

## Practical Skills Station – Measurement of Vital Signs

### I. Measurement of Respiratory Rate

- A. Normal 12-20 - adult; 1 Breath = 1 Inhale + 1 Exhale
- B. Take for 15 seconds and multiply by 4  
Or 30 seconds and multiply by 2 or for 1 minute (93 State rec.)
- C. Under 12 breaths per minute = bradypnea
- D. Over 20 breaths per minute = tachypnea
- E. Deep respirations = hyperpnea
- F. Hyperventilation = tachypnea + hyperpnea
- G. Assist ventilations if necessary < 10--> 29 and signs of inadequate oxygenation (confusion, restlessness, cyanosis)
- H. Concerned with quality as well as quantity of respiration
  - 1. Deep/Labored
  - 2. Shallow
  - 3. Normal

### 2. Measurement of Pulse Rate

- A. Normal 60-100 – adult                      children/infants slightly faster
- B. As with respirations 15 x 4 or 30 x 2
- C. Under 60 beats per minute = bradycardia
- D. Over 100 beats per minute = tachycardia
- E. Use radial artery for convenience
- F. Concerned with quality of pulse too
  - 1. Weak/Thready
  - 2. Strong/Bounding
  - 3. Regular pattern
  - 4. Irregular pattern
    - a. Regularly Irregular
    - b. Irregularly Irregular

### 3. Measurement of Blood Pressure

#### A. Systolic/Diastolic

1. Systolic = Pressure on arterial walls during contraction of heart (systole)
2. Diastolic = Pressure on arterial walls during relaxation of heart (diastole)

#### B. Palpation – Estimated systolic reading

1. Place cuff smoothly and snugly over upper arm approximately 1” superior to the antecubital fossa
2. Assure equal coverage of brachial artery – even circumferential pressure
3. Palpate radial pulse and inflate cuff until pulse disappears
4. Inflate a little more and then release the air slowly
5. The point at which the pulse reappears is the estimated systolic pressure

#### C. Auscultation – Actual systolic and diastolic readings

1. If cuff not still in place from before, place on arm as above
2. Place diaphragm of stethoscope over palpable spot of brachial artery in antecubital fossa
3. Inflate cuff to pressure approx. 30 mmHg above estimated systolic reading (If no estimate obtained, inflate to approx. 200 mmHg)
4. In either case, release air slowly
  - a. If a beat is heard right away, close valve and inflate more
5. The first beat that is heard is the systolic pressure
6. The last beat that is heard is the diastolic pressure

#### D. It is not for the EMT to diagnose hypertension

#### E. The EMT is more concerned with hypotension, as they can treat this condition (leg elevation or MAST garment)