🩺 The Nursing Collective

Heart & Lung Sounds Guide

Essential Reference for Clinical Assessment

🫀 Heart Sounds

Normal Heart Sounds

S1 (First Heart Sound) - "Lub"

Occurs at the beginning of systole when the AV valves (mitral and tricuspid) close.

Best heard:	Apex (mitral area) and left lower sternal border (tricuspid area)
Timing:	Beginning of systole, coincides with carotid pulse
Quality:	Louder, longer, and lower pitched than S2

S2 (Second Heart Sound) - "Dub"

Occurs at the end of systole when the semilunar valves (aortic and pulmonic) close.

Best heard:	Base of heart (aortic and pulmonic areas)
Timing:	End of systole, beginning of diastole
Quality:	Shorter, snappier, higher pitched than S1
Normal split:	May split during inspiration (physiologic)

Abnormal Heart Sounds

S3 (Third Heart Sound) - Ventricular Gallop

Occurs early in diastole during rapid ventricular filling. Sounds like "Ken-tuck-y" (S1-S2-S3).

Best heard: Apex with bell of stethoscope, patient in left lateral position

Clinical significance: Heart failure, volume overload; Normal in children & young adults

S4 (Fourth Heart Sound) - Atrial Gallop

Occurs late in diastole just before S1 during atrial contraction. Sounds like "Ten-nes-see" (S4-S1-S2).

Best heard: Apex with bell of stethoscope

Clinical significance: Hypertension, MI, aortic stenosis, hypertrophic cardiomyopathy

Assessment Tip

To differentiate S1 from S2, palpate the carotid pulse while auscultating. S1 coincides with the carotid upstroke.

Heart Murmurs - Basic Classification

Systolic Murmurs

Occur between S1 and S2

- **Aortic Stenosis:** Crescendo-decrescendo, harsh, radiates to neck
- **Mitral Regurgitation:** Holosystolic, blowing, radiates to axilla
- **Tricuspid Regurgitation:** Holosystolic, increases with inspiration

Diastolic Murmurs

Occur between S2 and S1 (always pathologic)

- **Aortic Regurgitation:** Early diastolic, decrescendo, blowing
- **Mitral Stenosis:** Mid-diastolic, rumbling, opening snap

🫁 Lung Sounds

Normal Breath Sounds

Vesicular

Soft, low-pitched sounds heard over most lung fields

Location: Peripheral lung fields

Characteristics: Inspiration longer than expiration (3:1 ratio)

Bronchial

Loud, high-pitched, tubular sounds

Location: Over trachea and large airways

Characteristics: Expiration longer than inspiration; abnormal if heard over peripheral lung

Bronchovesicular

Medium-pitched, blowing sounds

Location: Between scapulae, near sternum

Characteristics: Inspiration equals expiration (1:1 ratio)

Abnormal (Adventitious) Lung Sounds

Crackles (Rales)

Discontinuous, popping sounds caused by fluid in alveoli or sudden opening of small airways

Fine crackles: High-pitched, brief; heard in pneumonia, pulmonary fibrosis, CHF

Coarse crackles: Lower-pitched, longer; heard in bronchitis, pulmonary edema

Timing:	Usually on inspiration

Wheezes

Continuous, musical sounds caused by narrowed airways

Sound:	High-pitched whistling or squeaking
Causes:	Asthma, COPD, bronchospasm, airway obstruction
Timing:	Usually on expiration (more severe if on inspiration too)

Rhonchi

Continuous, low-pitched sounds caused by secretions in large airways

Sound:	Snoring or rattling quality
Causes:	Mucus in airways, bronchitis
Note:	May clear with coughing

Stridor

High-pitched, harsh sound heard on inspiration

Causes:	Upper airway obstruction (croup, epiglottitis, foreign body)
Audibility:	Often heard without stethoscope

⚠ Emergency: Stridor

Stridor indicates upper airway obstruction and requires immediate intervention. Notify physician immediately!

Pleural Friction Rub

Grating, rubbing sound caused by inflamed pleural surfaces

Sound:	Like walking on fresh snow or leather rubbing
Causes:	Pleurisy, pneumonia, pulmonary infarction
Timing:	Both inspiration and expiration

💡 Assessment Tips

- Use the diaphragm for high-pitched sounds (most breath sounds, S2)
- Use the bell for low-pitched sounds (S3, S4)
- Compare side to side for symmetry
- Have patient breathe through mouth, slightly deeper than normal
- Listen through at least one full respiratory cycle at each location
- Warm your stethoscope before use!

📋 Quick Reference Chart

When to Report Immediately

- **Stridor** - Upper airway obstruction
- **New S3** - Possible heart failure
- **Absent breath sounds** - Pneumothorax, pleural effusion
- **Sudden change in sounds** - Clinical deterioration
- **Diminished sounds + respiratory distress** - Emergency

Common Sound Mnemonics

- **S3:** "Ken-TUC-ky" - Think CHF = "Can't Handle Fluid"
- **S4:** "TEN-nes-see" - Think "TEN-sion" (hypertension)
- **Crackles:** "Rice Krispies" - Snap, crackle, pop!
- **Wheezes:** "Musical airways" - Asthma & COPD

Assessment Locations

Heart Auscultation Points (APE To Man)

- **A**ortic: 2nd ICS, right sternal border
- **P**ulmonic: 2nd ICS, left sternal border
- **E**rb's Point: 3rd ICS, left sternal border
- **T**ricuspid: 4th ICS, left sternal border
- **M**itral (Apical): 5th ICS, midclavicular line

Lung Auscultation

- **Anterior:** Upper, middle, and lower lobes bilaterally
- **Posterior:** Upper, middle, and lower lobes bilaterally
- **Lateral:** Right middle lobe, left upper lobe
- **Sequence:** Always compare side to side

Documentation Tips

- Describe location, timing (systolic/diastolic or inspiratory/expiratory)
- Note quality (harsh, blowing, musical, crackles, etc.)
- Compare to previous assessments
- Document patient position during assessment
- Include clinical context (symptoms, vital signs, O2 sat)

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For educational purposes only. Always follow your clinical protocols and notify your instructor or physician of abnormal findings.

Join our Discord community at discord.gg/y2Mh77wAV2 for more free resources!