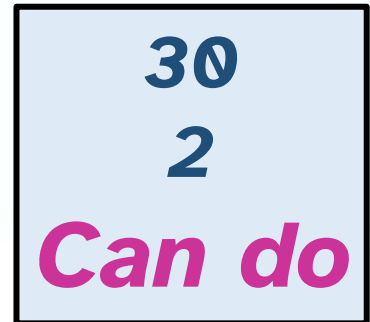
Cannot follow directions

- Tag as **RED**, place in recovery position and move on to next person





Can follow directions

- Tag as **YELLOW**, and move on to next person



**30**  
**2**  
**Can do**

-  Under **30**      Respirations / minute
-  Under **2**      Seconds - Cap refill
-  **Can Do**      Follows simple commands

*If fail any test, patient is **RED***

# Triage – Putting it Together - **GREEN**









Voice-triaged, “walking wounded”





May be injured but can walk away from scene to treatment area







# Triage – Putting it Together - **BLACK**

-  Other terms: **DECEASED**, **MORGUE** or **NON-SALVAGEABLE**
-  Obviously dead
-  Pulseless
-  Not breathing after two attempts to open airway
-  Mortal injuries
  - Cannot be saved with available care facilities
-  Do not move **BLACK** casualties from mass casualty site

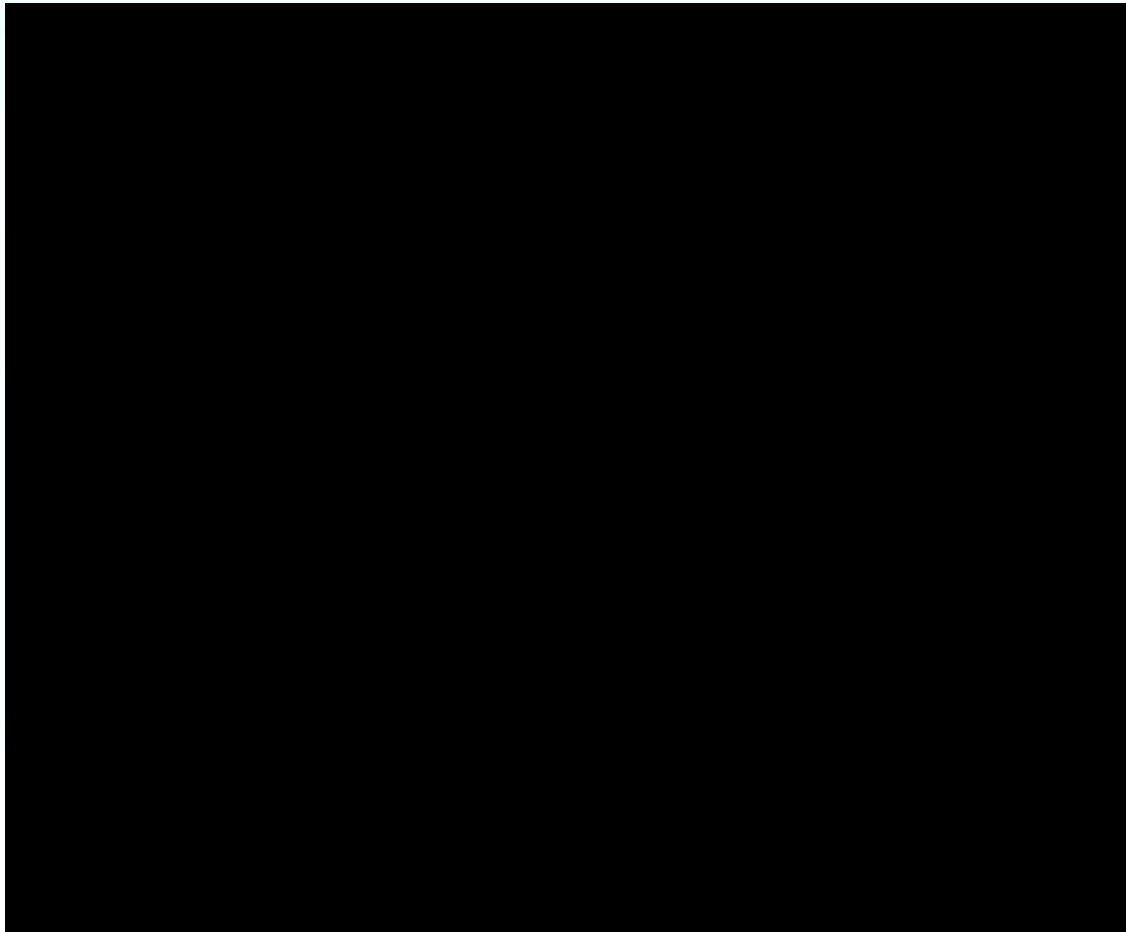
# Triage – Putting it Together - **RED**

-  Alive with life-threatening injuries
-  Patient requires **immediate** care
-  Fails *any* **RPM** check
  - Adult > 30 respirations per minute
  - Child outside 15 – 45 respirations per minute
  - Capillary refill > 2 seconds or no radial pulse
  - Cannot follow simple commands

# Triage - Putting it Together - **YELLOW**

-  Serious non life-threatening injuries
-  *Did not walk out of scene*
-  **RPM** (all three) within acceptable limits
-  May have broken bones
-  May be extrication problem
-  May have chest pains, etc.





# Triage Operations Review



## **Size Up ...** *What's happening?*

- Check the scene
- Stop, look, listen and think



## **Assess your situation ...** *What could happen?*



## **Develop a plan of action ...** *What will we do?*

- Conduct voice triage, get walking wounded out
- Start where you stand
- Follow a systematic route
- Use **RPM** to evaluate and tag each patient
- **Only** allowed treatments in triage are:  
**Open airway; Stop major bleeding; Recovery position**
- Call for **REDS** to be urgently transported to advanced care!



## **Document Triage results**

# START Triage Exercise

SCENARIO: December 23rd, 1700 hrs. A bus has gone out of control at the Walnut Creek BART station. It careened through the lower BART plaza, hitting commuters and Christmas shoppers. The bus continued downhill finally crashing into rush hour traffic on Ygnacio Valley Rd. Several smashed cars have caught fire.

*The first arriving fire engine has already tried once to remove all patients who can walk (**Greens**) to the South parking lot.*

Begin triaging the remaining patients using START triage principles. Identify the category of the patients (GREEN, BLACK, RED, and YELLOW) and what treatment you might render according to START (opening of airways, application of direct pressure for bleeding). Write answers below each patient.

**30**  
**2**  
**Can do**

# START Triage Exercise

1.	30yo male with a compound fracture of left tibia, bleeding moderately. Resp. rate is 24, cap refill < 2 sec. Follows simple commands.
2.	18yo female sitting feeling faint with abrasion to forehead and a bloody nose. Resp. rate is 28. Cap refill < 2 sec. Follows simple commands.
3.	18yo male complaining of chest pain and SOB. Resp. rate is 40. Cap refill 4 sec. Follows simple commands.
4.	23yo male with impaled metal pole through right chest. Resp. rate is 26. Cap refill < 2 sec. Follows simple commands.
5.	50yo male with 2 <sup>nd</sup> /3 <sup>rd</sup> degree burns over 70% of body. Resp. rate is 26. Cap refill < 2 sec. Follows simple commands.
6.	75yo male lying on the ground. Gurgling respirations after 2 attempts to open airway. Capillary refill > 2 secs. Unconscious, unresponsive.
7.	40yo male lying on the ground with blood coming out of ears and nose. Resp. rate is 0. No radial pulse.

8.	7yo old female lying on the ground, left leg amputated below the knee. Moderate bleeding. Resp. rate is 38. Cap refill < 2 sec. Follows simple commands.
9.	42yo female with an open fracture left ankle. Resp. rate is 28. Cap refill < 2 sec. Follows simple commands.
10.	21yo female with abrasion to forehead, is 8 months pregnant and in labor. Resp. rate is 36. Cap refill < 2 sec. Follows simple commands.
11.	12yo male with 3 <sup>rd</sup> degree burns over 50% of body. Resp. rate is 28. Cap refill < 2 sec. Follows simple commands.
12.	64yo female walking around crying. No injuries seen. Resp. rate is 24. Cap refill < 2 sec. Follows simple commands.
13.	65yo male bus driver slumped over in seat. Resp. rate is 0. No radial pulse. Unconscious and unresponsive.
14.	28yo female walking around with abrasion to forehead. Repeatedly asking "Where's Billy?" Resp. rate is 18. Cap. Refill < 2 secs. Does not follow "squeeze my fingers" command.

# START Triage Exercise

15. 28yo male lying on ground with abdominal pain. Resp. rate is 24. Cap refill > 2 sec. Follows simple commands.
16. 44yo male sitting up with dislocated shoulder. Resp. rate is 36. Cap refill is < 2 secs. Follows simple commands.
17. 25yo female with large abdominal evisceration. Resp. rate is 0. No radial pulse. Unconscious and unresponsive.
18. 11yo female partial amputation left arm, blood spurting from wound. Resp. rate is 28. Cap refill > 2 seconds. Unconscious.
19. 67yo male lying on ground. No obvious injuries. Resp. rate is 0 after 2 attempts to open airway. Cap. Refill is > 2 secs.
20. 28yo female with fracture to left wrist. Resp. rate is 28. Cap refill is < 2 seconds. Follows simple commands.
21. 36yo male with neck pain. Can't feel legs. Resp. rate is 24. Cap refill < 2 sec. Follows simple commands.
22. 24yo female with back pain. Resp. rate is 28. Cap refill < 2 sec. Follows simple commands.

23. 20yo male sitting up with large scalp laceration bleeding heavily. Resp. rate is 24. Cap refill < 2 sec. Follows simple commands.
24. 44yo male sitting up with chest pain. Resp. rate is 24. Cap refill < 2 sec. Follows simple commands.
25. 56yo female bilateral femur fractures. Resp. rate is 28. Cap. Refill is > 2 seconds. Conscious and follows commands.
26. 58yo male with massive facial trauma. Resp. rate is 0. Reposition Airway, resp. = 0. Cap refill < 2 sec. Unconscious and unresponsive.
27. 11yo female lying on ground, with abrasions to face. Resp. rate is 20. Cap refill < 2 secs. Conscious but does not follow commands.
28. 76yo male with deep laceration to left thigh. Heavy bleeding. Resp. rate is 24. Cap refill > 2 sec. Follows simple commands.
29. 51yo male with abdominal pain. Resp. rate is 28. Cap. Refill > 2 secs. Follows simple commands.
30. 85yo male with deep cuts to both forearms. Resp. rate is 24. Capillary refill > 2 secs. Follows simple commands.





## **YOUR SAFETY IS PARAMOUNT!**

- Wear PPE
- Medical treatment doesn't start until you (and your patient) are safe



## **THE KILLERS**

- Airway
- Bleeding
- Shock



**Look into taking a CPR and/or Stop the Bleed class**



**Put a couple pairs of non-latex gloves in your everyday carry bag**