CMC TCCC

COMBAT MEDIC/ CORPSMAN

DHA Defense Health Agency JOINT TRAUMA SYSTEM

TACTICAL COMBAT CASUALTY CARE COURSE

MODULE 20: CASUALTY MONITORING

Committee on Tactical Combat Casualty Care (CoTCCC)

TCCC TIER 1
All Service Members

TCCC TIER 2
Combat Lifesaver

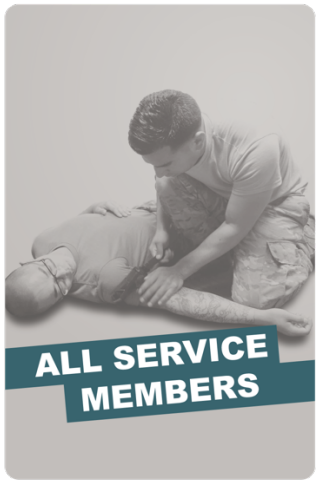
TCCC TIER 3
Combat Medic/Corpsman

TCCC TIER 4
Combat Paramedic/Provider

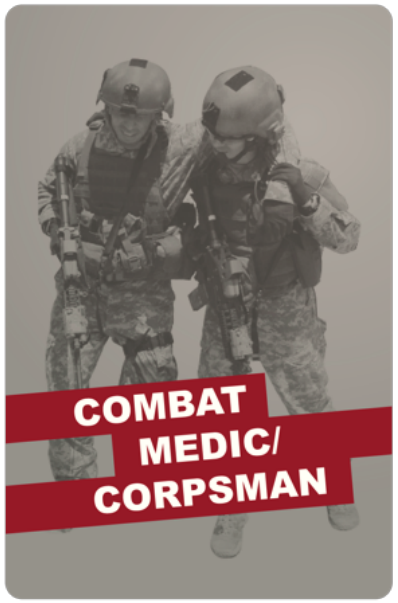
TACTICAL COMBAT CASUALTY CARE (TCCC) ROLE-BASED TRAINING SPECTRUM

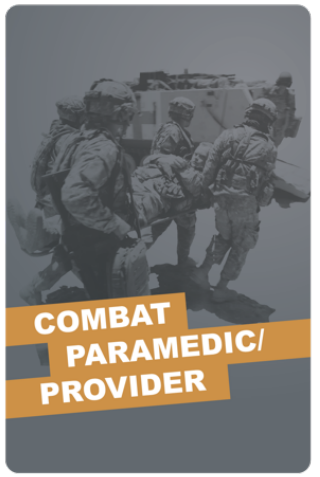
ROLE 1 CARE

NONMEDICAL PERSONNEL



MEDICAL PERSONNEL





YOU ARE HERE

STANDARDIZED JOINT CURRICULUM

1 x TERMINAL LEARNING OBJECTIVES

23 Given a combat or noncombat scenario perform monitoring of a trauma casualty during Tactical Field Care in combat in accordance with CoTCCC Guidelines.

- **23.1** Identify the methods and limitations of assessing level of consciousness, pulses, and respiratory rate in Tactical Field Care.
- **23.2** Identify methods for monitoring vital sign trends in Tactical Field Care.
- **23.3** Demonstrate assessment of level of consciousness and respirations on a trauma casualty in Tactical Field Care.
- **23.4** Demonstrate assessment of radial femoral pedal and carotid pulses for rate rhythm and quality in Tactical Field Care.
- **23.5** Demonstrate assessment of pulse oximetry in Tactical Field Care.
- **23.6** Demonstrate electronic vital signs monitoring in Tactical Field Care.
- **23.7** Demonstrate assessment of end-tidal CO2 using a colorimetric device on a trauma casualty in Tactical Field Care.

07 x ENABLING LEARNING OBJECTIVES

= **Terminal Learning Objectives** ● = Cognitive ELOs ▨ = Performance ELOs

CASUALTY MONITORING OVERVIEW IN MARCH PAWS

LEVEL OF CONSCIOUSNESS

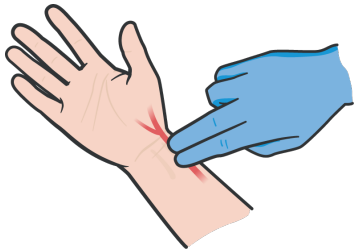
M A R C H

Airway | Hypothermia | Circulation/Shock | Head Injuries

RESPIRATIONS

M A R C H

Respiration



PULSE

M A R C H

Circulation/Shock

⚠ **Reassessment** is a continuous process

⚠ **Monitoring** is not limited to specific steps

ASSESSING THE LEVEL OF CONSCIOUSNESS

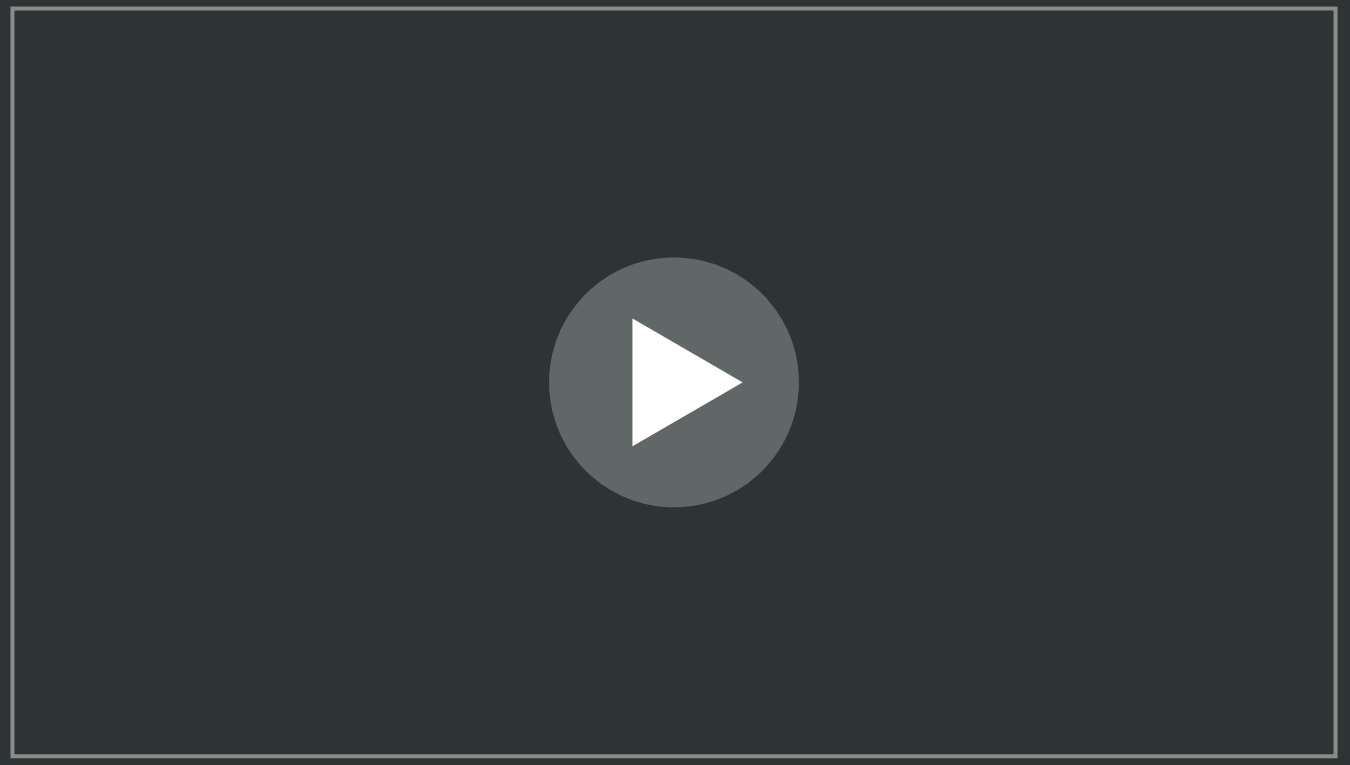
AVPU

Alert
Verbal
Pain
Unresponsive

1. **Ask *"Are you okay?"***
   If the casualty answers coherently, then they are an A, or **A**lert
2. **Ask "*Are you okay?"***
   If the answer is not clear, ask the casualty to squeeze your finger or move an arm or leg; and if they respond, they are V, or responds to **V**erbal
3. **If no response**, rub the breastbone, squeeze a toe over the toenail, or pinch their nose or earlobe (avoid injured areas); **if they respond**, they are a P, or responds to **P**ain
4. **If there is no response**, they are U, or **U**nresponsive

⚠ **AVPU** may be difficult to assess depending on the environment and the mission situation

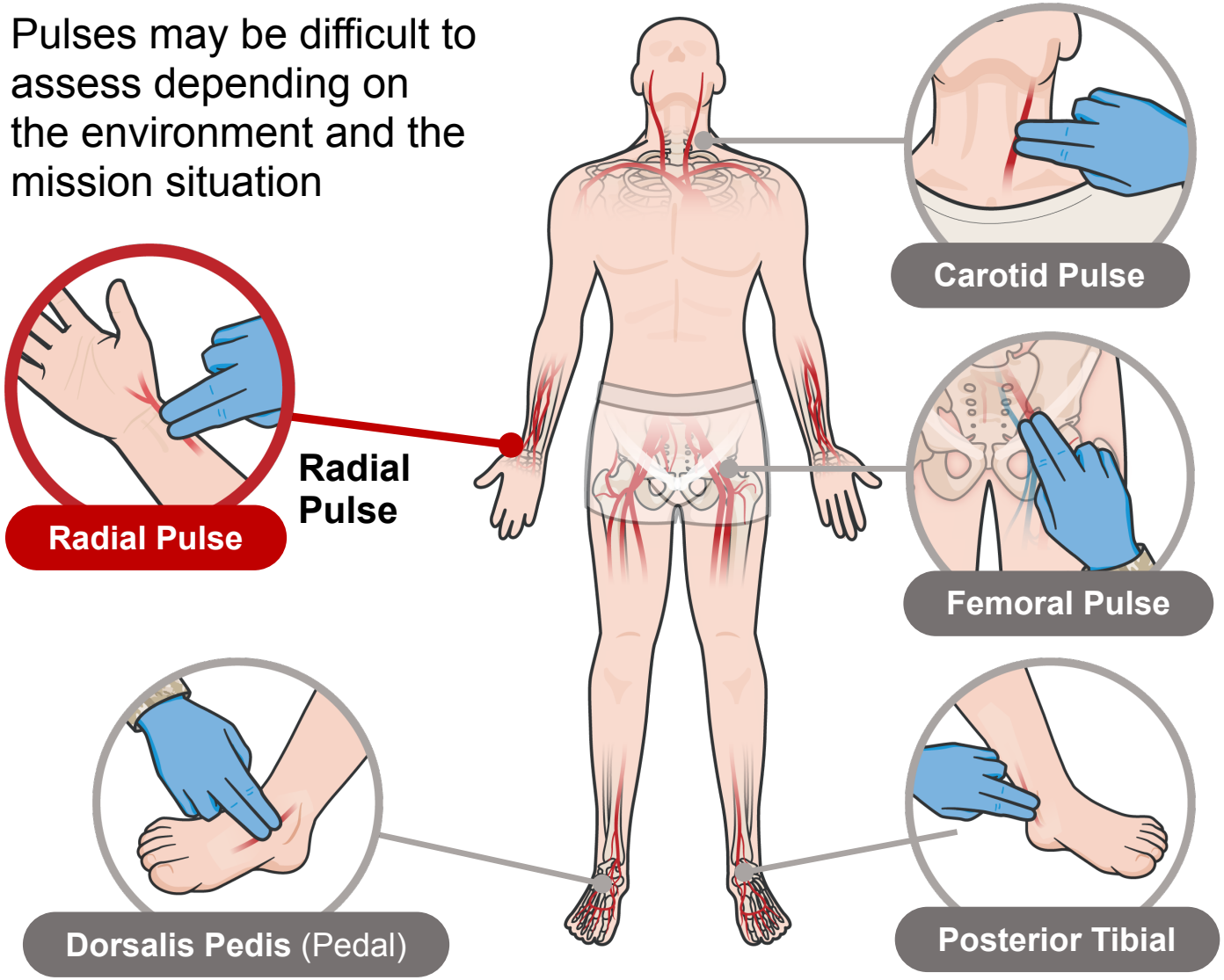
AVPU ASSESSMENT



Video can be found on deployedmedicine.com

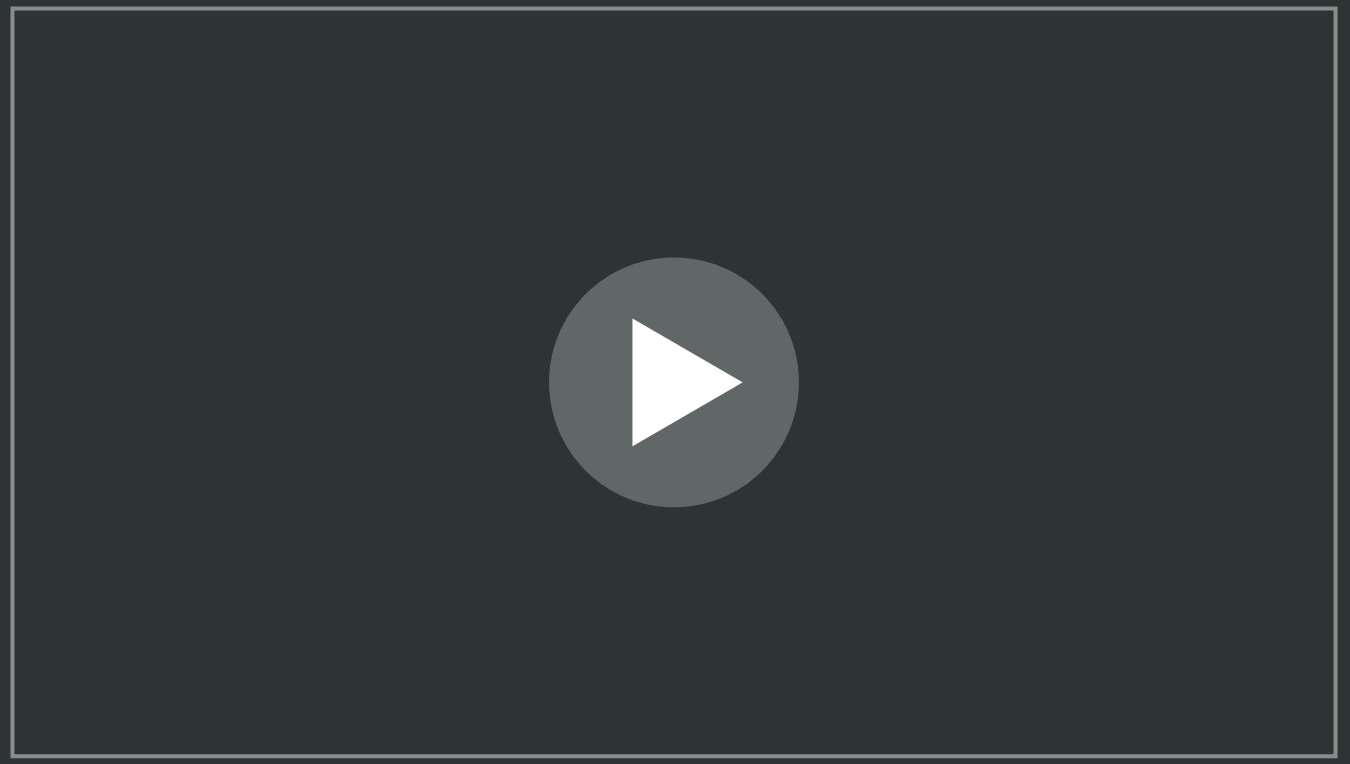
ASSESSING PULSES

Pulses may be difficult to assess depending on the environment and the mission situation



- Presence or absence of radial pulses is a sign of hypotension/shock and need for fluid resuscitation
- Pulse rate can help estimate a casualty's status and provide information about changes in their status
- Practice assessing pulses on a variety of people to develop techniques for discovering anatomical variants
- Press firmly at the pulse site, but avoid causing harm to the casualty by pressing too hard
- Document all findings and treatments on a DD Form 1380 TCCC Casualty Card and attach it to the casualty

RADIAL PULSE ASSESSMENT



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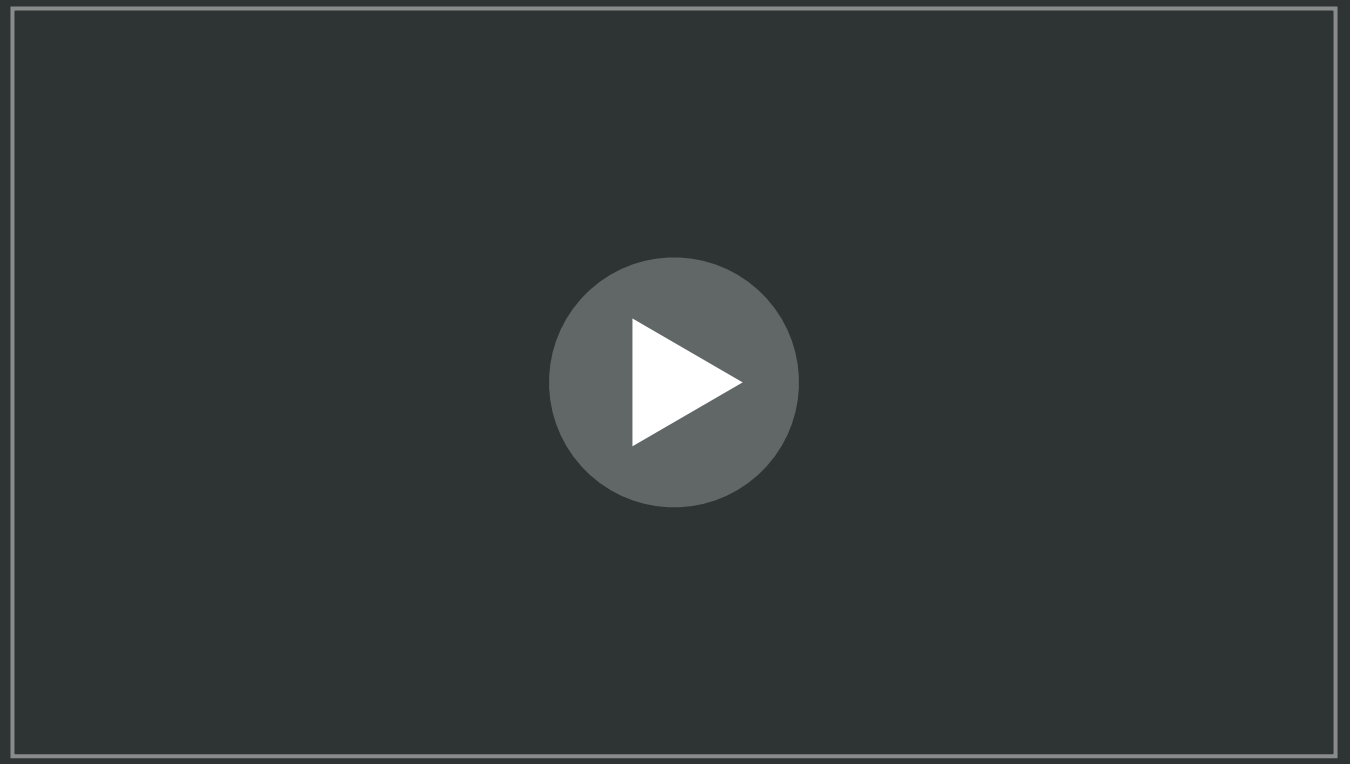
CAROTID PULSE ASSESSMENT



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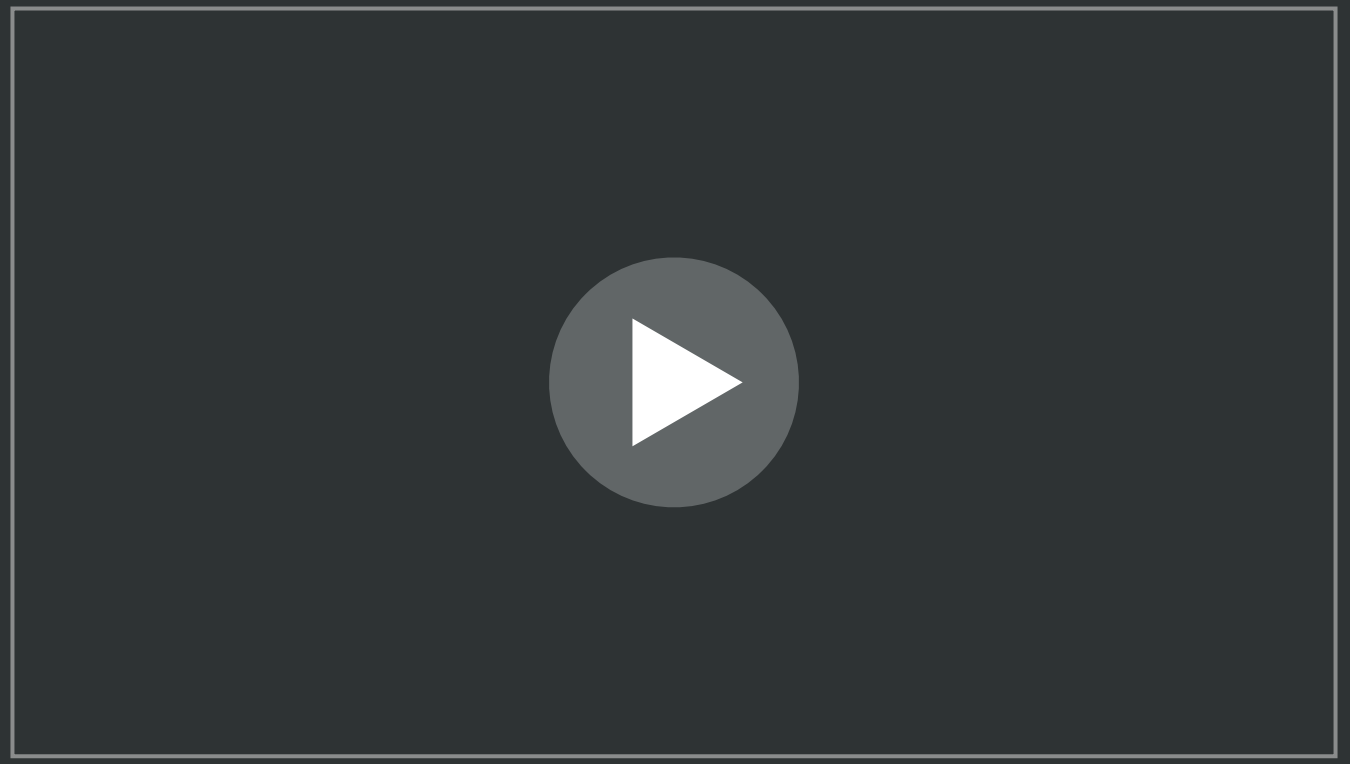
DORSALIS PEDIS PULSE ASSESSMENT



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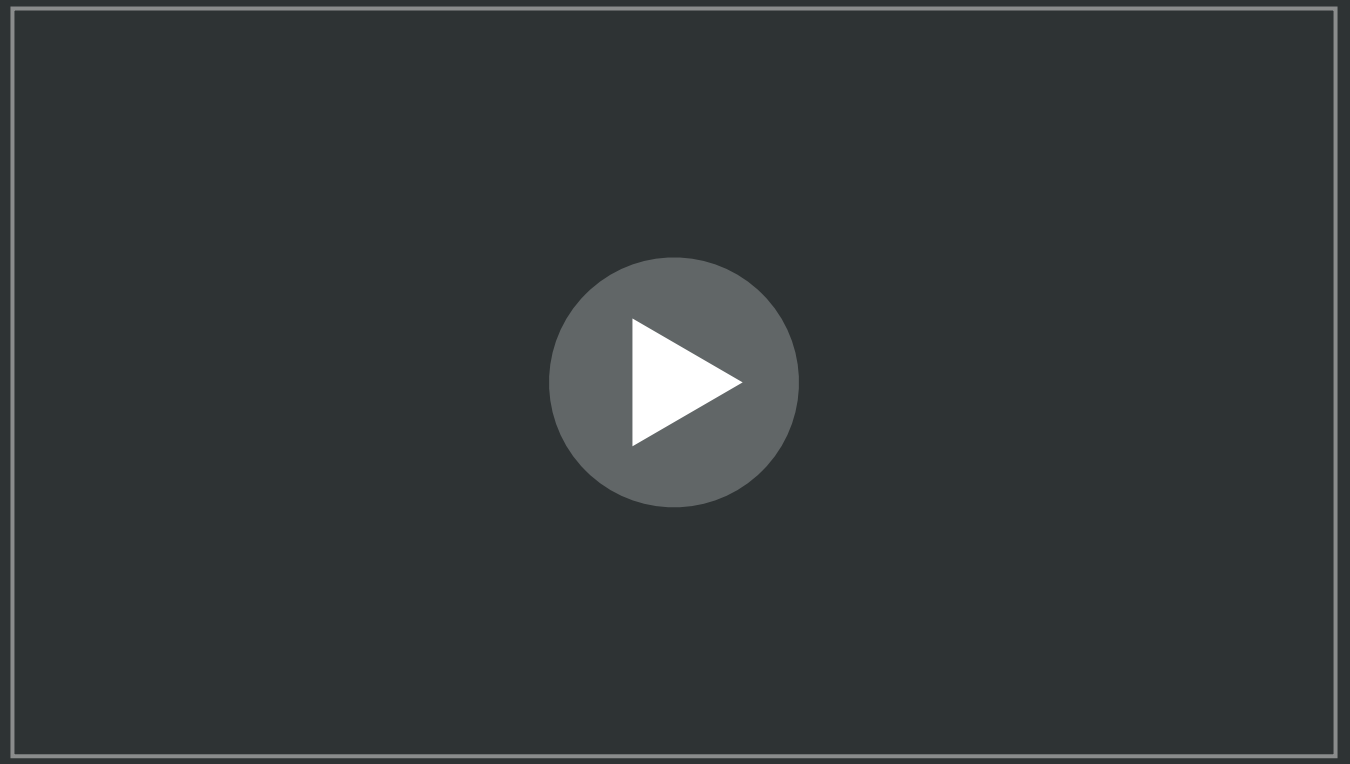
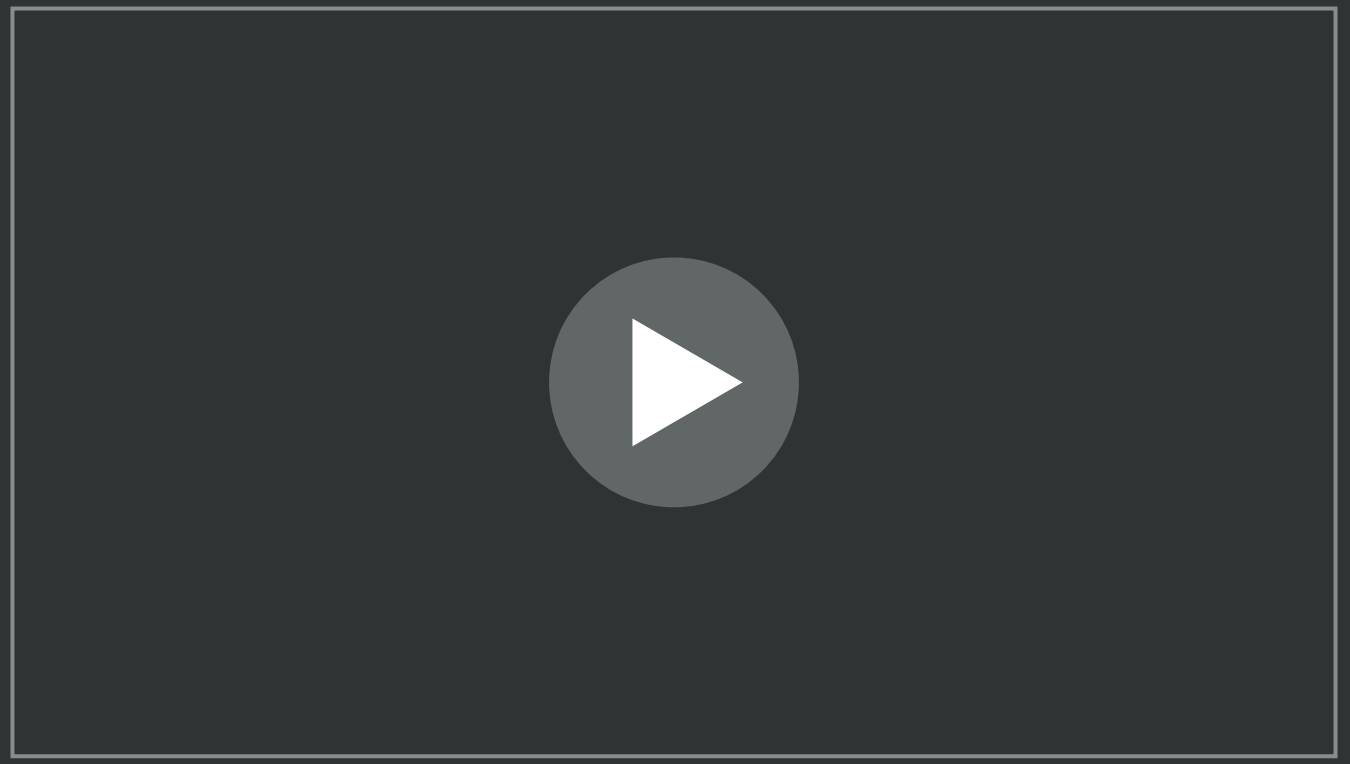
POSTERIOR TIBIAL PULSE ASSESSMENT



Video can be found on deployedmedicine.com

FEMORAL PULSE ASSESSMENT



Video can be found on deployedmedicine.com

ASSESSING RESPIRATIONS

RESPIRATORY RATE ASSESSMENT

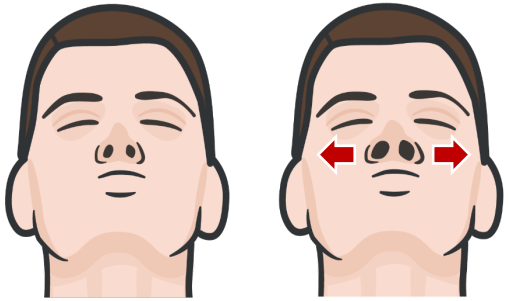
LOOK
Rise & fall of chest

LISTEN
Breath sounds

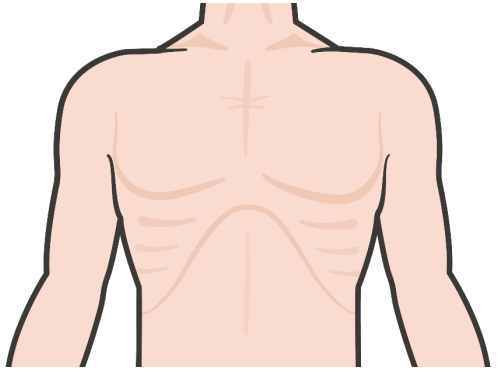
FEEL
Breath on side of your face

⚠ Respirations may be difficult to assess depending on the environment and the mission situation

RESPIRATORY EFFORT ASSESSMENT



NASAL FLARING



RETRACTIONS

TRIPOD RESPIRATIONS

PULSE OXIMETRY MONITORING

Hypoxemia in TFC is difficult to assess

- **Low-light** conditions mask signs
- Physical findings impaired by the **tactical environment**

Use pulse oximetry in casualties with:

- Injuries that impair oxygenation
  Blasts, chest injuries, etc.
- *Ensure O2 sats >90%*

NOTE: *Shock is **not** always preceded by a fall in O2 saturation levels*

Factors Affecting Pulse Ox Readings

Low readings may be seen with:

- **Shock**
- **Environmental conditions**

High readings may be seen with:

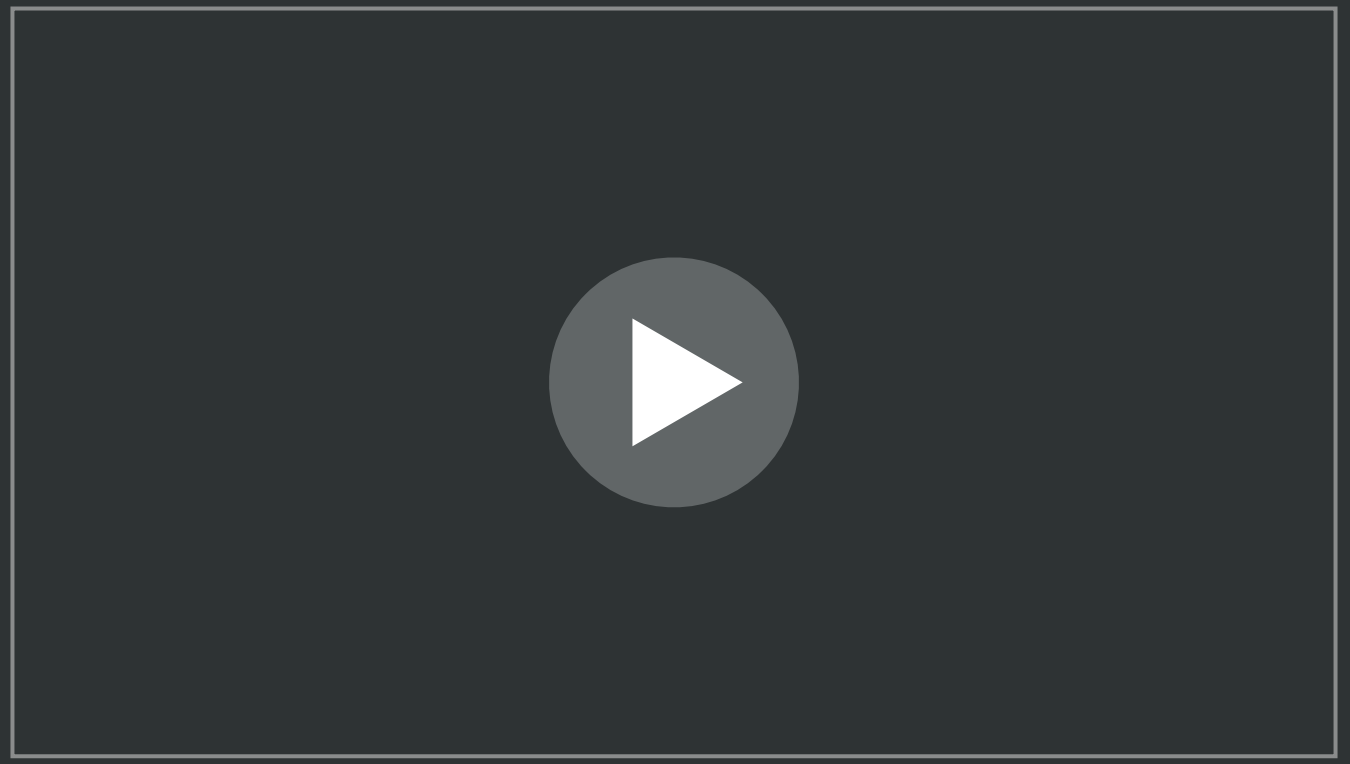
- **Carboxyhemoglobinemia**

Impaired readings may be seen with:

- Nail polish
- Very bright environments
- Skin pigmentations
- Motion artifact
- Poor perfusion

TCCC Guideline Recommendations for pulse ox:
Diagnosing and monitoring respiratory distress, pneumothorax, traumatic brain injury

PULSE OXIMETRY



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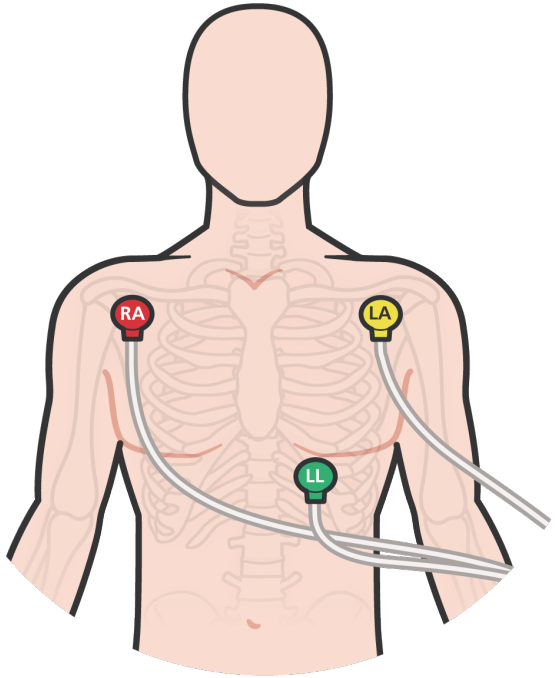
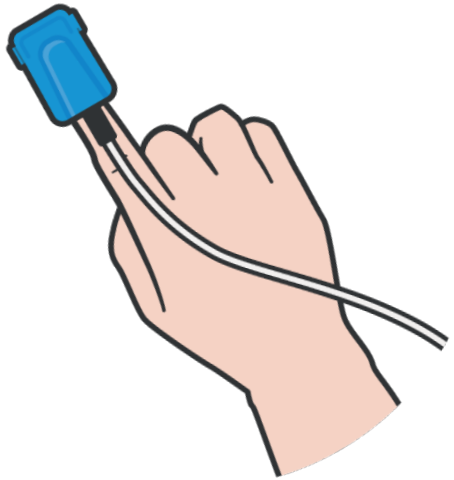
ELECTRONIC MONITORING



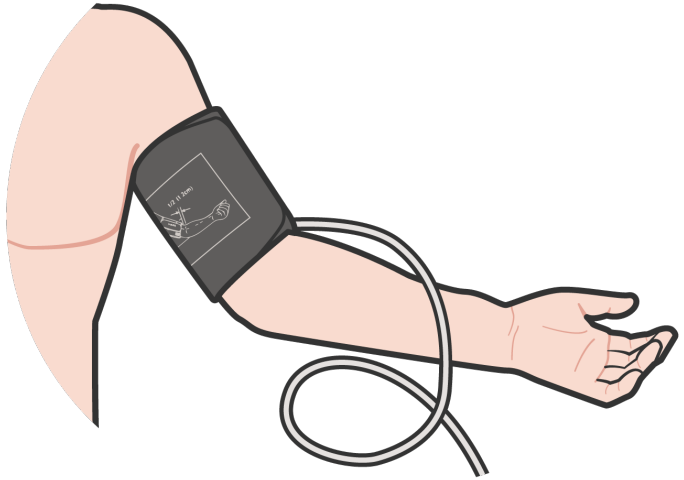
Cardiac Monitoring

- Pulse rate
- Rhythm abnormalities



Integrated Pulse Ox

- SpO2 measurement



Blood Pressure Monitor

- Automated reassessments

Other Capabilities

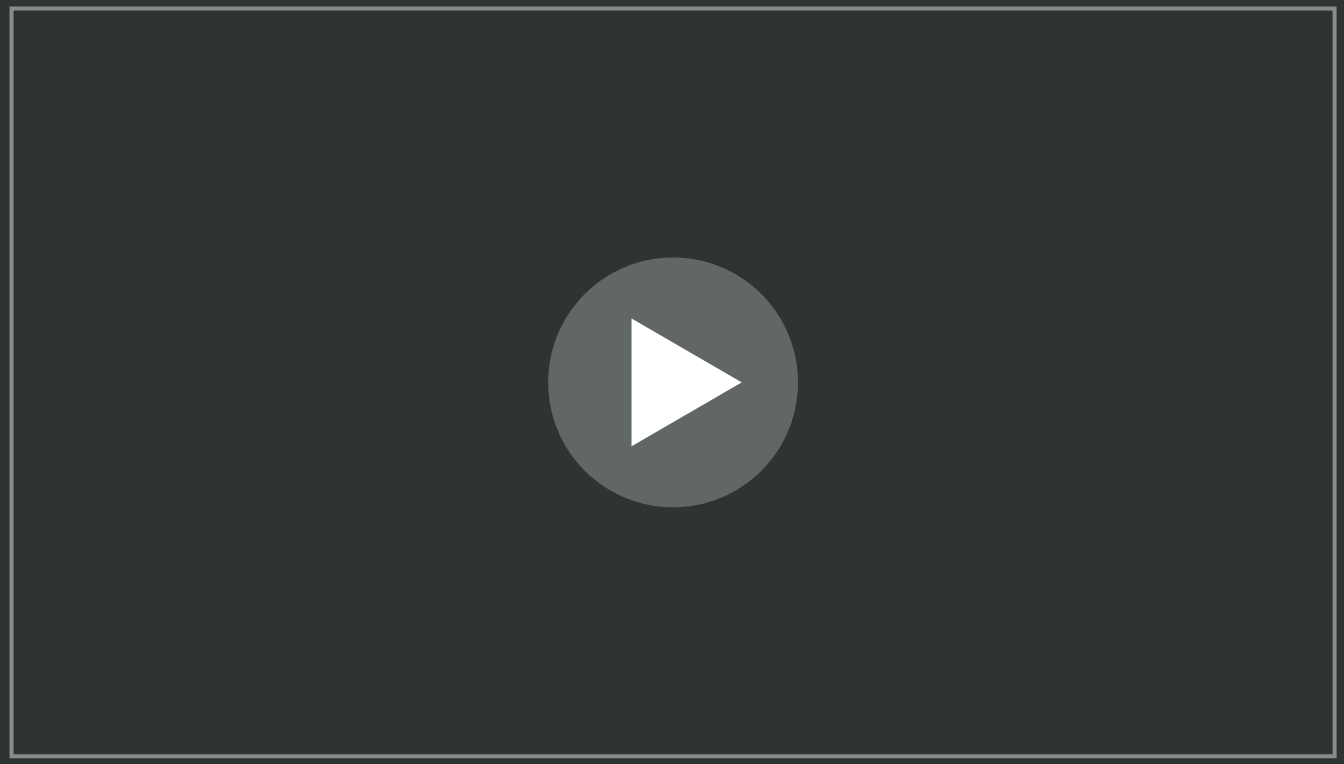
(vary by model)

- Temperature
- End-tidal CO2

⚠ Battery life is limited; keep plugged into an electrical source when possible

⚠ Familiarize and train using the monitors you will deploy with

MONITORING:
ELECTRONIC VITAL SIGNS



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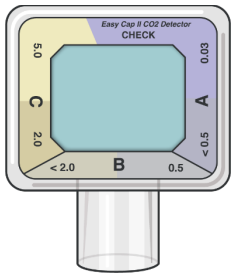
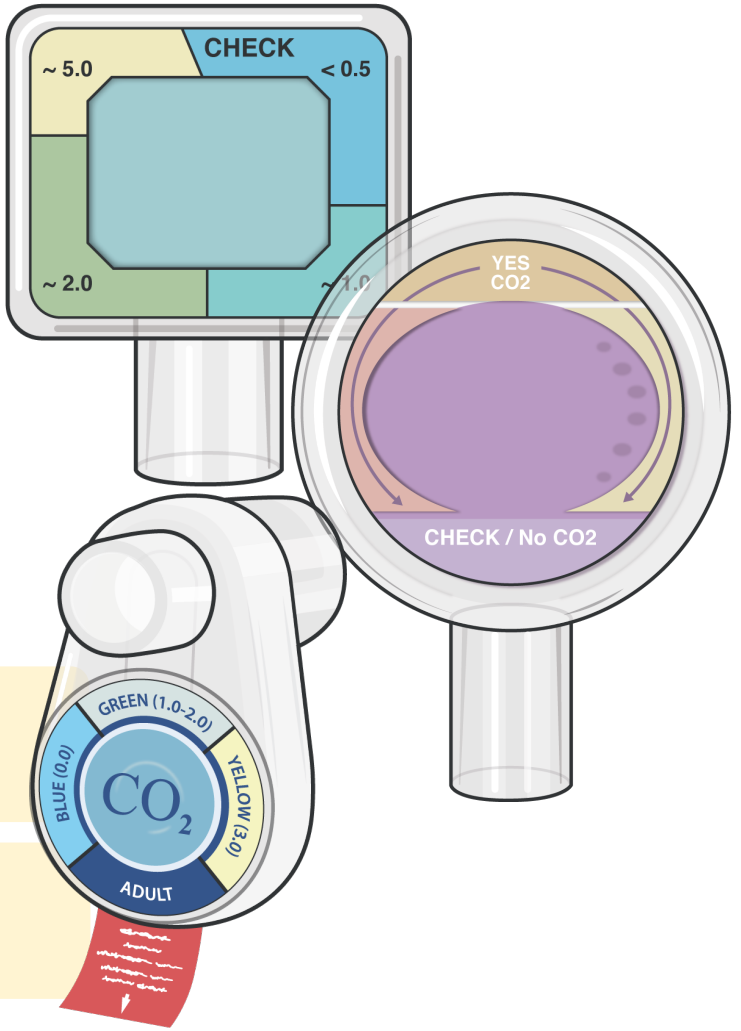
USING END-TIDAL CARBON DIOXIDE COLORIMETRIC DEVICES

End-tidal carbon dioxide (ETCO2) uses

- **Confirm** advanced airway placement
- **Monitor** for effective ventilation



Qualitative
Colorimetric ETCO2 devices

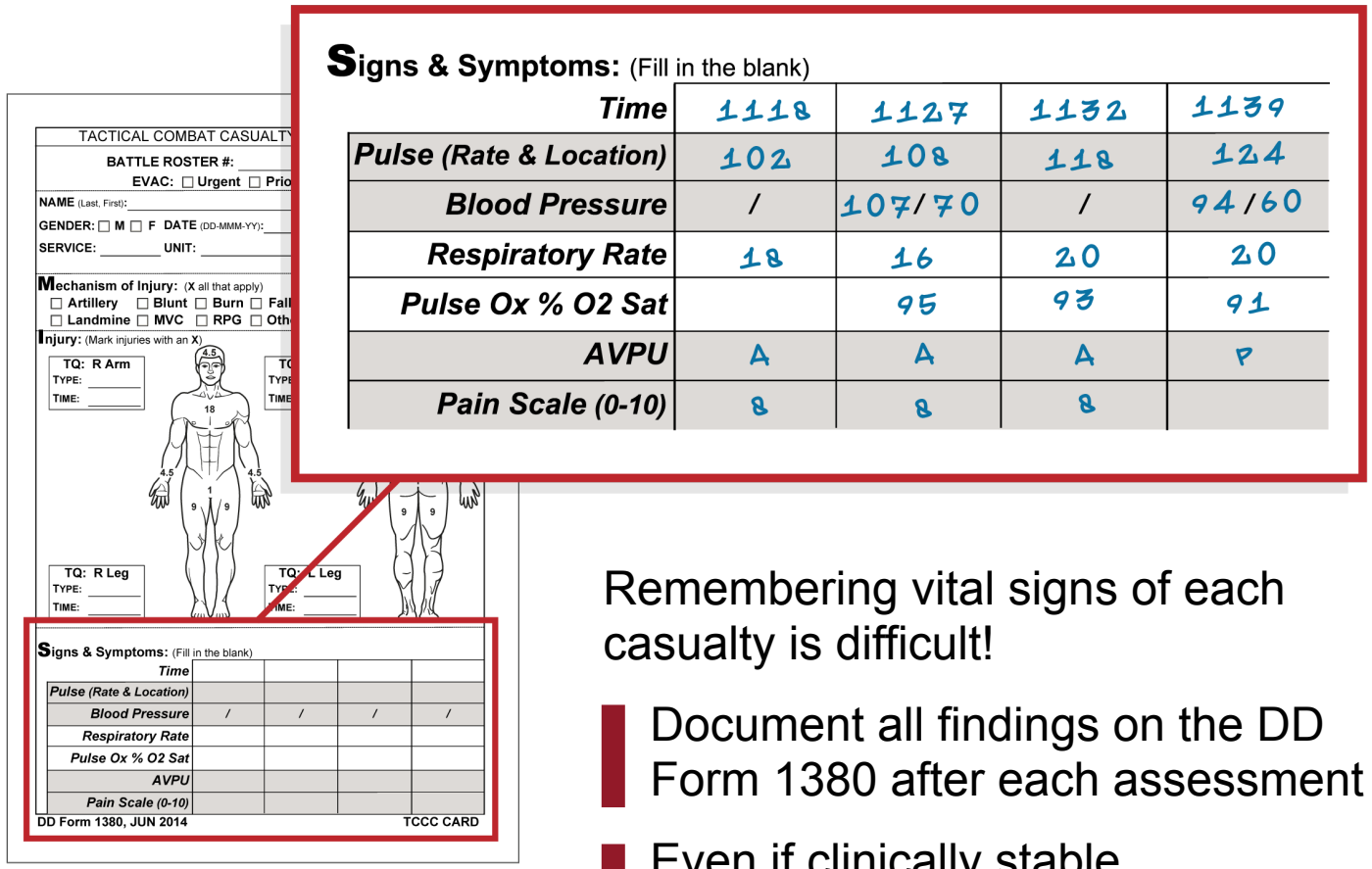


- **Confirm** sensor paper matches “check” color
- **Fit** tapered female end over BVM Mask, EGA or Surgical Airway
- **Attach** ventilation aid (bag valve mask)
- **Give 6 breaths**
- **Assess** for color changes

⚠ **Replace** standard colorimetric devices after 2 hrs, pull-tab devices after 24 hrs

⚠ Fluids (secretions, blood, sputum) can render ETCO2 detectors ineffective

MONITORING VITAL SIGN TRENDS



Signs & Symptoms: (Fill in the blank)

Time	1118	1127	1132	1139
Pulse (Rate & Location)	102	108	118	124
Blood Pressure	/	107/70	/	94/60
Respiratory Rate	18	16	20	20
Pulse Ox % O2 Sat		95	93	91
AVPU	A	A	A	P
Pain Scale (0-10)	8	8	8	

Remembering vital signs of each casualty is difficult!

- Document all findings on the DD Form 1380 after each assessment
- Even if clinically stable, reassess routinely

Reasons for following trends in vital signs

- Provides insight into the casualty's clinical course not obvious from single set of vitals
- Helps responder identify need for early interventions or assessments
- Validates successful fluid resuscitation or other interventions

Vital signs are very important during transition of care from Combat Medic to medical evacuation team

CASUALTY MONITORING SKILL STATION

- Level of Consciousness
- Pulse Assessments
- Monitoring Respirations
- Pulse Oximetry
- Electronic Monitoring
- End-tidal CO2 Colorimeter

SUMMARY

- Assessing level of consciousness
- Identifying pulses and documenting heart rate
- Measuring respiratory rate and effort
- Application and use of pulse oximetry
- Using electronic monitors
- Application and use of end-tital CO2 colorimetric
- Following trends in vital signs

CHECK ON LEARNING

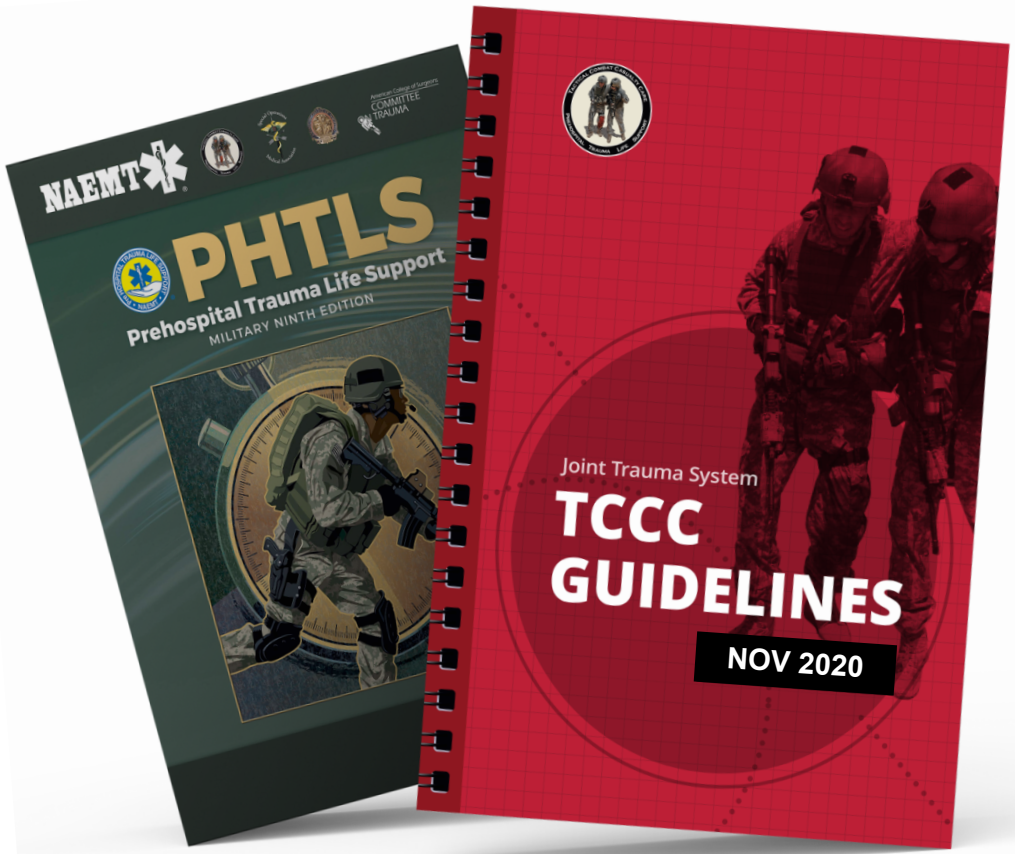
What does AVPU stand for?

Why do the TCCC Guidelines state that checking a radial pulse is critical?

What is the importance of following trends in vital signs?

ANY QUESTIONS?

REFERENCES



TCCC: Guidelines

by JTS/CoTCCC

Updated regularly – latest edition dated 5 November 2020

These guidelines are the result of decisions made by the Committee on Tactical Combat Casualty Care as they explore evidence-based research regarding best practices

PHTLS: Military Edition, Chapter 25

by NAEMT

Prehospital Trauma Life Support, Military Ninth Edition