OEMS | OFFICE OF EMERGENCY MEDICAL SERVICES

Bureau for Public Health
West Virginia Department of Health and Human Resources

www.wvoems.org

# West Virginia Mass Casualty Incident Management

## Module I
## Responder Level

Version: 2022

# OBJECTIVES

- Define Mass Casualty Incident
- List the three goals of mass casualty incident management
- Describe initial response actions to mass casualty incidents
- Triage simulated patients correctly using START & JumpSTART algorithms
- Tape simulated patients using triage ribbons
- Establish accurate count of casualties
- Complete triage tag

# Mass Casualty Incidents

***Given West Virginia's geographic location, population centers, major transportation routes, and unique hazards, there is an enormous potential for incidents to occur which injure people in numbers that could overwhelm any EMS system.***

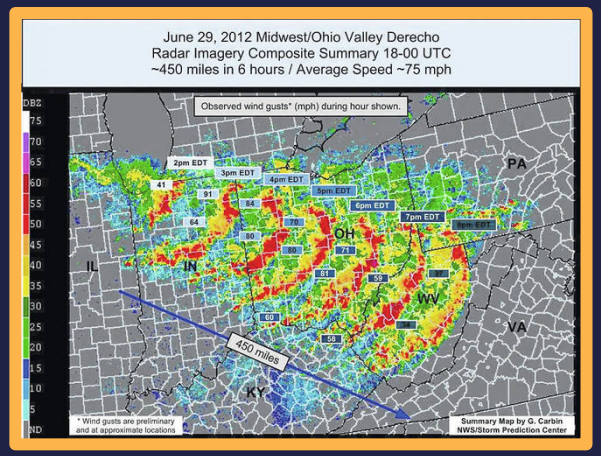
# Disasters

- Some people would call this type of incident a disaster
- "Disaster" has specific legal meaning
- States & some localities may declare a "State of Emergency"
- Only the ***POTUS*** may declare a "Major Disaster"


***The Upper Big Branch Mine disaster occurred on April 5, 2010, at Massey Energy's Upper Big Branch coal mine in Raleigh County. Twenty-nine of the 31 coal miners at the site were killed, making this accident the worst in America since 1970. Investigators later concluded that Massey Energy was directly responsible for the blast. Pictured above is a memorial for the Upper Big Branch miners that were lost that day.***

# Types of Disasters

## Natural Disasters




## Criminal/Terrorist Incidents

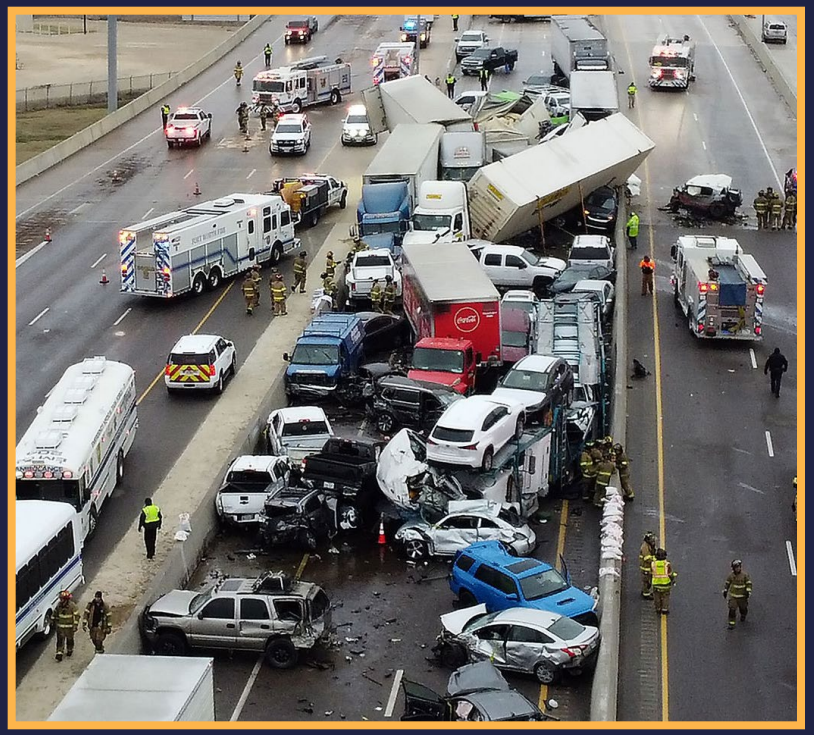

## Civil Disobedience

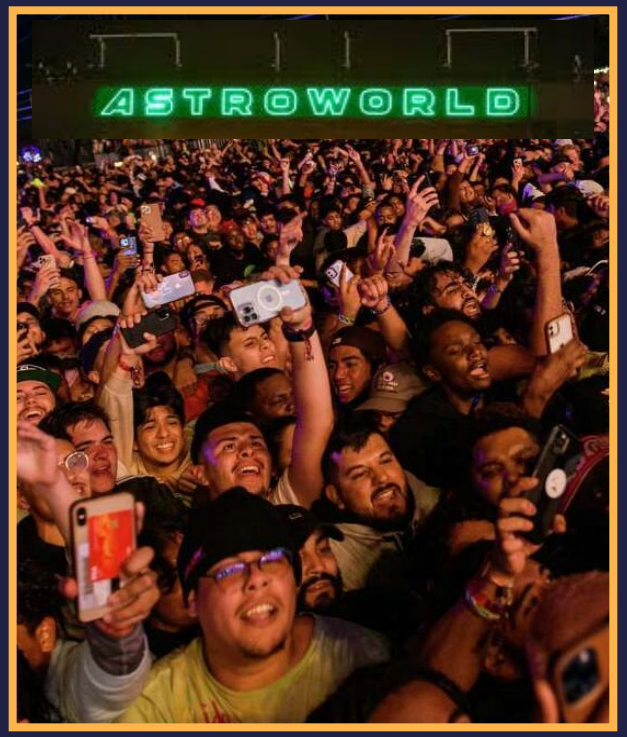
## Technical Hazards

## Transportation Crashes

# Mass Casualty Incident (MCI) Definition

***Any incident that injures enough people to overwhelm the resources usually available in a particular system or area.***





# Goals of MCIM

- Do the greatest good for the greatest number
- Manage scarce resources
- Do not relocate the disaster

# Greatest Good

- Heroic resuscitative efforts are **NOT** appropriate
  - Too much time
  - Requires equipment needed for salvageable patients
  - Staffing intensive

***Concentrate on salvageable patients…***

***Do the GREATEST GOOD for the GREATEST NUMBER!***

# Resource Demands

We must manage scarce resources in the form of:

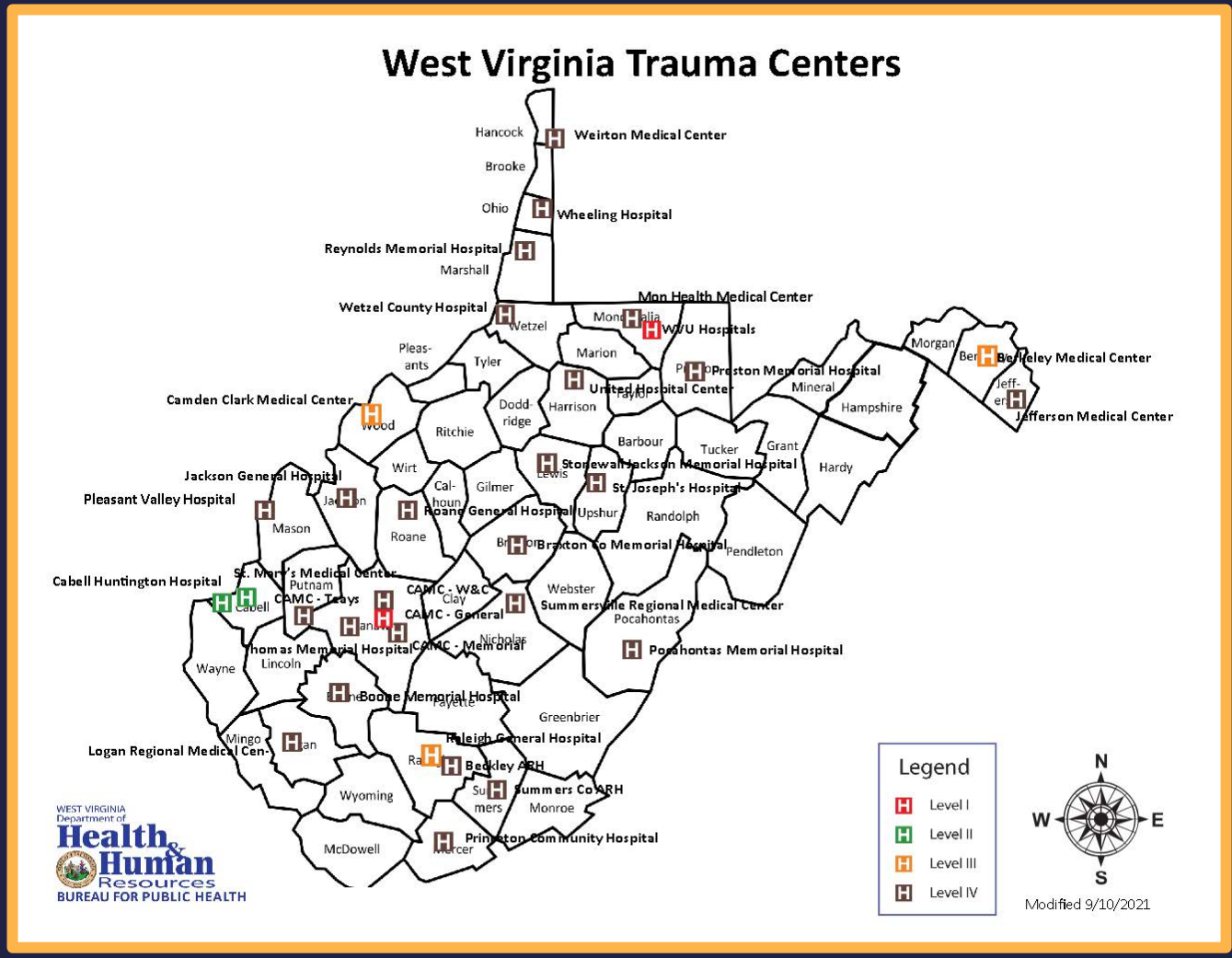
- Equipment
- Responding personnel
- Facilities

# Do Not Relocate the Disaster

- Patient prioritization at the scene is important for proper casualty distribution
- Don’t send all the patients to one hospital
- Don’t send patients to the hospital prior to proper decontamination, when necessary

# Do Not Relocate the Disaster

- Be aware of capability of local hospitals. Are they...
  - Trauma Centers?
  - Burn Centers?
- Medical command is a resource in helping to determine best destination hospital and mode of transportation.



# EMS Initial Response:
# Roles & Responsibilities

***EMS is a specific and important component of the overall incident management system!***

# First on Scene

- First responding emergency unit is by default **IN CHARGE** until relieved
- Must take first steps toward a successful solution to the problem

# First Arriving Unit

***Begin the following actions:***

# Five S's

# S-1 - Safety Assessment

- Assess scene for safety



# S-2 - Scene Size-Up

- How big is incident and how bad is it?
  - Type of incident
  - Area involved, including access
  - Approximate # of patients
  - Severity of injuries

# S-3 - Send Information

- Report Situation
- Request Assistance
- Rapid Hospital Notification
  - Contact WV Medical Command to assist with notifications

# S-4 – Set-Up

- Staging
- Secure access/egress
- Secure adequate space
  - Triage
  - Treatment
  - Transportation


# S-5 – START Triage

***START – Simple Triage and Rapid Treatment***

- "Triage" means "to sort" in French
- START and other triage methods assure rapid initial assessment of all patients as basis for assignment to treatment

# Purpose of Triage

- Assigns treatment priorities
- Separates victims into easily identifiable groups

# Purpose of Triage—Cont'd

- Determines required resources
  - Treatment
  - Transportation
  - Definitive care
- Prioritization of patient distribution and transportation

# Benefits of Triage

- Identifies patients who need rapid medical care to save life and limb
- Provides rational distribution of casualties
- Reduces burden on each hospital
  - Average 10-15% of MCI patients require extended hospitalization

# Problems with Triage Systems

- Some rely on specific injuries and physical findings to categorize and prioritize patients
- In-depth assessment requires too much time

# Ideal Triage System

- Simple
- No advanced assessment skills
- No specific diagnosis


# Ideal Triage System

- Easy to perform
- Provides rapid and simple life-saving interventions
- Easy to teach and learn

# Simple Triage and Rapid Treatment (START) System

- Triage ribbons
  - Surveyors tape used to make ribbons
  - Universal colors are used

# RED

- Immediate (highest priority).
- Severe burns which compromise airway
- Problems with:
  - R – Respirations/airway
  - P – Perfusion/pulse
  - M – Mental Status

# YELLOW

- Delayed (second priority)
  - Burn patients without airway problems
  - Major or multiple bone or joint injuries
  - Back and spine injuries

# GREEN

- Minor (third priority)
  - “Walking wounded”
  - Minor painful swollen deformities
  - Minor soft tissue injuries

# BLACK

- Dead/non-salvageable (lowest priority)
- Non-breathing patients
  - Resuscitation would normally be attempted
  - Not salvageable given resources available early in MCI response

# LIGHT BLUE

- Light blue is not a part of START Triage, but it is commonly used to identify patients requiring decontamination prior to further treatment and/or transport.
- Follow local decon procedures and consider the need for additional resources (fire, haz-mat, etc.)
- As patients are decontaminated, treat as appropriate tag color:
  - Red
  - Yellow
  - Green

# Introduction to S.T.A.R.T. Process

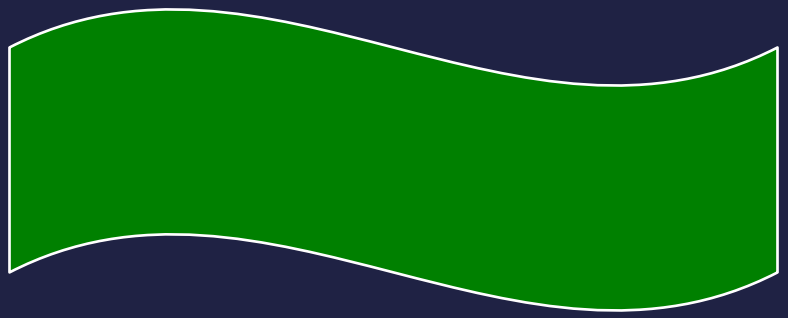
- “Start” where you stand
- Identify those injured who can walk
- Those who can walk should go to easily recognized place

# Maintain Count

- Mark on 2-3 inch tape on thigh
- Save a small piece of triage ribbon of appropriate color for each patient assessed

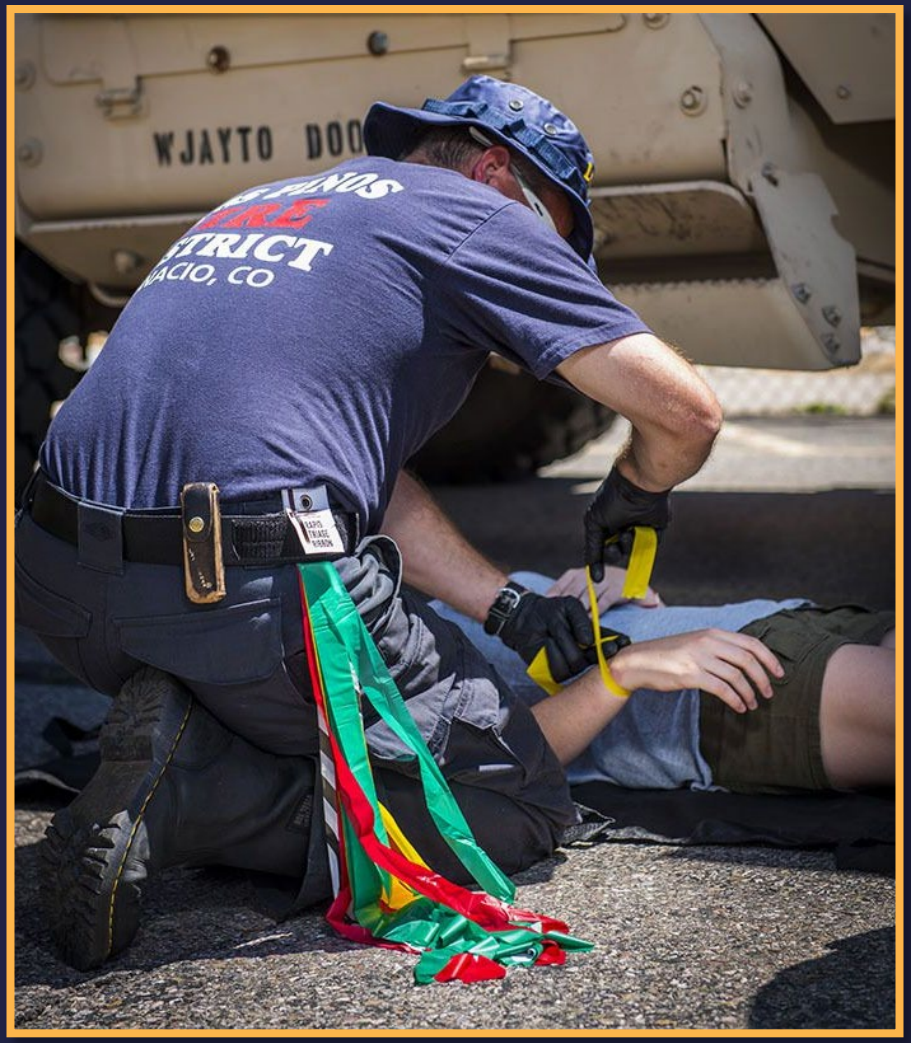
# Relocate Green

- To a designated area
  - away from immediate danger
  - outside initial triage area
- In West Virginia, tape each as GREEN patient



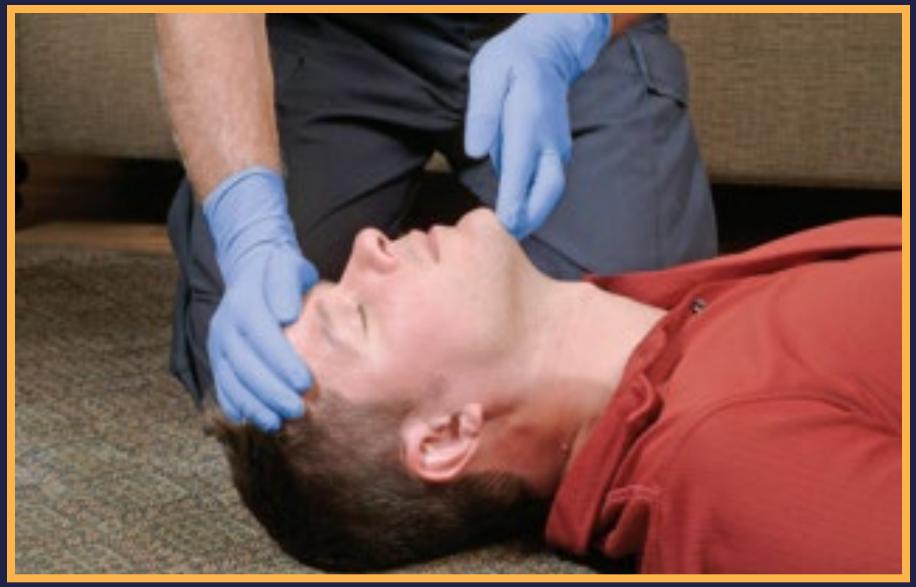
# Keep Moving

- In a systematic/orderly pattern
- Assess each casualty you come to
- Mark category using triage ribbons
- 30-60 seconds per victim



# Minimal Treatment

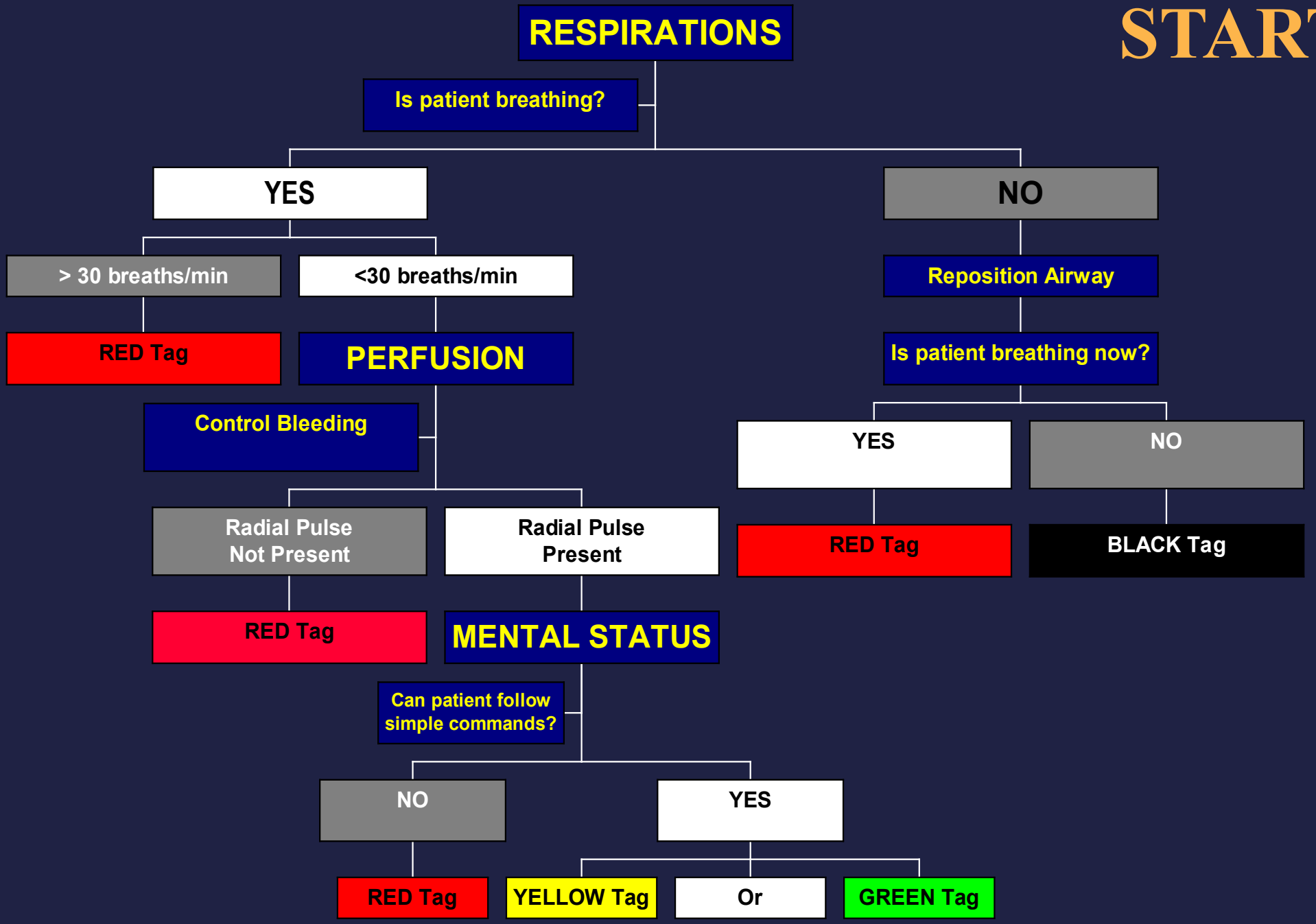
- The only two patient interventions are:
  - Open the airway
  - Stop gross bleeding



# START—Adult Triage

- Assess in 60 seconds or less.
- It can be difficult to tell if older children are actually children or adults. Keep it simple. If they look like a teen/adult, use START.
- START is not for pediatric patients, especially those less than 8 years old. Use JumpSTART for this demographic. This will be discussed in-depth later in the presentation.
- It is better to “over triage” than to “under triage,” BUT– remember that you must manage scarce resources. Over-triaging patients will further stress resources that are already spread thin.

# START

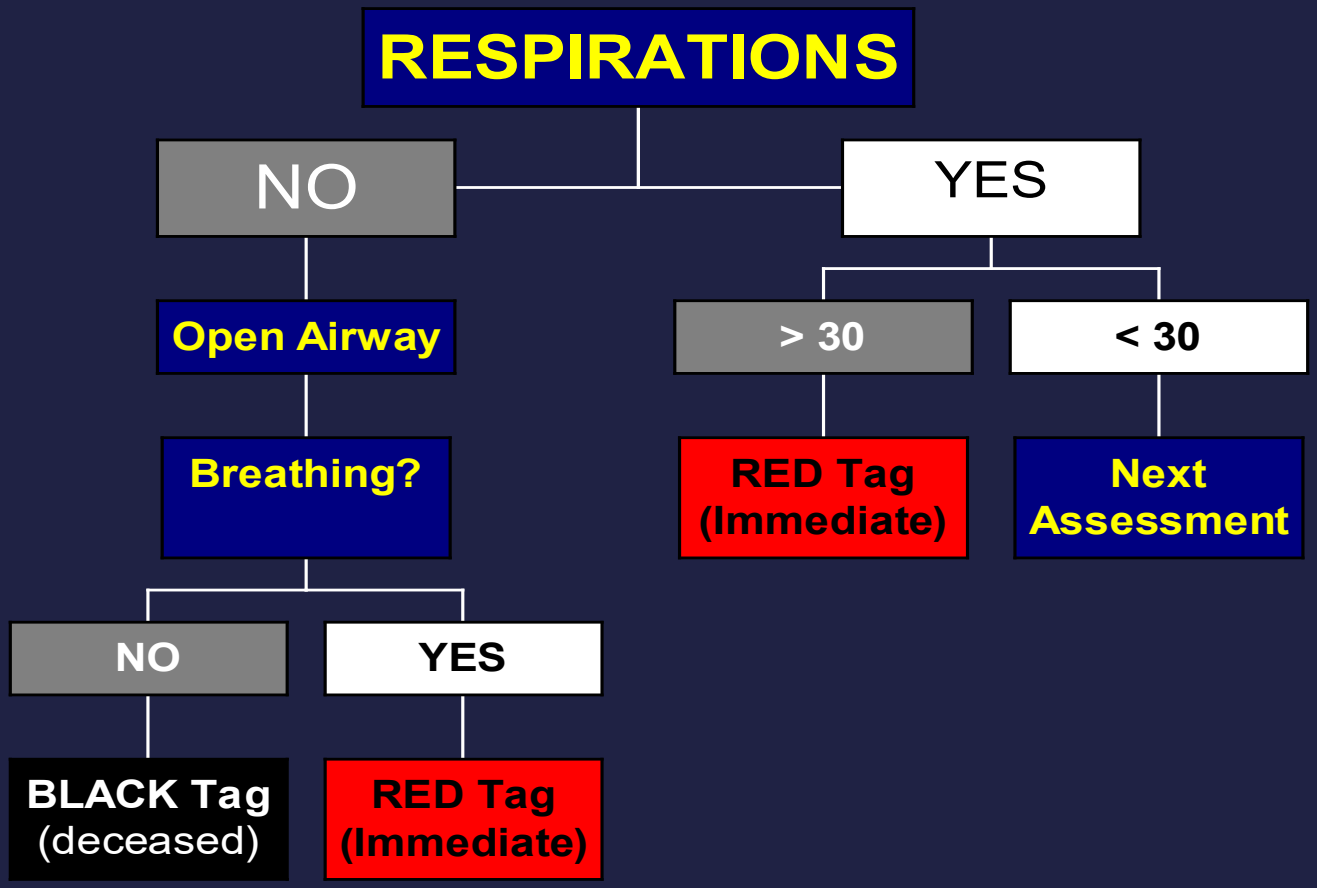

RESPIRATIONS
Is patient breathing?
YES
NO
> 30 breaths/min
<30 breaths/min
Reposition Airway
RED Tag
PERFUSION
Is patient breathing now?
Control Bleeding
YES
NO
Radial Pulse Not Present
Radial Pulse Present
RED Tag
BLACK Tag
RED Tag
MENTAL STATUS
Can patient follow simple commands?
NO
YES
RED Tag
YELLOW Tag
Or
GREEN Tag

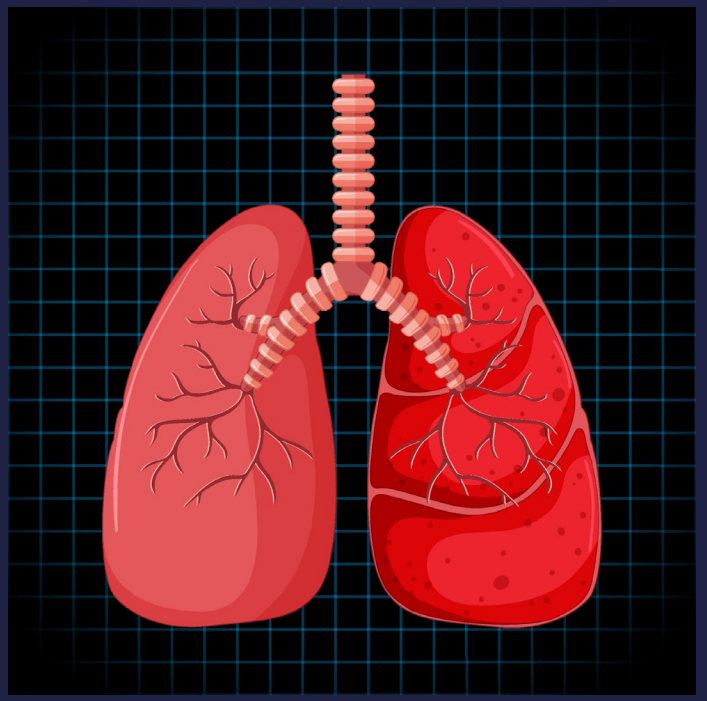
# *Steps in START Assessment*

# Step 1 – Separate “Walking Wounded”

Move **GREEN Tag** patients to supervised area.

# Step 2 – Assess Respirations



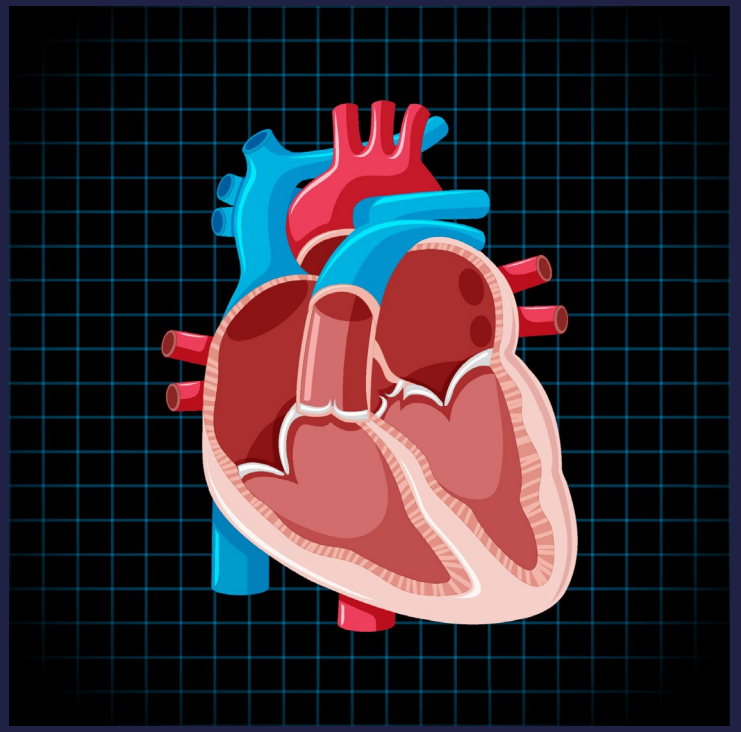



***Treatment: OPEN AIRWAY / INSERT OPA ONLY***

# Step 3 - Assess Perfusion

**PERFUSION**
Radial Pulse?
OR
Cap Refill <2 sec?

| NO | YES |
|---|---|
| **RED Tag (Immediate)** | **Next Assessment** |

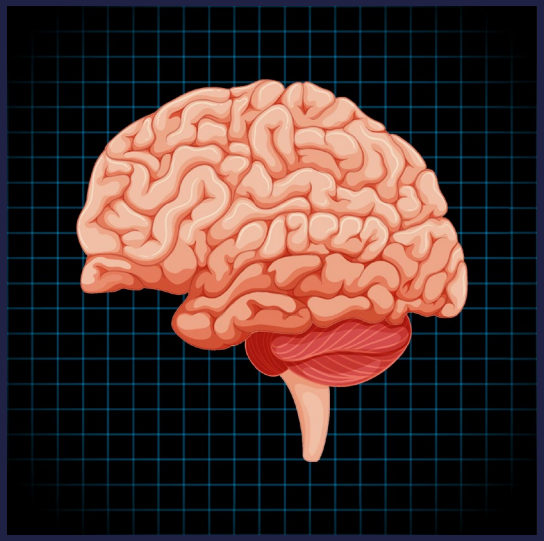


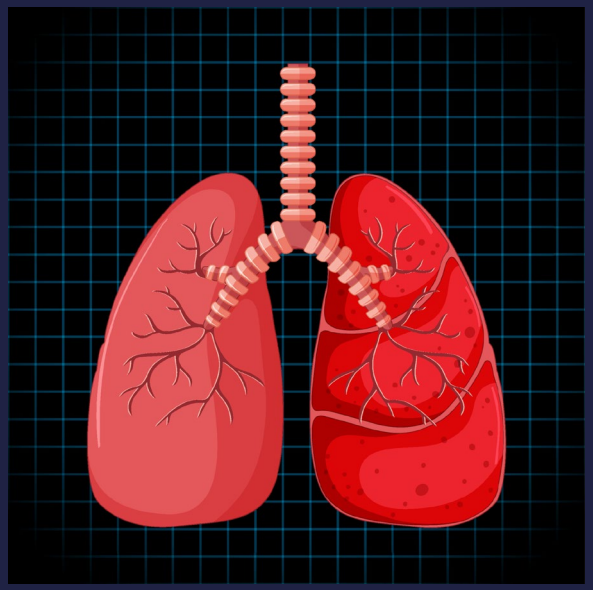
***Treatment: STOP MAJOR BLEEDING ONLY***

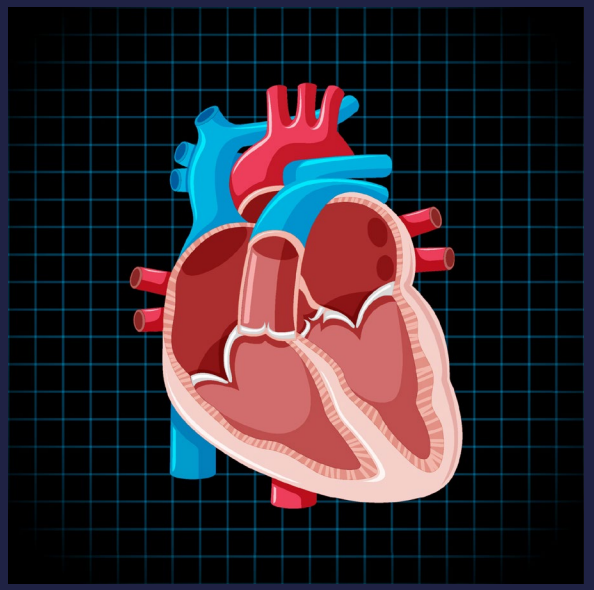
# Step 4 – Assess Mental Status

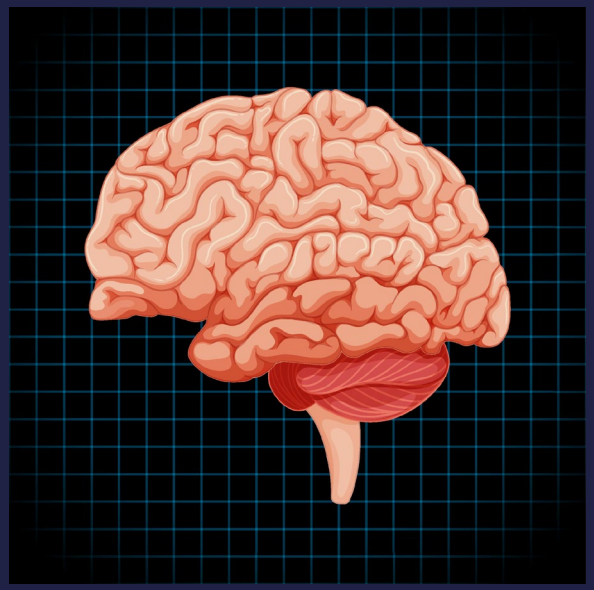
**MENTAL STATUS**

- FAILS → **RED Tag (Immediate)**
- FOLLOWS COMMANDS → **YELLOW Tag (Delayed)**









# *RPM – 30 – 2* – CAN DO*

***This mnemonic uses capillary refill instead of radial pulse check in "Step 3 – Perfusion" assessment. Capillary refill can be easier to determine than radial pulse, especially for those without formal medical training.***

***Remember that capillary refill may not be an accurate measure of perfusion in cold environments.**

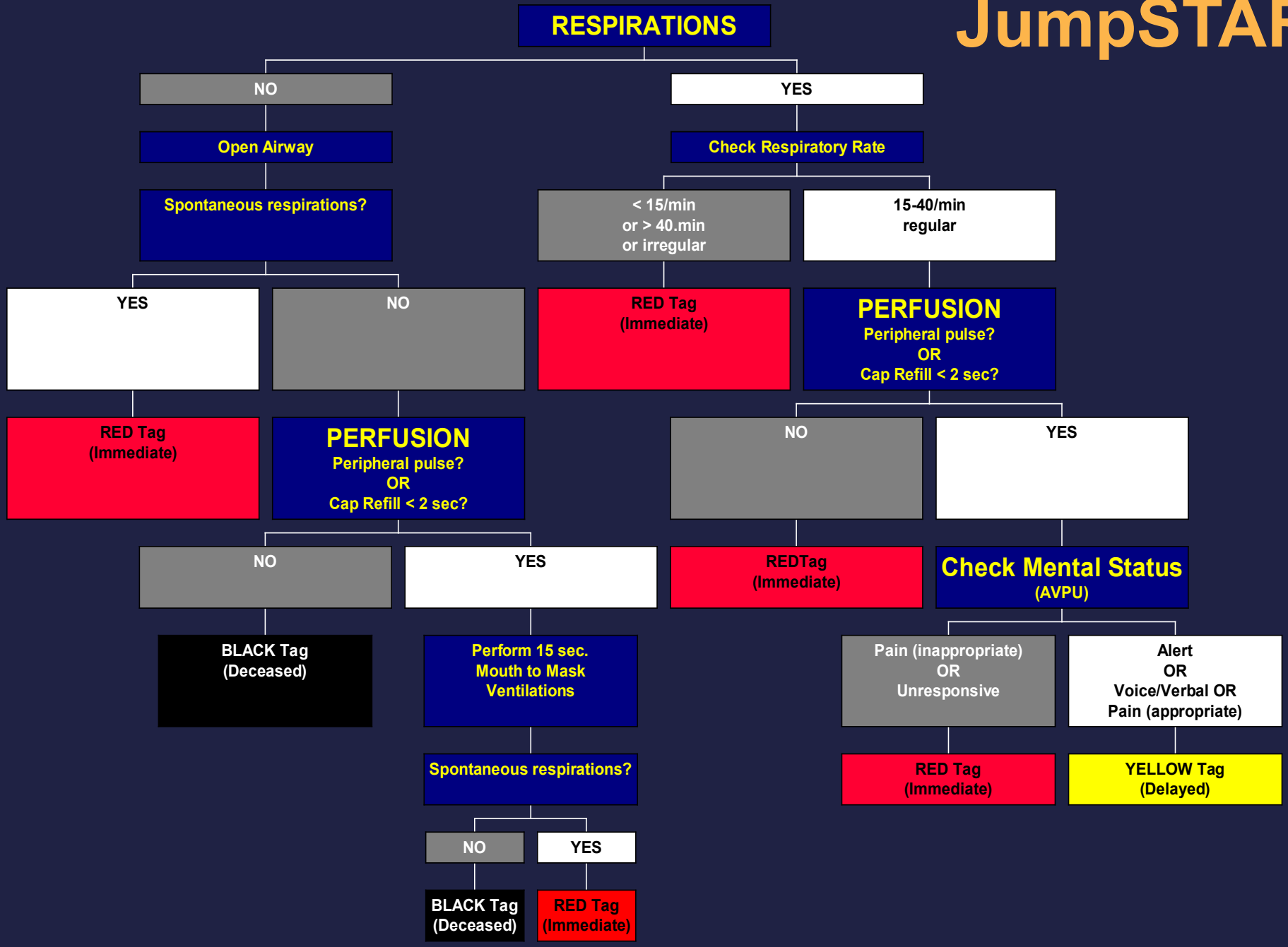
# JumpSTART—Pediatric Triage

- ***When should I use JUMPSTART instead of START?***
  - Child is ≤ 8 years of age
  - Child is ≤ 100 pounds
  - Adolescents/pre-teens can be difficult to categorize. Keep it simple—if they look like a child, use JUMPSTART. If they look like a teen/adult, use START.

# JumpSTART – Pediatric Triage

- ***Do we need a separate triage tool for children?***
  - Children are not just "small adults“
  - Apnea in children is more likely to be a primary respiratory problem that is unrelated to perfusion. This makes a child more "salvageable.“
  - Obeying commands and/or being ambulatory may not be an appropriate gauge of mental status for younger children

# JumpSTART

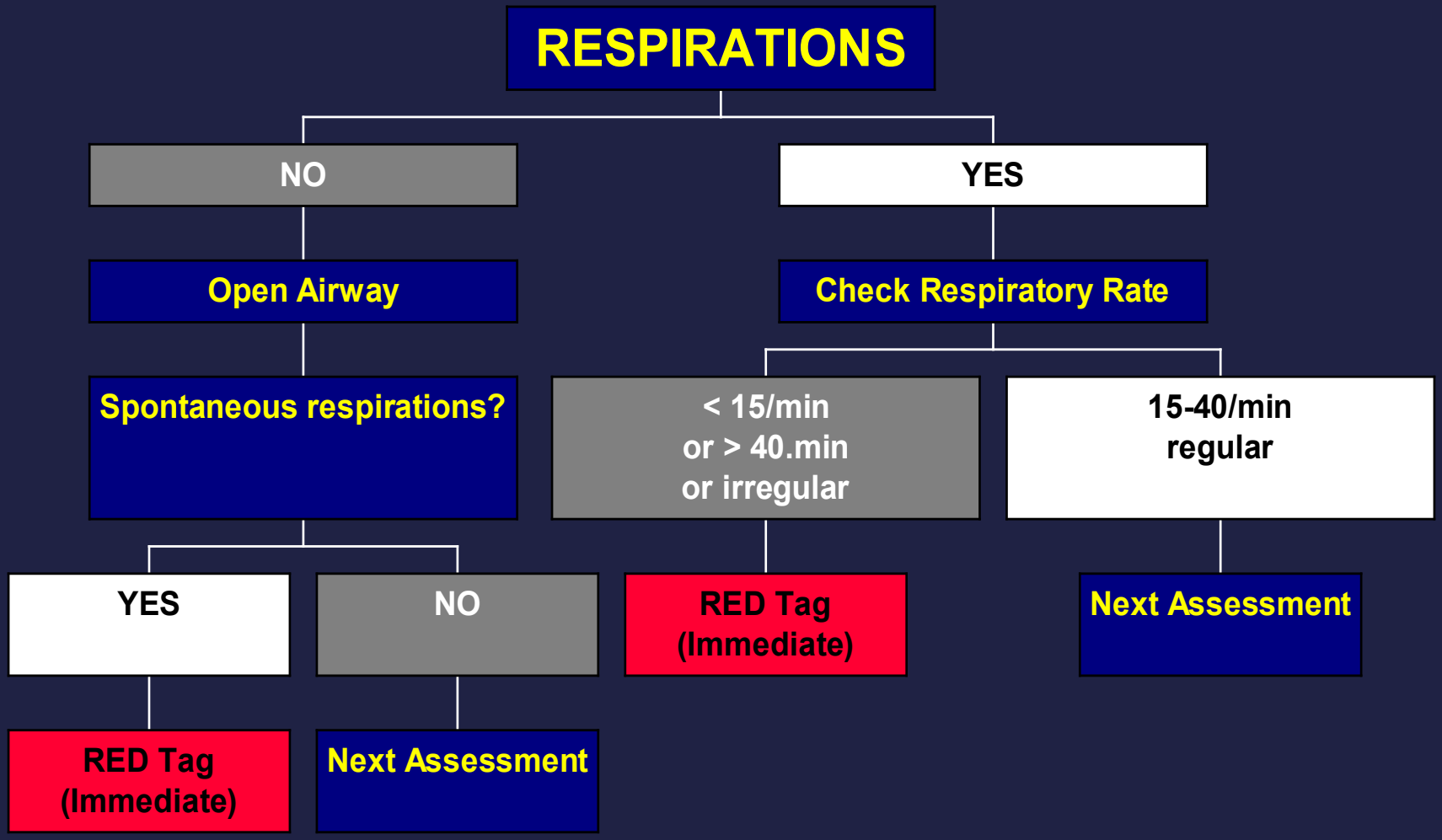

RESPIRATIONS
NO
YES
Open Airway
Check Respiratory Rate
Spontaneous respirations?
< 15/min
or > 40.min
or irregular
15-40/min
regular
YES
NO
RED Tag
(Immediate)
PERFUSION
Peripheral pulse?
OR
Cap Refill < 2 sec?
RED Tag
(Immediate)
PERFUSION
Peripheral pulse?
OR
Cap Refill < 2 sec?
NO
YES
NO
YES
REDTag
(Immediate)
Check Mental Status
(AVPU)
BLACK Tag
(Deceased)
Perform 15 sec.
Mouth to Mask
Ventilations
Pain (inappropriate)
OR
Unresponsive
Alert
OR
Voice/Verbal OR
Pain (appropriate)
Spontaneous respirations?
RED Tag
(Immediate)
YELLOW Tag
(Delayed)
NO
YES
BLACK Tag
(Deceased)
RED Tag
(Immediate)

# *Steps in JumpSTART Assessment*

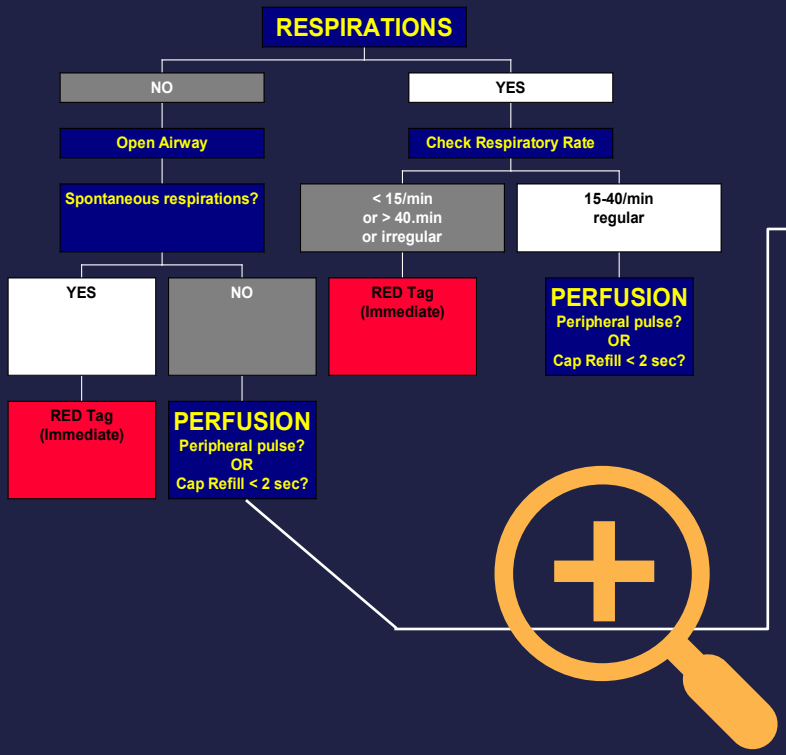
# Step 1 – Separate "Walking Wounded"

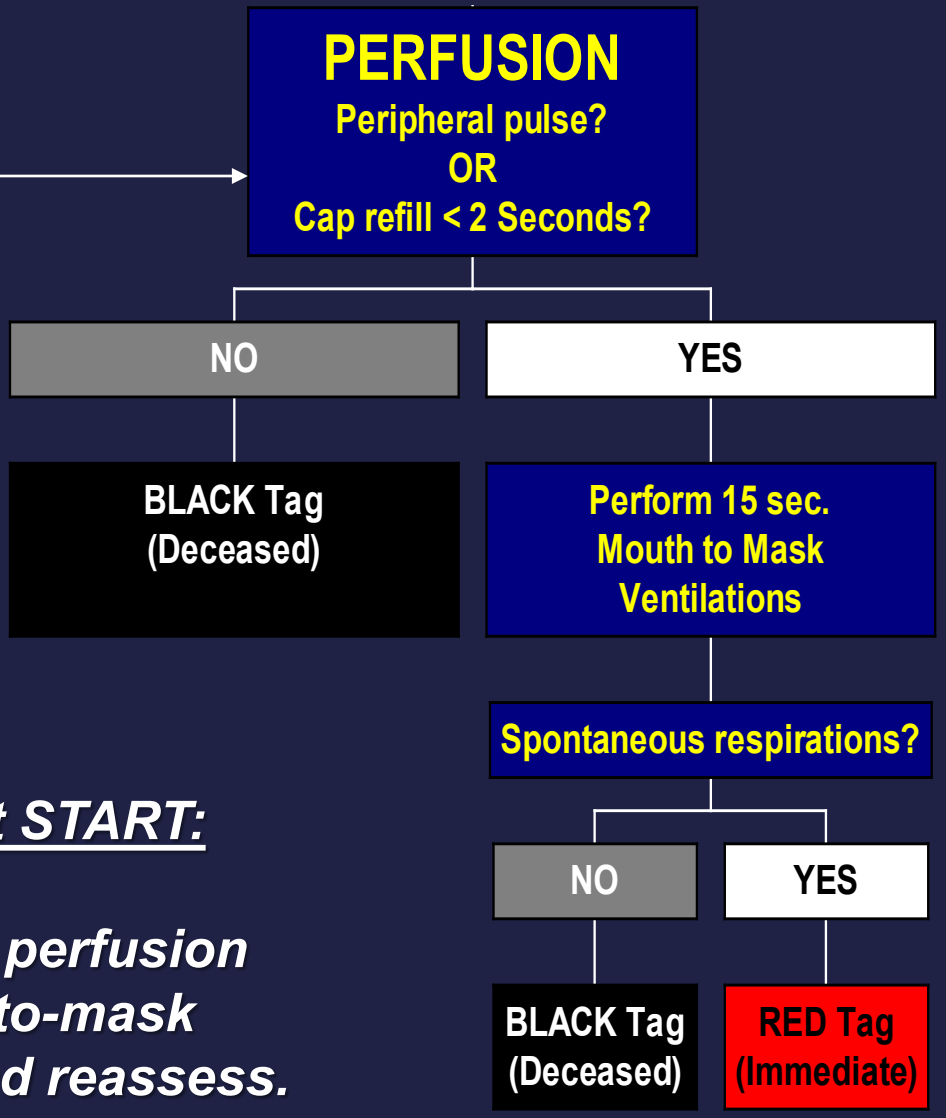
- Children with minor injuries can be "walking wounded" too, but keep in mind that, depending on age, all children may not yet walk.
- Move the **GREEN Tag** patients to supervised area.
- **GREEN Tag** adults may be able to assist in the supervision of **GREEN Tag** children.

# Step 2 – Assess Respirations



# Step 3 - Assess Perfusion

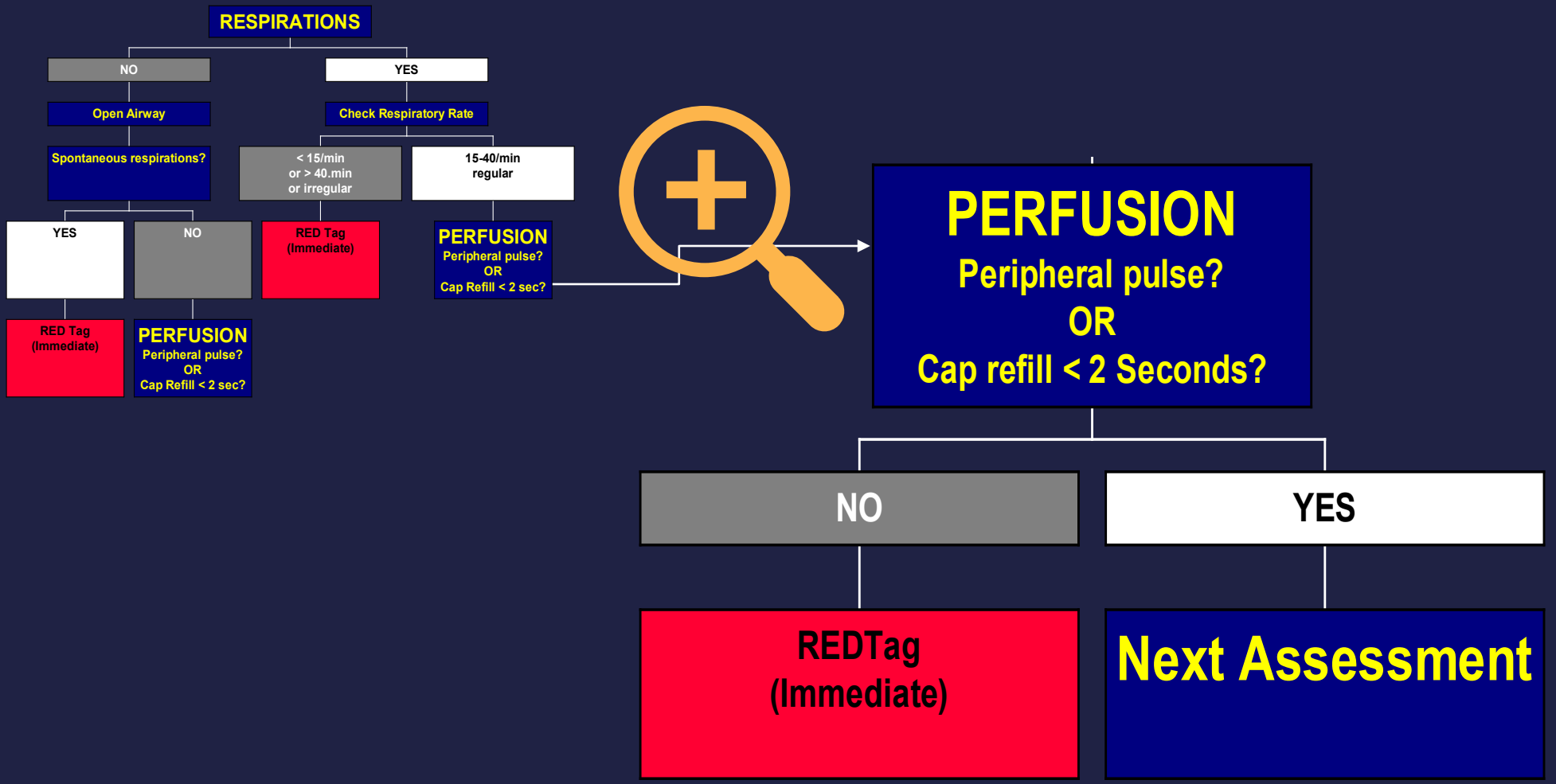


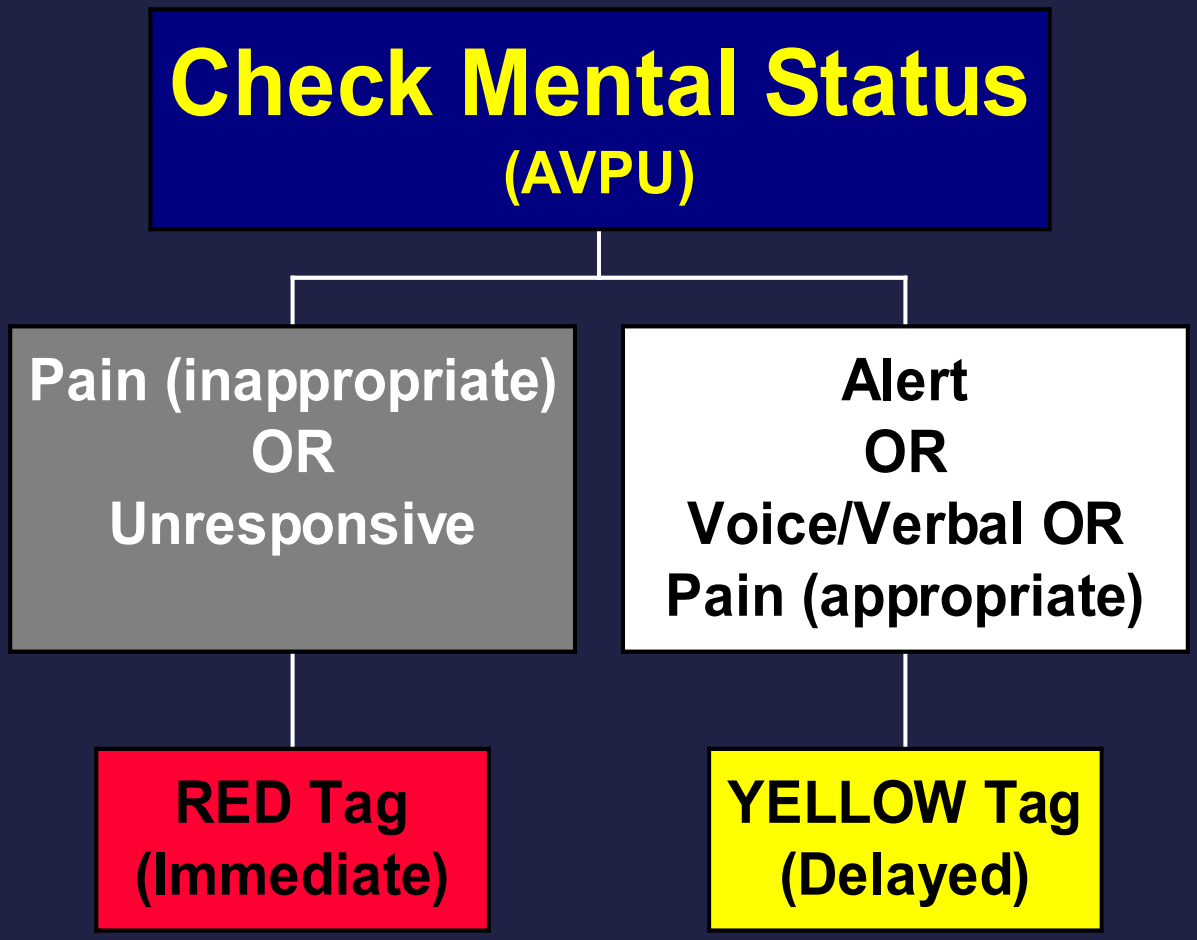

***<u>This step differs from adult START:</u>***

***If child is NOT breathing but perfusion adequate, perform mouth-to-mask ventilations for 15 seconds and reassess.***

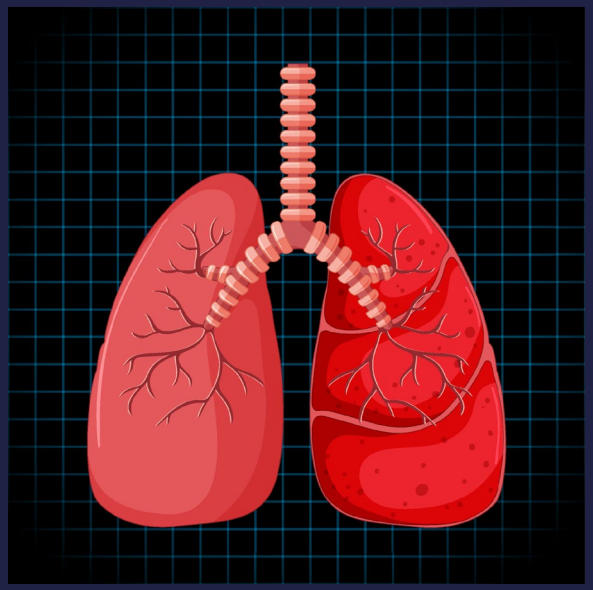
# Step 3 - Assess Perfusion

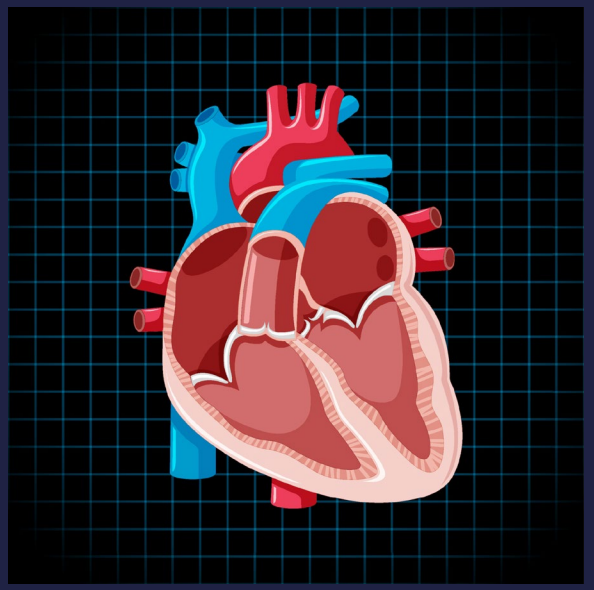


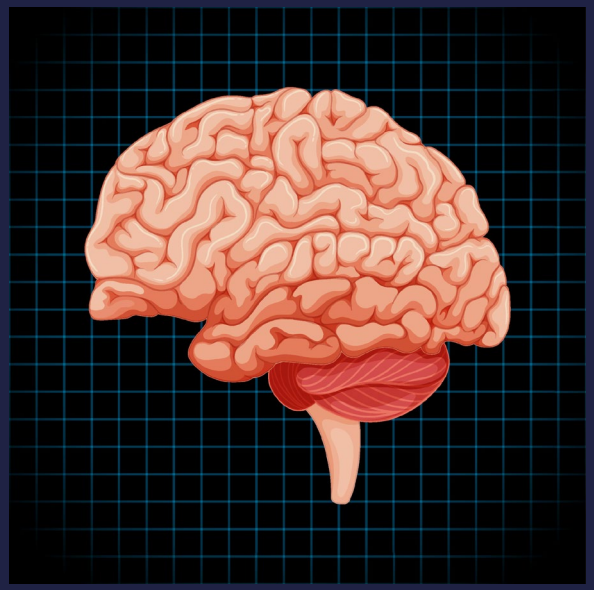
# Step 4 – Assess Mental Status




***Assess using AVPU and consider AGE APPROPRIATE responses.***







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***Remember that capillary refill may not be an accurate measure of perfusion in cold environments.**

# Secondary Triage

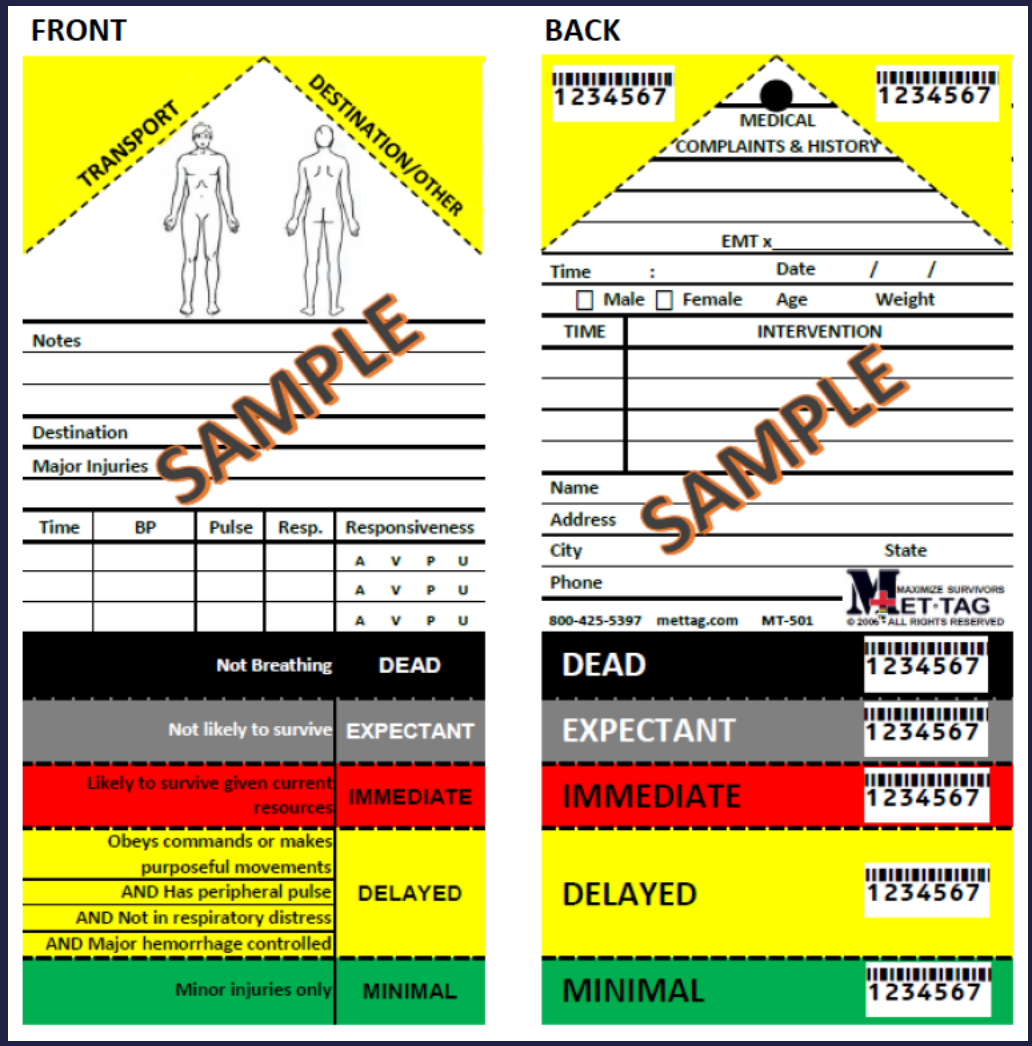
- Leads to TREATMENT PHASE
- Application of Triage Tags
- In-depth reassessment
- Refines clinical picture
- May be done in several ways:
  - On stretcher on way to treatment area
  - In treatment area
  - In ambulance on way to hospital

# Capabilities of Triage Tags

- Multiple triage assessments of patient
- Continuous patient information recording
- Continuous patient accountability and tracking
- Easy interface with patient hospital records

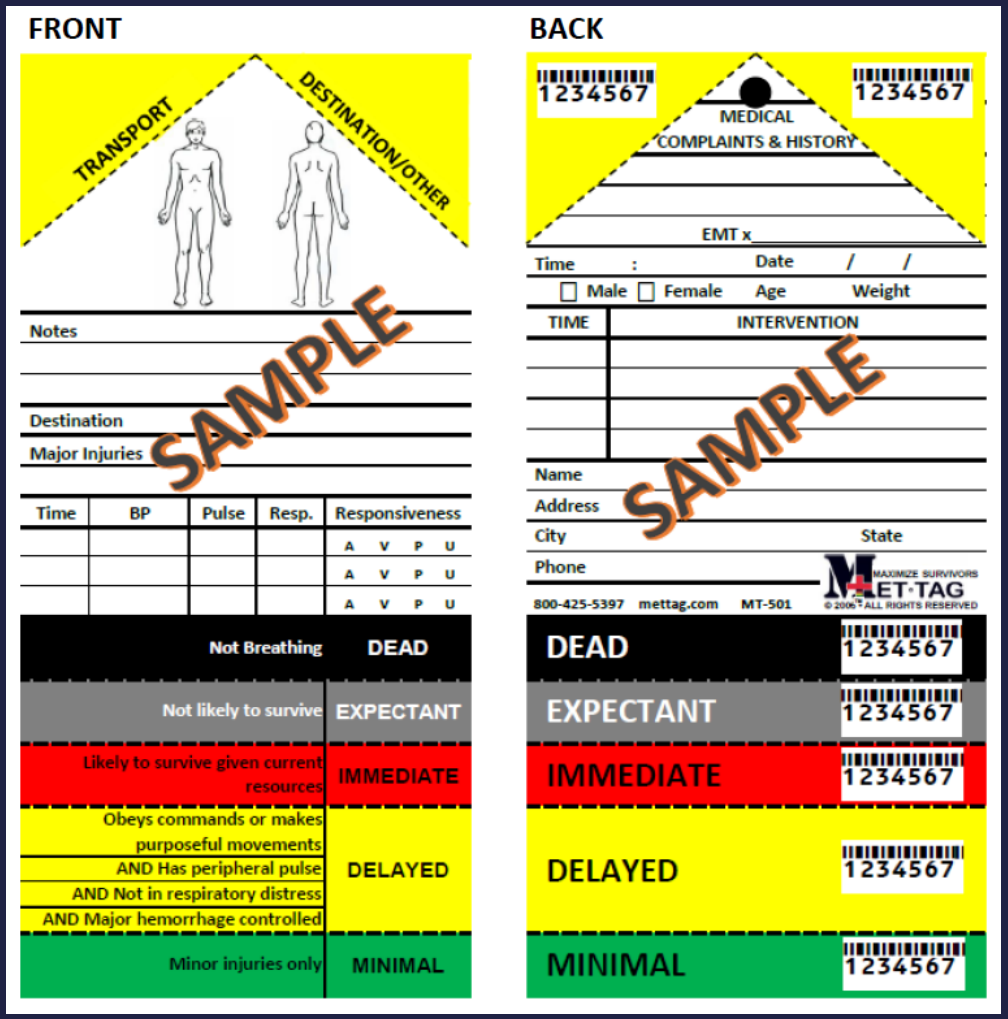
# Sample Triage Tag

- White weather resistant material
  - Designed for use with ball point pen
  - Choice of triage tags should be a collaborative effort between your local hospital, surrounding first response agencies, and your local OEM.



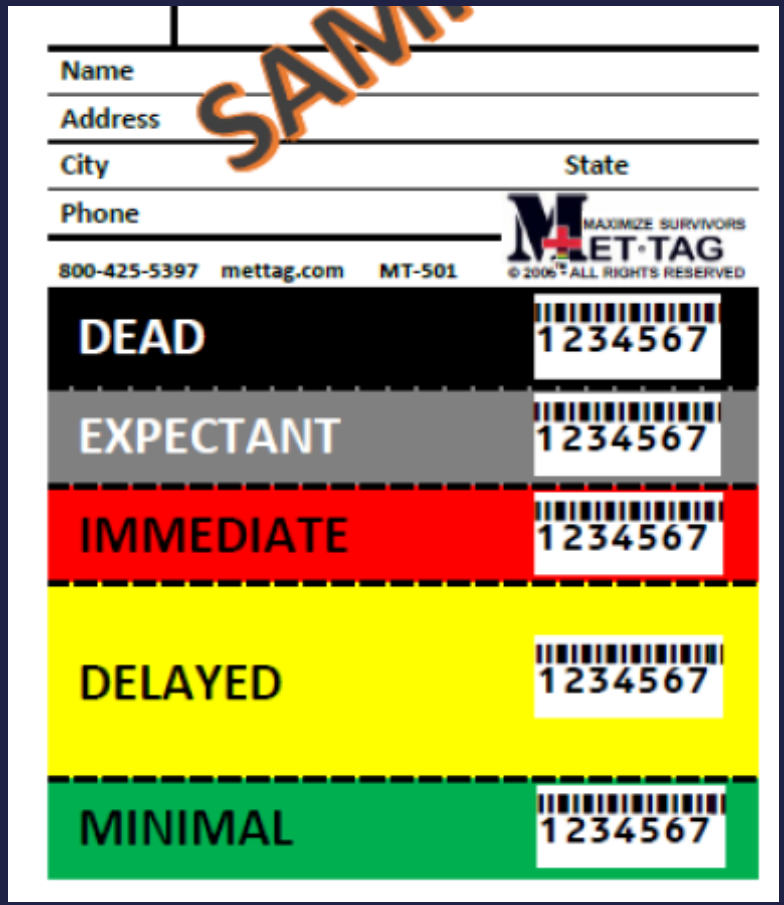
# Triage Tags

- Designed to make patient categorization easier
- Provide a continuous documentation tool



# Tag Front

- Patient Information Section
  - Information not always obtainable
  - Can be added throughout triage, treatment, transportation, & hospital reception phases



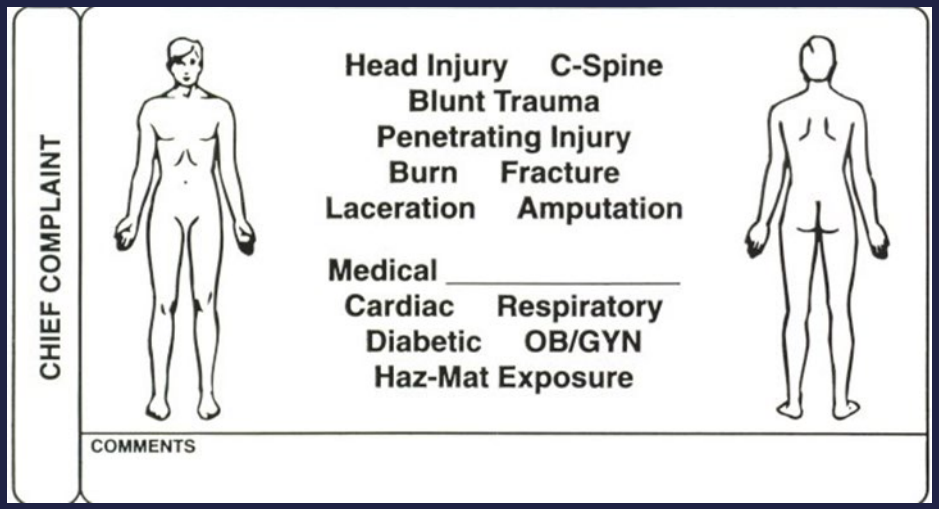
# Triage Status Section

- INITIAL/START - first assessment
- SECONDARY - reassessment at scene or in treatment area
- BLANK - used in treatment area or during transportation
- HOSPITAL - initial reassessment receiving hospital

| TRIAGE STATUS | EVALUATION | TIME | RED | YELLOW | GREEN | BLACK |
|---|---|---|---|---|---|---|
| | INITIAL | | IMMEDIATE | DELAYED | MINOR | DECEASED |
| | SECONDARY | | IMMEDIATE | DELAYED | MINOR | DECEASED |
| | | | IMMEDIATE | DELAYED | MINOR | DECEASED |
| | HOSPITAL | | IMMEDIATE | DELAYED | MINOR | DECEASED |

# Chief Complaint Section

- Major obvious injuries or illnesses circled
- Indicate injuries on human figure
- Additional information added in “Notes” section



# Transportation Section

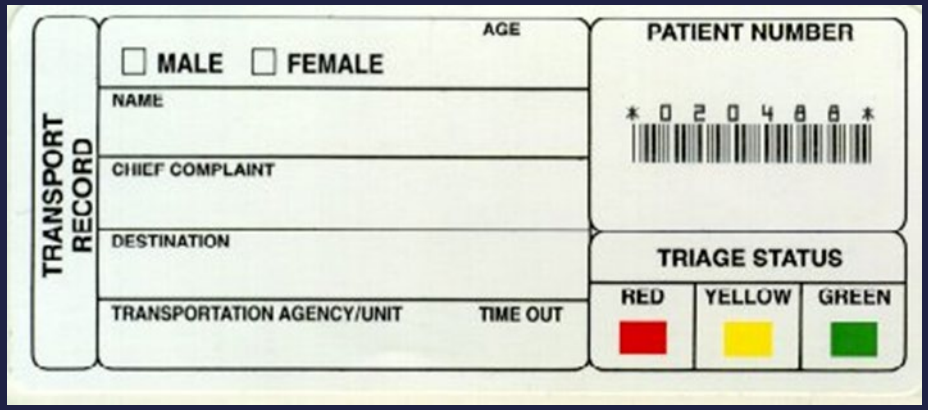
- Transporting unit notes
  - Agency information
  - Destination hospital
  - Time patient arrived



| TRANSPORTATION AGENCY/UNIT | DESTINATION | TIME ARRIVED |
|---|---|---|
| | | |

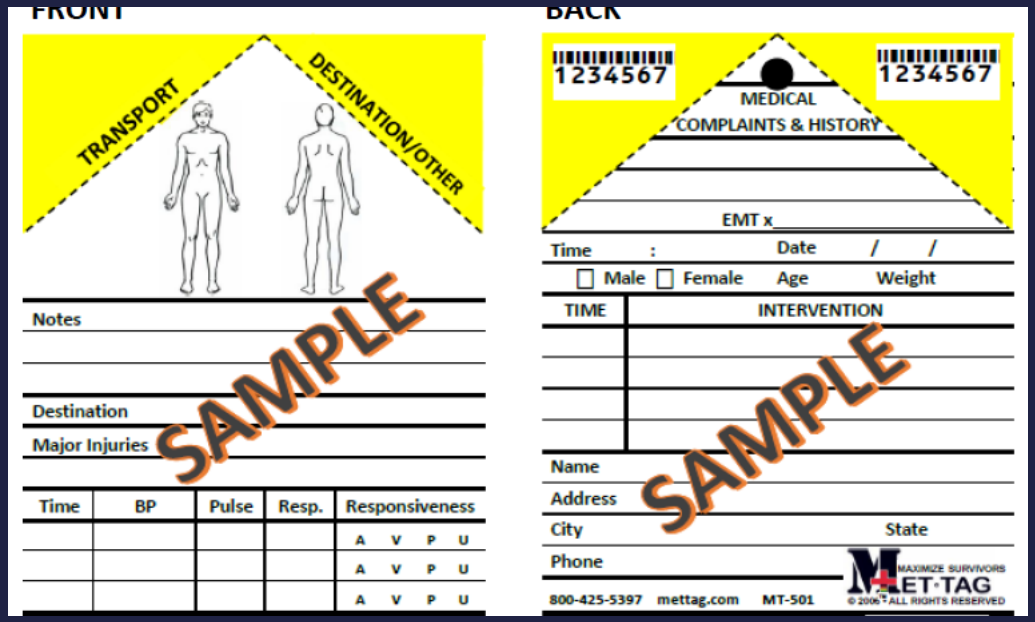
# Transportation Record Section

- Detachable by tear-off or as pull-off label
- Document patients transported to hospital or other facility
- Can be fixed to transportation
  tactical worksheet
  - Mark hospital destination



# Patient Care

- **Vital Signs**: three sets of vital signs
- **Medical History**: can be obtained from Medic Alert devices
- **Treatment**: additional treatments and remarks
  - Time treatment actions taken & provider initials



# What's after secondary triage?

***Secondary triage leads to treatment phase. Then, just like any other patient and assessment, triage needs to be an ON-GOING process that is done continuously once resources allow.***

# Treatment Phase

- Requires secondary triage



- More in-depth assessment to prioritize patients for treatment and transportation

# *Special Considerations*

# Preparation and Pre-Planning

***Help to be more efficient in all elements of mass casualty management.***


# Preparation and Pre-Planning

- Helps to be more efficient in all elements of mass casualty incident management.
- Critical infrastructure, places where people gather, and places where special hazards exist should be pre-planned.
  - Public and government buildings
  - Public assembly areas
  - Transit systems – bus, rail, etc.
  - Universities, schools, school events
  - Events scheduled in local communities

# CISM – Critical Incident Stress Management

- Defusing sessions can occur as early as starting on the scene with personnel
- Debriefing sessions should be held within 24 to 72 hours of the incident
  - Consists of peers, mental health professionals (WVDHHR, Valley Mental Health, etc.), and local resources (ministerial associations)

# CISM – Critical Incident Stress Management—Cont'd

- **Warning signs that may occur:**
  - Irritability toward coworkers, family, and friends
  - Inability to concentrate
  - Difficulty sleeping, increased sleeping, or nightmares
  - Feeling of sadness, anxiety, or guilt
  - Indecisiveness
  - Loss of appetite
  - Loss of interest in sexual activities
  - Isolation
  - Loss of interest in work
  - Increase use of alcohol
  - Recreational drug use
  - Feeling of hopelessness

# CISM – Critical Incident Stress Management—Cont'd

***Additional resources to help promote CISM:***

| Resource | Website | Phone Number |
|---|---|---|
| International Critical Incident Stress Foundation | www.icisf.org | NA |
| Fire/EMS Helpline | www.crewcarelife.com/crisis-support | 1-888-731-FIRE (3473) |
| National Suicide Prevention Lifeline | www.suicidepreventionlifeline.org | 1-800-273-TALK (8255) |
| Center for Firefighter Behavioral Health | www.cffbh.org | NA |

# Incident Management System

- Expands to meet needs of organizations responding to MCI's
- West Virginia MCI procedures and incident management systems covered in more detail in Module II of the West Virginia Mass Casualty Incident Management Program

# SUMMARY

***Incidents of any kind have potential to overwhelm EMS system personnel, equipment, resources, and medical facilities.***

# Five S's

- **S**cene Safety S-1
- **S**cene Size-Up S-2
- **S**end for Help S-3
- **S**et-Up S-4
- **S**TART/JumpSTART S-5

# START Algorithm

- Simple and efficient process for initial triage
- Practiced and used in all MCI's involving agencies that have adopted it

***Do the greatest good for the greatest number.***

# *Triage Exercise*

***Each student will complete one scenario, as assigned by instructor.***

# QUESTIONS