

Table 1 Adventitious Breath Sounds

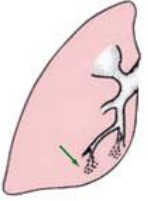
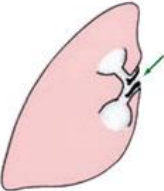
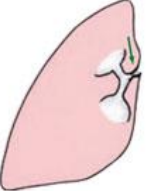
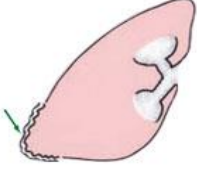
Sound	Site Auscultated	Cause	Character
Crackles (also called rales) 	Are most common in dependent lobes: right and left lung bases	Random, sudden reinflation of groups of alveoli; also related to increase in fluid in small airways	Fine, short, interrupted crackling sounds heard during end of inspiration, expiration, or both. May or may not change with coughing; sound like crushing cellophane Medium crackles are lower, more moist sounds heard during middle of inspiration; not cleared with coughing Coarse crackles are loud bubbly sounds heard during inspiration; not cleared with coughing
Rhonchi (sonorous wheeze) 	Are primarily heard over trachea and bronchi; if loud enough, can be heard over most lung fields	Muscular spasm, fluid, or mucus in larger airways, causing turbulence	Loud, low-pitched, continuous sounds heard more during expiration; sometimes cleared by coughing. Sounds like blowing air through fluid with a straw
Wheezes (sibilant wheeze) 	Heard over all lung fields	High-velocity airflow through severely narrowed or obstructed bronchus	High-pitched, musical sounds like a squeak heard continuously during inspiration or expiration; usually louder on expiration. Do not clear with coughing
Pleural friction rub 	Heard over anterior lateral lung field (if patient is sitting upright)	Inflamed pleura, parietal pleura rubbing against visceral pleura	Has grating quality heard best during inspiration; does not clear with coughing; heard loudest over lower lateral anterior surface

Table 2 Normal Breath Sounds

Type	Description	Location	Origin
Bronchial	Loud and high-pitched with hollow quality. Expiration lasts longer than inspiration (3:2 ratio).	Best heard over trachea	Created by air moving through trachea close to chest wall
Bronchovesicular	Medium-pitched and blowing sounds of medium intensity. Inspiratory phase is equal to expiratory phase.	Best heard posteriorly between scapulae and anteriorly over bronchioles lateral to sternum at first and second intercostal spaces	Created by air moving through large airways
Vesicular	Soft, breezy, and low-pitched sounds. Inspiratory phase is 3 times longer than expiratory phase.	Best heard over lung's periphery (except over scapula)	Created by air moving through smaller airways