

# GLENDALE COMMUNITY COLLEGE

## Emergency Medical Technology

### Vital Signs

#### The 5 Basic Vital Signs

1. Respirations
2. Pulse
3. Blood pressure
4. Skin
5. Pupils
6. Pulse oximetry sometimes called the "6<sup>th</sup>" vital sign

#### I. Blood Pressure

- a. Methods
  - i. Auscultation: requires BP cuff and stethoscope. Preferred.
  - ii. Palpation: requires BP cuff only. Do not give diastolic
- b. Estimating normal BP
  - i. Adults
    1. Not over 140/90
  - ii. Peds (over 1 year)
    1. Never below  $70 + (2 \times \text{age})$  systolic

#### II. Pulse

- a. Central
  - i. Carotid and femoral
- b. Peripheral
  - i. All others e.g. radial, brachial, pedal
- c. Assess rate, rhythm, quality
  - i. Rhythm: regular or irregular
  - ii. Quality: strong, weak, absent
- d. Normal HR
  - i. Adults: 60-100
    1. Below 60 = bradycardia
    2. over 100 = tachycardia
  - ii. Peds: consult text

#### III. Orthostatic Vital Signs

- a. Assess BP and pulse supine, seated and standing (at least two positions, 1 minute apart)
  - i. BP should NOT drop more than 10 mmHg
  - ii. Pulse should NOT increase more than 20 bpm
- b. "Positive Orthostats"
  - i. Drop in BP of 10 or more AND increase in HR of 20 or more
  - ii. Indicates possible hypovolemia
- c. Consider orthostatic VS for:
  - i. Suspected hypovolemic patient e.g.:

1. Dehydration
2. Bleeding
3. Heat exhaustion
- ii. Dizziness
- iii. Near syncope
- iv. Patient refusals
- d. Do NOT take orthostatic VS if:
  - i. Possible c-spine injury
  - ii. Patient may pass out
  - iii. Patient is hypotensive already
  - iv. Patient is high transport priority
  - v. Patient is obviously dehydrated or hypovolemic
  - vi. Not authorized by medical direction, local protocol

#### IV. Breathing

- a. Assess rate and quality
- b. Normal respiratory rates
  - i. Adult
    1. 12-20
  - ii. Child
    1. 15-30
  - iii. Infant
    1. 25-50
- c. Quality
  - i. Regular or irregular
  - ii. Labored or non labored
  - iii. Deep or shallow
- d. Lung sounds
  - i. Auscultate anterior and posterior, top/mid/base
  - ii. Note sounds
    1. Clear
    2. "wet"
    3. "course"
    4. absent

#### V. Skin

- a. Assess color, temp, condition
- b. Color
  - i. Pink, pale, flushed (red), jaundiced (yellow), cyanotic (blue), ashen (gray)
  - ii. Pale indicates possible lack of blood flow
  - iii. Cyanotic indicates possible lack of oxygen
- c. Temperature
  - i. Warm, hot, cool, cold
  - ii. Assess central (core) and peripheral (extremities) temp
- d. Condition
  - i. Dry, moist, wet (diaphoretic)
  - ii. Turgor: "elasticity" of skin

- e. Capillary refill
  - i. Not reliable in adults
  - ii. May be useful in children under 6 years old
  - iii. Normal = under 2 seconds

## VI. Pupils

- a. Assess pupillary size, equality, shape, reactivity, accommodation
- b. PERRLA: normal papillary findings
  - i. **P**upils **E**qual **R**ound **R**eactive to **L**ight and **A**ccommodation
- c. Size
  - i. Dilated = large
  - ii. constricted = small
- d. Accommodation
  - i. Ability to track object to left and right of center with eyes only, no head movement

## VII. Pulse oximetry (SaO<sub>2</sub>)

- a. Uses light to assess saturation of hemoglobin
- b. Can be useful, but can also be unreliable or delayed
- c. Normal = 95% or greater
- d. Below 95% must consider oxygen