BENEFITS:
- Self:
  - Independence
  - Empowerment/increased confidence
  - Greater understanding of patient care
  - Improved rapport with other HCPs
    - Speak the same language
- Team: increased value and enhanced role

BARRIERS:
- Lack of knowledge
- Desire to avoid duplication of exam
- Patient perception
- Turf war

STETHESCOPE:
- Diaphragm:
  - Flat edge
  - Best for high-pitched sounds (S1 & S2)
  - Press with light pressure against skin
- Bell:
  - Deep, cup-like shape
  - Soft, low-pitched sounds (S3 & S4)
  - Hold against skill with minimal pressure
- Tips for use:
  - Warm pieces before use
  - Eliminate as much noise in room as possible
  - Listen over bare skin
  - Clean after use

VITAL SIGNS:
- Temperature
- Blood pressure
- Heart rate
  - Normal: 60-100 bpm
    - <60 bpm = bradycardia
    - > 100 bpm = tachycardia
  - Palpate pulse (15 sec x 4 or 30 secs)
    - Use pads of index & middle fingers
    - Assess rate, rhythm & amplitude (force)
    - Temporal, carotid (avoid carotid sinus), brachial, radial or ulnar, apical (PMI), femoral, popliteal, dorsal pedis, posterior tibial
    - Regular or irregular?
      - Auscultate HR in AFIB (30-60 sec)
- Respiratory rate

CAROTID BRUITS:
- Auscultate the carotid artery
- Ask pt to hold breath (hold your breath too)
- Listen for turbulent blood flow

BEDSIDE MANNERS:
- Introduction
  - Introduce yourself
  - Confirm the pt's identity
  - Explain what you are going to do and why
  - Ask for permission to touch the patient
- Ensure pt comfort and privacy
- Ask if 3rd party able to attend (ex// student)
- Wash your hands
- Ask pt about painful areas
- Be systematic
- Be cautious but show confidence
- Do not be apologetic
- Do not be afraid to cause discomfort
- Explain to patient that you are learning
- Reassure pt when a component of the exam is taking a while
- Be judicious with sharing abnormal findings with the pt
- Avoid showing alarm

PRINCIPLES OF PHYSICAL ASSESSMENT: in this order
1. Inspection: requires knowledge of what to look for
   > CV PA examples: distress, sternal scar, device (pacemaker, defibrillator), JVP
2. Palpitation: some pts have sensitivities to touch
   > CV PA examples: pulse, skin temperature, capillary refill, heaves/lifts, thrills, edema
3. Percussion: used to assess location, size and density of structures ≤ 4-5 cm below skin
   > Not readily used in CV PA
4. Auscultation: listening to sounds that originate w/in body
   > CV PA examples: carotid bruits, heart sounds, murmurs, pericardial friction rub, breath sounds

- Exception of this order: abdominal exam → I – A – PE - PA

JVP:
- Assessed via the right internal jugular vein
  - Only use internal (external JVP always higher)
- Anatomical straight line to right atrium
- Used to assess heart function and volume status

POINTS ABOUT JVP:
- Soft, undulating pulsation
- Pulsation eliminated by soft pressure
- Rarely palpable
- Double vs single waveform (a-wave, v-wave)
  - A = atrial contraction (double wave-form)
  - V = ventricle pumping (filling of atria)
- Descends with inspiration and upright position
- Rises with expiration, supine position

OTHER FINDINGS:
- Tricuspid regurgitation → prominent v-wave
- Heart block → cannon a-waves
- Kussmaul sign → paradoxical JVP in right HF or constrictive pericarditis

PRECORDIAL CARDIAC EXAM:

INSPECTION	PALPATION	PERCUSSION	AUSCULTATION

• Distress
• Sternal scar
• Device (pacemaker, defibrillator)
	• Feel for heaves/lifts with palm
	• Feel for thrills with base/pads of fingers
	• Palpate the PMI size (1-2.5 cm in diameter) and location (7-9 cm lateral to midsternal line)
		• Can be used to approximate cardiac size
		• Heart is denser vs lungs (dull vs resonant)
			• Stethoscope required
			• Systematic approach using cardiac landmarks
			• Listen between ribs (intercostal spaces)
			  ○ APE-TO-MAN
			  ▪ **A**ortic: 2nd right ICS
			  ▪ **P**ulmonic: 2nd left ICS
			  ▪ **E**rb's point: 3rd left ICS
			  ▪ **T**ricuspid: 4th left ICS
			  ▪ **M**itral: 5th left midclavicular ICS
			• Palpate right carotid or radial artery while auscultating (S1 will occur just before carotid upstroke)

HEART SOUNDS:

Sound	Represents	Occurs	Best heard	Listen with	Position	Notes
Normal						
S1 = "lub"	MV & TV closure	Beginning of systole	Mitral	Diaphragm	Lying or sitting	• S1 < S2 at base • S1 > S2 at apex (usually) • Splitting of S1 • Physiologic splitting of S2
S2 = "dub"	AV & PV closure	End of systole	Aortic	Diaphragm	Lying or sitting	
Pathologic						
S3 (aka ventricular gallop)	Rapid ventricular filling	Early diastole	Mitral	Bell	Lying on left side	• "Ken-tucky-y" or "lub-dub-ta" • Associated with HF
S4 (aka atrial gallop)	"Atrial kick" (atrial systole)	Late diastole	Mitral	Bell	Lying on left side	• "Tenn-es-see" or "ta-lub-dub" • Associated with long-standing HTN

MURMURS:

- Turbulent blood flow across a heart valve
- Timing: systolic vs diastolic
- Location
- Grading:
  - I/VI: faint, not readily heard at all positions
  - II/VI: quiet but heard with stethoscope
  - III/VI: readily audible with stethoscope
  - IV/VI: loud with palpable thrill
  - V/VI: may be heard with stethoscope off chest
  - VI/VI: may be heard without stethoscope

	AORTIC STENOSIS	MITRAL REGURGITATION
Pathophys	Slow progressive narrowing of the AV	Incompetence of the MV
Etiology	• Calcific degeneration • Bicuspid AV	• Primary • Secondary (LV dysfxn)
Systolic murmur	• Best heard at 2nd right ICS • May radiate to carotid arteries	• Best heard at 5th left ICS midclavicular space • May radiate to axilla and/or have thrill
Sx	**SAD:** syncope, angina, dyspnea	Similar to HF
Tx	Surgical (AVR or TAVR)	Surgical

~~MITRAL REGURGITATION~~: pericardial rub

- Caused by friction in pericardium due to inflammation
- Present in 85% of cases
- Three components (1 systolic, 2 diastolic)
- Best heard along the left lateral sternal border
  - Scratching, grating or squeaking
  - Often louder than other heart sounds
  - High frequency

RESPIRATORY EXAM:

- Auscultation: crackles could be indicative of HF

PERIPHERAL EDEMA:

- Excessive interstitial fluid in lower legs
- Press firmly but gently over bony prominence
  - Start with medial malleolus (outside ankle bone)
  - Move from ankles up the shin
- Note distribution, pitting and severity
  - Bilateral or unilateral
  - Pitting or non-pitting
  - Distribution up leg, and left to right
- Subjective scale that is not well standardized

Grade of edema	Depth of pitting
1+	0.5 – 1 mm
2+	2 – 3 mm
3+	4-5 mm
4+	> 5 mm