Beebe Healthcare
Margaret H. Rollins School of Nursing
Nursing 101 - Foundations of Nursing

Cardiac Assessment Handout *(save for Cardiac Unit)*

How to use a stethoscope

- Place earpieces into outer ear canal. They should fit snugly but be comfortable. The earpieces are connected to metal tubing (**binaurals**), which connect to rubber or plastic tubing (this tubing should be flexible and less than 12-14 inches long for good sound transmission).
- Angle the binaurals down toward your nose. This ensures that sounds are transmitted to your eardrums.
- Use the diaphragm to detect high-pitched sounds such as S1 & S2. Hold the diaphragm firmly against the body part.
- The bell should be used for low-pitched sounds (S3, S4). Don't apply too much pressure with the bell, as it will make it work like a diaphragm.

How to Auscultate Heart Sounds

- Cardiac auscultation requires a methodical approach & lots of practice. Concentrate as you listen to each sound. **Avoid** listening through clothing & avoid extraneous sounds by keeping the tubing off the patient & other surfaces.
- Explain it may take you longer but that does not mean anything is wrong.
- Ask the patient to breathe normally & hold breath periodically to enhance sounds that may be difficult to hear.
- Remember **APE TO MAN** (aortic, pulmonic, tricuspid, and mitral).
- ***Quick technique***-listen with diaphragm @ right 2nd ICS near sternum (aortic arch), left 2nd ICS near sternum (pulmonic area), left 3-5 ICS @ sternum (Tricuspid area), & @ apex (PMI, mitral area) 5th ICS MCL.
- **Identify S1 (Lub)** beginning of systole, corresponds to the closure of the tricuspid & mitral valves & best heard

at the apex (bottom) of the heart. The mitral valve is heard best @ 5th ICS MCL. Then listen @ the tricuspid (approx. 3-4 ICS Left Sternal Border). S1 is low-pitched & dull. If you are unsure, palpate the carotid pulse, as it will correspond with S1.

- **Identify S2 (Dub)-**end of systole, corresponds to the closure of the aortic and pulmonic valves & best heard at the base (top) of the heart. The aortic area (2nd ICS, Right sternal border) is where S2 is the loudest. (Pulmonic valve area (2nd ICS, Left sternal border) The S2 or dub sounds shorter, more high-pitched, & louder than S1.
    - *Start at the mitral area and inch your way to each auscultation area ending with the aortic area (listening S1 then S2) or you may move in reverse order. The key is to do it the same each time.
- Listen for extra sounds in **systole (between S1 & S2)** and then in **diastole (between S2 & S1).** If an abnormality is heard, the entire chest is re-examined to identify the farthest site it is still heard.
    - **S3 (ventricular gallop)** normal in children & young adults S3 resembles the word "ken-tuc-**ky**" & is heard during diastole <u>(S1, S2, S3).</u> May be a sign of heart failure, or occur in pulmonary edema, atrial septal defect, acute myocardial infarction, & last trimester of pregnancy. S3 is low-pitched, follows S2 in early ventricular diastole probably results from vibrations caused by abrupt ventricular distention & resistance to filling. Best heard @ tricuspid area if right ventricle compromise or @ mitral area if left ventricle compromise. Best heard @apex with patient lying on left side.
    - **S4 (atrial gallop)** heard over tricuspid or mitral area with patient on left side commonly described as "**Ten**-nes-see" occurs <u>just before S1</u> after atrial contraction (late in diastole). S4 indicates increased resistance to ventricular filling & results

from vibrations caused by forceful atrial ejection of blood into ventricles that are enlarged or hypertrophied (don't expand or move as they should). S4 is commonly heard in MI, elderly, hypertension, & aortic stenosis.

- **Murmurs** occur when structural defects in the heart's chambers or valves cause turbulent blood flow. Listen for murmurs over the same precordial areas used in auscultation for heart sounds.
- **Pericardial friction rub** occurs in pericarditis, sounds scratchy like rubbing. Have patient sit upright, lean forward, & exhale while listening with the diaphragm over 3rd ICS on left chest. Have pt. hold breath if you can't hear.