

# Pulse Oximetry



# Overview

- Definition
- Types of Pulse Oximeters ( $SpO_2$ )
- Indications
- How to apply the Pulse Oximeter
- Facts
- Contraindications

# Definition

- Pulse Oximetry
  - A portable device for the rapid noninvasive measurement of arterial O<sub>2</sub> saturation
  - Assists in the diagnosis of hypoxia (lack of oxygen)
  - Its utilization in the pre-hospital setting is OPTIONAL

# Pulse Oximetry

- There are many different makes, models, and styles of pulse oximeters
- Some pulse oximeters have a screen which shows a wave form, some also have an additional attachment to monitor carbon dioxide levels in the blood
- The pulse oximeter will also give you a heart rate reading as well (why is HR important?)



# Pulse Oximetry

- Indications:
  - Patients in respiratory distress
  - All critically ill patients
  - Patients requiring O<sub>2</sub> concentrations of 40% or greater
  - Stable patients at risk from sudden deterioration (ie overdose)
  - Monitoring during procedures such as suctioning

# How to Apply the Pulse Oximeter

- Step 1
  - Body Substance Isolation
  
- Step 2
  - Remove fingernail polish if it applies
  
- Step 3
  - Apply pulse oximeter probe to finger

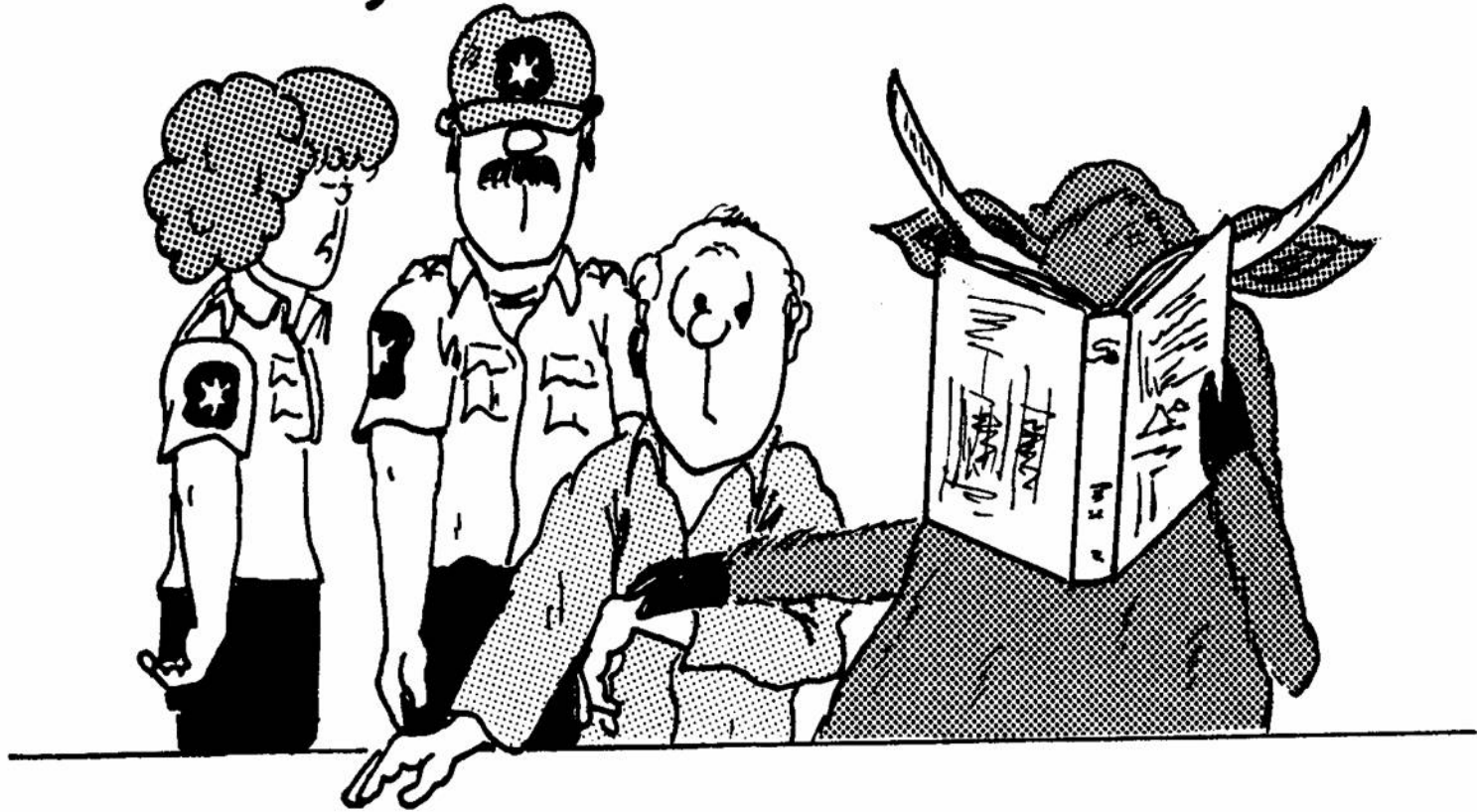


# How to Apply the Pulse Oximeter

- Step 4
  - Leave finger probe on for 15-30 (can take up to 60) seconds to obtain an accurate reading
- Step 5
  - Record time and reading on the PCR



# WHAT'S THE PULSE OX READING?



# Pulse Oximetry

- A SpO<sub>2</sub> greater than 91% usually indicates adequate oxygenation
- Pulse oximetry may be inaccurate by as much as 5%, so the SpO<sub>2</sub> level should be kept above 95%
  - Except in patients with COPD where oxygen therapy should be guided by the patient's clinical status, not the SpO<sub>2</sub> results

# Pulse Oximetry

If after decreasing the oxygen flow rate, the patient complains of increased SOB, or shows evidence of increased respiratory distress, the oxygen flow rate must be increased to its previous level even if the SpO<sub>2</sub> is above 95% at the lower flow rate

***Remember... treat the patient –  
NOT the machine!!***

# Pulse Oximetry

- SpO<sub>2</sub> results are inaccurate in carbon monoxide patients
- Patients suspected of carbon monoxide poisoning must receive 100% oxygen, regardless of the SpO<sub>2</sub> reading
- If SpO<sub>2</sub> readings continue to drop despite 100% oxygen, and suctioning of secretions, be prepared to ventilate the patient

# Pulse Oximetry

- **Contraindications:**
  - Severe peripheral vascular disease
  - Severe anemia (decreased Hemoglobin)
  - Hypothermia
    - A quality signal may be unobtainable in 10% of patients with a temperature less than 35.0 degrees Celsius
    - A signal failure will occur at temperatures less than 28.5 degrees Celsius
  - Hypotension (Low b/p)
  - Placement distal to a tourniquet, or blood pressure cuff

# Pulse Oximeters

Pulse oximeters do not take the place of common judgement

If the patient is SOB, provide 100% oxygen no matter what the Pulse Oximeter reads

Do not take the (HR) heart rate from the pulse oximeter as your vital sign, it is not always accurate and does not provide you with all the information that you need (quality, regularity, etc), still continue to take a pulse manually

# Conclusion

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# ANY QUESTIONS?

