Cardiovascular exam

To begin:

WIPE

- Wash hands
- Introduce self
- Identify patient
- Permission – gain consent for the exam
- Position – patient should be on a couch at 45 degrees
- Pain – ask if the patient is in pain
- Privacy – ensure curtains/doors are closed
- Exposure – access to torso (bras can be left on, but loosened appropriately for examination of the torso)

General inspection and active observation

Patient:

Look for	**Example of why**
General appearance	See if the patient is alert, orientated, in pain, generally appearing well or unwell
Body habitus	Large body habitus linked with CVS disease, presence of oedema
Breathing	High resp rate may be secondary to pulmonary oedema
Colour	Cyanosis. In darker skin, cyanosis is best seen in the mucous membranes. Pallor secondary to anaemia, shock etc. In darker skin, pallor may only be seen in the palmar creases or conjunctiva.

Around the bed:

Look for	Examples of why
Monitoring devices	ECG, continuous cardiac monitoring, pulse oximeter
Treatments/medications	Oxygen, inhalers, GTN sprays, other medication
Observation chart	Note the patient's current status and NEWS score. If there are no up-to-date observations consider taking a full set of observations.

Upper peripheries

Hands:

Where	Examine	How	Assessing for/associated with
Nails	Capillary refill time (CRT)	Press on the nailbed until blanches, record time for colour to return	Normal <2s, else suggestive of e.g. shock
	Splinter haemorrhages		Associated with endocarditis, vasculitis
Fingers	Clubbing	Look for loss of the angle between the proximal nail fold and the nail plate - 2 opposing fingers are held back-to-back against each other	Normal - Diamond-shaped space between the nail beds and the nails of the 2 fingers. Clubbing - this space is missing Non-specific sign. In cardiovascular system associated with congenital heart disease, endocarditis
	Osler nodes and Janeway lesions		Rarely associated with endocarditis
Back of hand	Temperature	Palpate with the back of your hand	Suggests if hands are well perfused
	Tendon xanthomata		Associated with hyperlipidaemia
Palm	Colour		May find signs of peripheral cyanosis

	Palmar creases		Pale creases suggestive of anaemia

Arms:

Where	Examine	How	Assessing for/associated with
Wrist	Radial pulse (rate)	Count HR over 15 seconds. If pulse is irregular then 30s-1min may be required for an accurate reading	Check for tachy/bradycardia
	Radial pulse (rhythm)		Check rhythm is: • Regular – e.g. sinus rhythm • Regularly irregular – e.g. second degree heart block, sinus arrhythmia • Irregularly irregular – e.g. atrial fibrillation
	Radio-radial delay	Palpate both radial arteries at the same time, note if there is a delay between the pulses	Associated with aortic coarctation or dissection
Arm(s)	Blood pressure		Check for hyper/hypotension Consider checking for difference between arms, associated with aortic dissection
Arm	Collapsing pulse	Ask if any pain in their right shoulder. Palpate the radial pulse with right hand wrapped around the patient's wrist. Palpate patients right arm with your left hand Raise the patient's arm above their head briskly	Positive collapsing pulse - feel a tapping impulse through the muscle bulk of the arm during diastole. Associated with aortic regurgitation (water hammer pulse)

Face:

Where	Examine	How	Assessing for/associated with
Eyes	Corneal arcus		Associated with hyperlipidaemia
	Xanthelasma		Associated with hyperlipidaemia
	Conjunctival pallor	Ask patient to pull down lower eyelid and look for colour of conjunctiva	Pallor - associated with significant anaemia
Mouth	Central cyanosis		Discolouration associated with desaturation
	Hydration status		Dry mucous membranes suggest dehydration
	Poor dentition		Common source for endocarditis
	High arched palate		Associated with Marfan's syndrome which is associated with aortic dissection

Neck:

Where	Examine	How	Assessing for/associated with
Neck	Carotid pulse (character)	Palpate gently, between larynx and sternocleidomastoid muscle. Do not palpate both at the same time.	Slow rising pulse in aortic stenosis, collapsing pulse in aortic regurgitation
	Carotid pulse (volume)		Thready pulse associated with shock
	Jugular venous pressure	Patient at 45 degrees, head turned to left. Observe JVP on right side of neck. Note vertical distance between sternal angle and top of pulsation point	Normal – no greater than 3cm Elevated JVP associated with fluid overload, right heart failure

Chest

Inspection:

Where	Examine	Assessing for/associated with
Chest wall	Chest wall shape	Chest wall deformities: Pectus excavatum: caved-in/sunken appearance of the chest. Pectus carinatum: protrusion of the sternum and ribs
	Scars	Midline sternotomy scar associated with CABG or valve replacement; supraclavicular scar related to implanted pacemaker/defibrillator
	Visible pulsations	From a forceful apex beat - underlying ventricular hypertrophy.

Palpation:

Where	Examine	How	Assessing for/associated with
Apex	Apex beat	Palpate 5th intercostal space, mid-clavicular line	More forceful beat associated with L ventricular hypertrophy or volume overload Displaced beat associated with cardiomegaly.
Each valve location	Thrills	With flat of your fingers in each valve location	Represent palpable murmurs
Parasternal areas	Heaves	Place heel of your right hand to the left parasternal area	Associated with right ventricular hypertrophy

Auscultation:

Where	Listen for	How	Assessing for/associated with
Aortic, pulmonary, tricuspid, mitral regions	Heart sounds (S1 + S2) + additional sounds	Whilst palpating the pulse to determine S1 and S2. Aortic valve: 2nd intercostal space, right sternal edge Pulmonary valve: 2nd intercostal space, left sternal edge. Tricuspid valve: 4th/5th intercostal space, lower left sternal edge. Mitral valve: 5th intercostal space, midclavicular line.	Additional heart sounds may be a murmur Note whether a murmur is systolic or diastolic Sounds on the right more audible on inspiration, left on expiration (RILE)
Mitral area	Reinforcement of mitral stenosis	Roll the patient on to their left side. Listen at the apex (bell)	Reinforces the mid-diastolic murmur of mitral stenosis
Lower left sternal edge	Reinforcement of aortic regurgitation	Patient sat up and leant forwards, exhale fully and hold their breath. Listen over lower left sternal edge	Reinforces the early- diastolic murmur of aortic regurgitation
Axilla	Radiation of murmurs	Auscultate in the left axilla	Mitral regurgitation radiates to the axilla
Carotids	Radiation of murmurs	Auscultate over carotid arteries	Aortic stenosis radiates to the carotids
	Bruits		Caroid bruits – carotid artery stenosis

Posterior chest and lower peripheries

Where	Examine	How	Assessing for/associated with
Posterior chest	Lung bases	Auscultate at both bases	Crackles - Can be caused by pulmonary oedema in fluid overload (left ventricular failure) Absent air entry (+ stony dullness on percussion) - an underlying pleural effusion (associated with left ventricular failure).
Lower back	Sacral oedema	Press on the base of the spine and look for pitting oedema.	Often the location for pitting oedema in bedbound patients. Suggestive of fluid overload e.g. right ventricular failure, cor pulmonale
Legs	Pitting pedal oedema	Press at the level of the ankles and look for pitting oedema. Note the highest level it can be identified at e.g. ankle, mid-calf, knee.	Suggestive of fluid overload (right ventricular failure)
	Saphenous vein harvesting		Evidence of harvesting suggests the patient has had a CABG. Can be performed open or endoscopically.

To finish

- Ensure the patient is dressed and comfortable
- Wash hands