CLINICAL SKILLS: THE CARDIOVASCULAR SYSTEM

- **Wash hands**
- **Introduce and explain**
- **Permission**
- **Expose patient to the waist**
- **Reposition patient at a 45˚ angle**

Split the cardiovascular examination into two separate examinations:

1. Peripheral examination
2. Examination of the precordium (chest)

Peripheral examination

- Inspect generally first
  - Inspect general area (for I.V. drips, catheters, cigarettes, GTN spray, etc.)
  - Inspect patient as a whole (to check they are not in discomfort, are not short of breath, for scars, etc.)
- Examine the peripheral system in a systematic way. Start with the hands (back and front) → wrist (radial pulse) → upper arm (check blood pressure) → head → neck. Do this for the respiratory and abdominal examinations also. See below for details of what to examine in each system.
  - Hands: check for:
    - Clubbing
    - Peripheral cyanosis by compressing fingernails for 5 secs. Normal for blood to return to nails in less than 2 secs.
    - Splinter haemorrhages
    - Osler's nodes
    - Janeway lesions
    - Xanthomata
    - Tar stains (indicative of a smoker)
  - Wrist:
    - Radial pulse:
      - Check RATE and RHYTHM
      - Measure rate for 15 seconds then multiply by 4 to get the beats per minute
  - Arm:
    - Examine for a water hammer pulse from radial to brachial artery:
      - Ask patient if they have any pain in their arm
      - If not, lift up while palpating both radial and brachial pulses
      - Feel for the pulse - if you feel the pulse drop from the brachial to the radial artery, then you have felt a water hammer pulse. This is a peripheral sign indicating possible aortic regurgitation.
    - Examine the patient's blood pressure: see other clinical skills notes for details of how to do this
  - Head:
    - Eyes: corneal arcus and pallor in bottom eyelids, xanthelasma
    - Cheeks and nose: malar flush (occurs in mitral stenosis)
    - Under tongue: central cyanosis
  - Neck:

- Inspect:
  - The JVP
    - Ask patient to turn head to the left at a 45 degree angle
    - The JVP is visible at the top of the sternal notch between the two sternoclydomastoid muscles.
    - Examine the height of the JVP. It should not be over 4cm above the sternal notch, if the patient is lying at 45°
    - N.B.: sometimes the JVP can be mistaken for the carotid pulse, and vice versa. The JVP is different from arterial pressure as;
      - a) it takes a double wave form
      - b) it is not pulsatile on compression.
      - c) it fills from the bottom
      - d) it is reactive to the hepatojugular reflex (press on patient's liver - this will increase the size of the JVP, but not the carotid)
- Palpate:
  - The carotid pulse for CHARACTER

Precordium (chest) examination

- Inspection:
  - Check the patient has no scars.
  - Check for visible apex beat
  - Check for asymmetry on chest
- Palpation:
  - Palpate for the apex beat (should be in the midclavicular line, 5th intercostal space), for heaves (on the left side of the sternal edge) and for thrills (underneath both clavicles)
- Auscultation:
  - Auscultate 4 areas of the heart, first with the diaphragm and then with the bell. **N.B.: Palpate the carotid artery throughout the auscultation process, so you can tell if any murmurs are systolic or diastolic.**
  - 4 areas to auscultate:
    - The apex, 5th intercostal space, mid-clavicular line (for mitral valve sounds)
    - The lower left sternal border, the 4th intercostal space (for tricuspid valve sounds)
    - The upper left sternal border, 2nd intercostal space (for pulmonary sounds)
    - The upper right sternal border, the 2nd intercostal space (for aortic sounds)
  - If you hear a murmur, listen to the axilla and the carotid arteries to see if it radiates (radiation to the axilla may indicate a mitral regurgitation. Radiation to the carotids may indicate an aortic stenosis).
  - Ask patient to move onto their left side and auscultate the apex using the bell (this will increase the sound of the murmur in a mitral stenosis)
  - Ask patient to sit upright and breathe in and out and then hold their breath. Then auscultate the aorta at the right 2nd intercostal space by the left sternal border (this will increase the sound of the murmur in an aortic regurgitation)

- To check for carotid artery bruits, hold bell over carotid artery and ask patient to breathe in and out and then hold it

To conclude the examination:

- Auscultate the lung bases for crepitations suggesting pulmonary oedema
- Palpate for pitting ankle oedema
- Thank patient for their time and tell them they may now get dressed
- Tell examiner you would now check the peripheral pulses; measure the temperature (endocarditis), perform a urine dipstick analysis (haematuria in endocarditis) and an ECG.