

Notes on Introduction to Cardiac Physical Diagnosis.

UTMB DIVISION OF CARDIOLOGY

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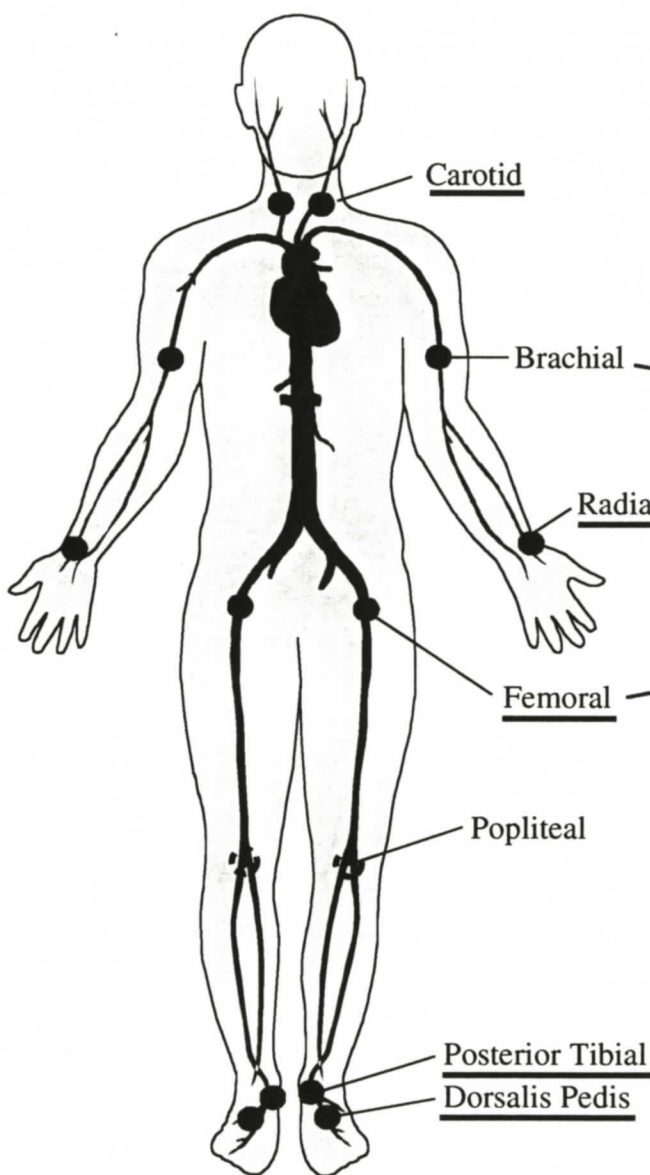
~~J. Wallace, M.D.~~

August 1996

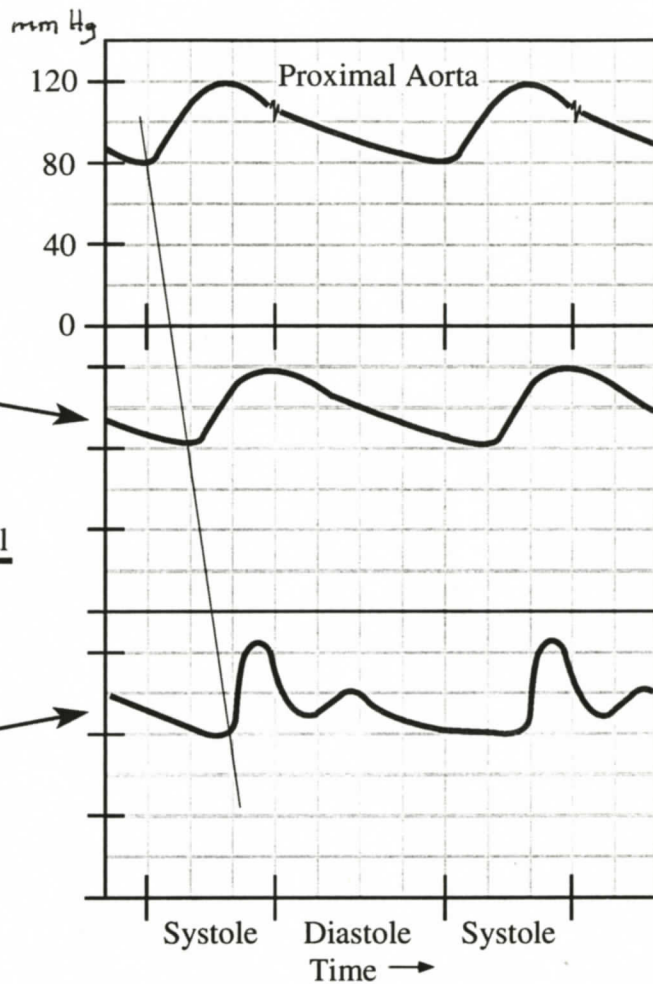
# Figure 1.- Peripheral Pulses

$$\text{Pulse Rate} = \frac{\text{pulses}}{60 \text{ sec}} \times \frac{60 \text{ sec}}{n} \\ \sim \frac{\text{pulses}}{n \text{ seconds}} \pm \frac{60}{n}$$

Normal:  $72 \pm 10$  > Tachycardia  
 $-20$  < Bradycardia



Right = Left



Prominent pulse locations (underlined) should be routinely palpated.

Note delay in pulse and altered shape along vertical axis.

Pressure-waveforms in supine position

Figure 2A.— Arterial (Proximal Aorta) Pulse / BP

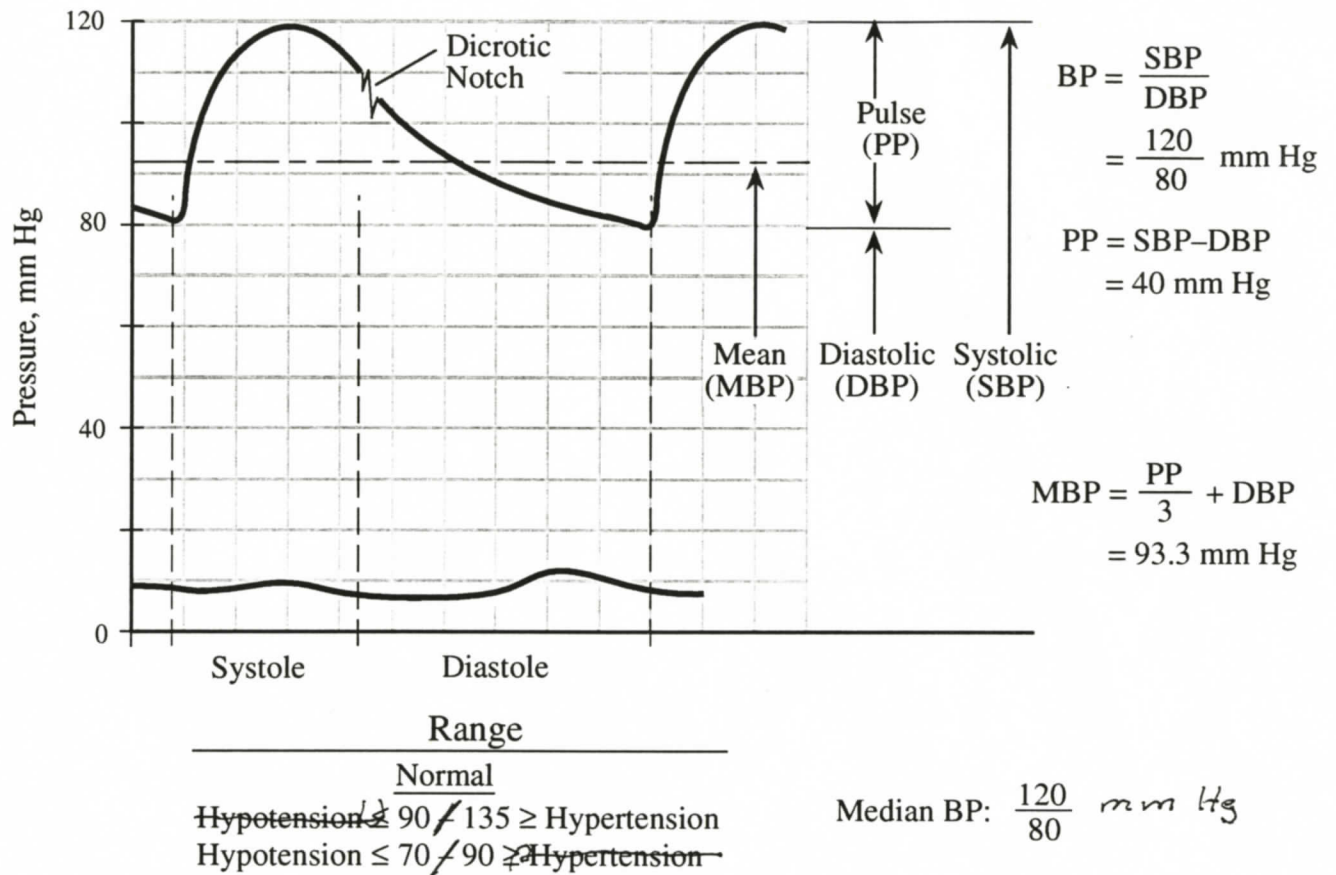
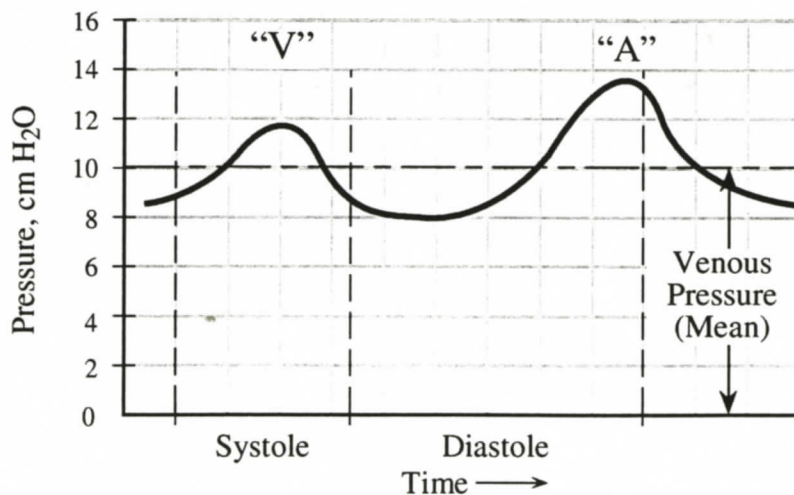


Figure 2B.— Venous (Internal Jugular) Pulse/Pressure



Venous Pressure

Median

Low  $\leq$

High  $\geq$

$$1 \text{ mm Hg} = 1.36 \text{ cm H}_2\text{O}$$

Figure 3.— Manual Blood Pressure

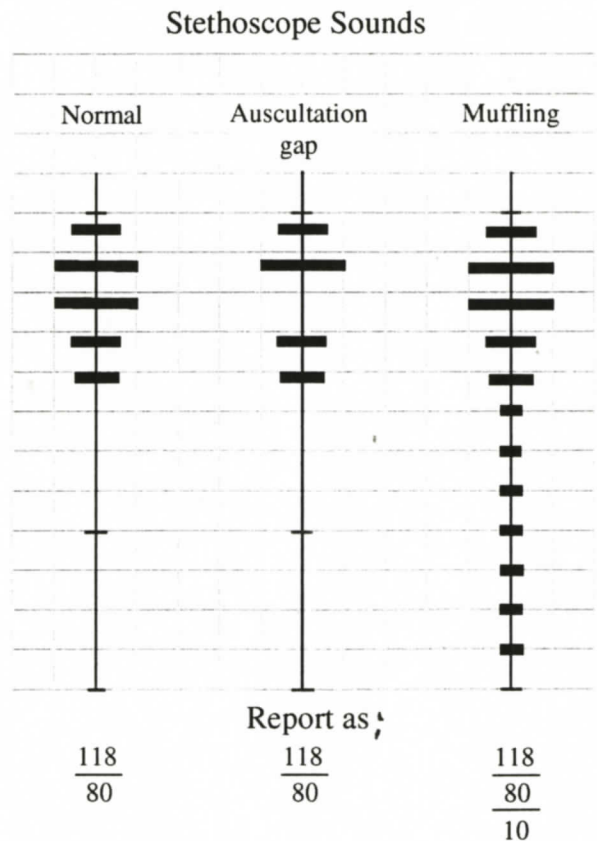
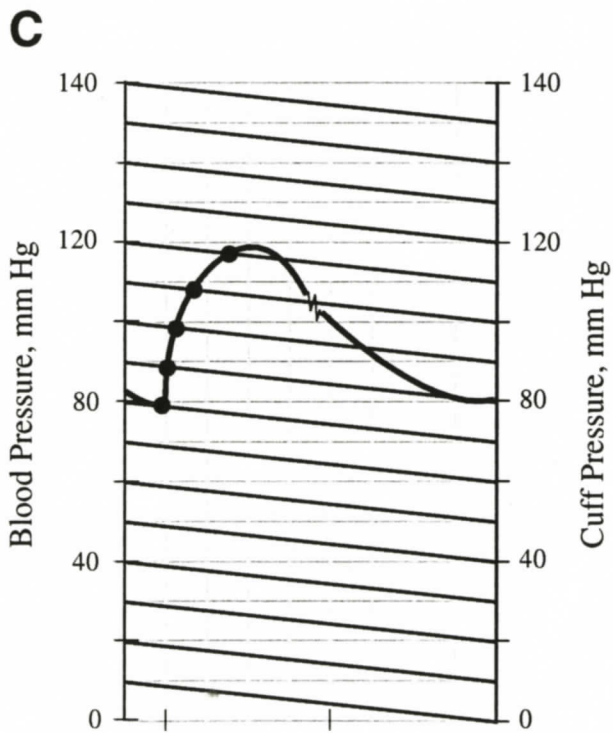
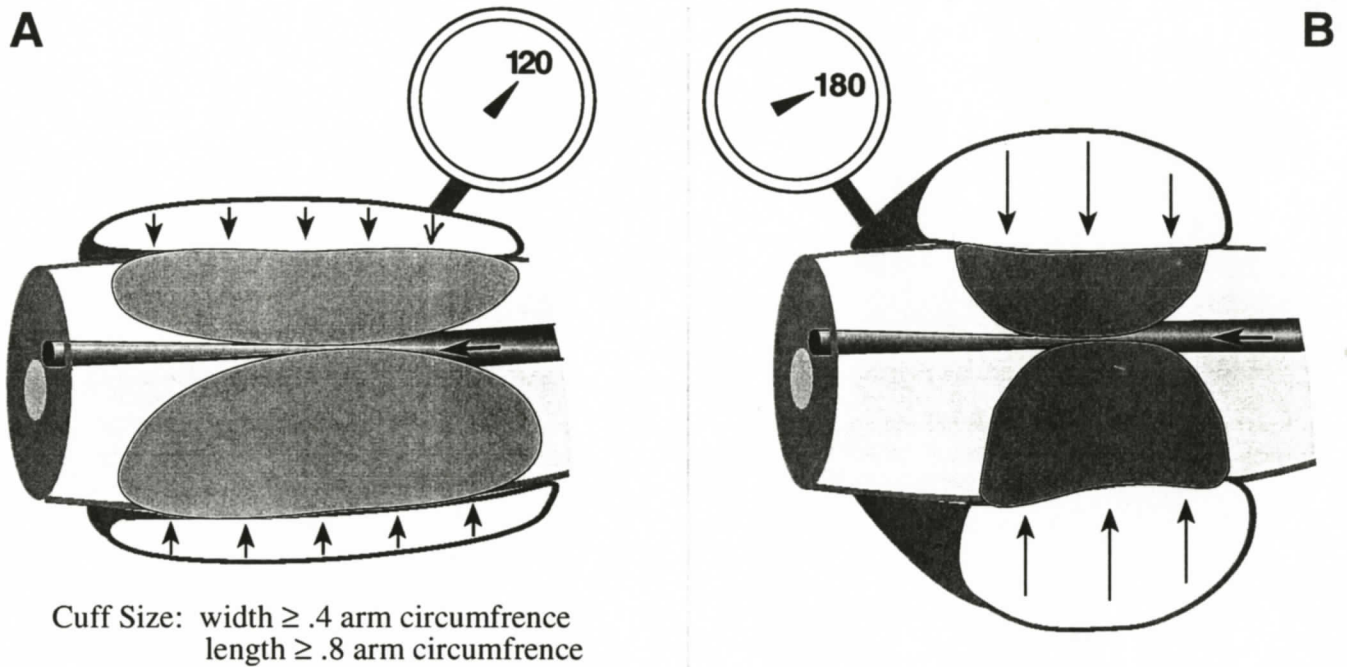
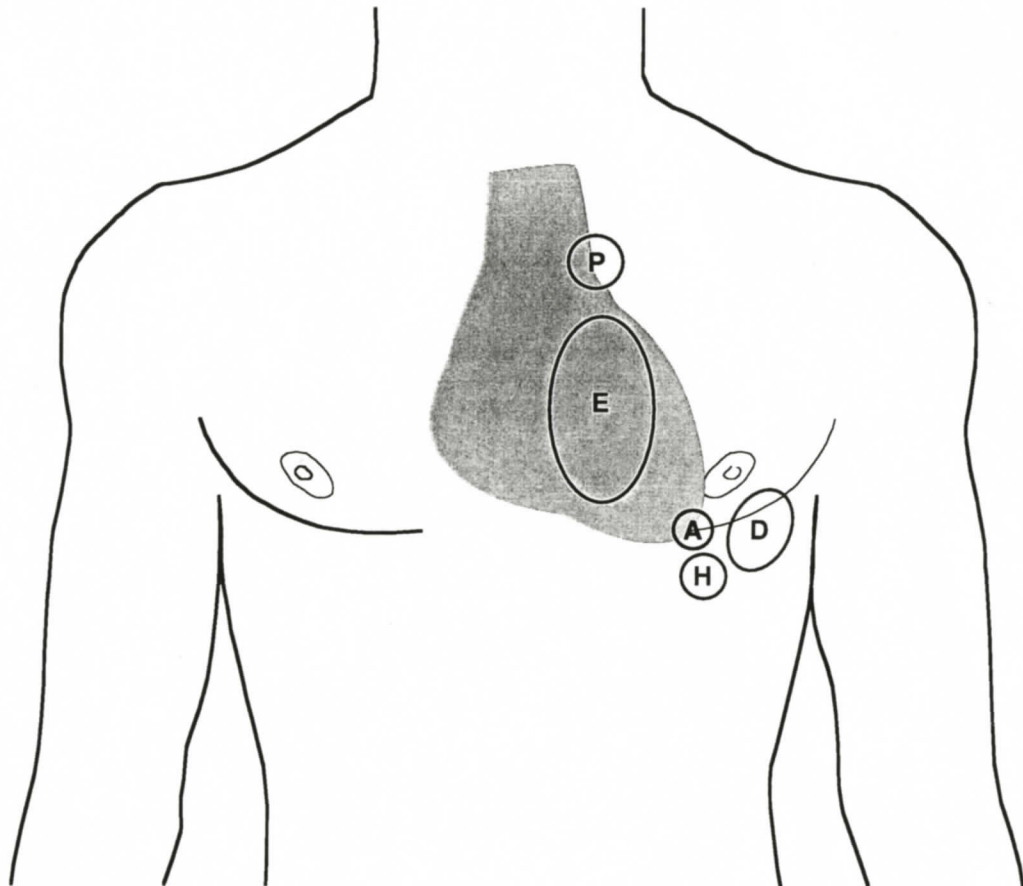


Figure 4.— Principal Areas of Cardiac Pulsation



- Ⓐ Normal apical area, dime sized 5LICS-MCL
- Ⓗ "Hypertrophied" apical area, increase size, shifted inferiorly
- Ⓓ "Dilated" apical area, marked size increase, shifted laterally
- Ⓔ Ectopic area, left <sup>q q</sup> peristernal area
- ⒫ Pulmonic area, 2LICS, <sup>q q</sup> peristernal

Primary areas of precordial pulsation:  
 As you progress you will find that  
 additional areas ~~are necessary of~~  
~~in cardiac examination.~~ abnormal  
 pulsation may  
 occasionally be found

Figure 5.— Normal Heart Sounds

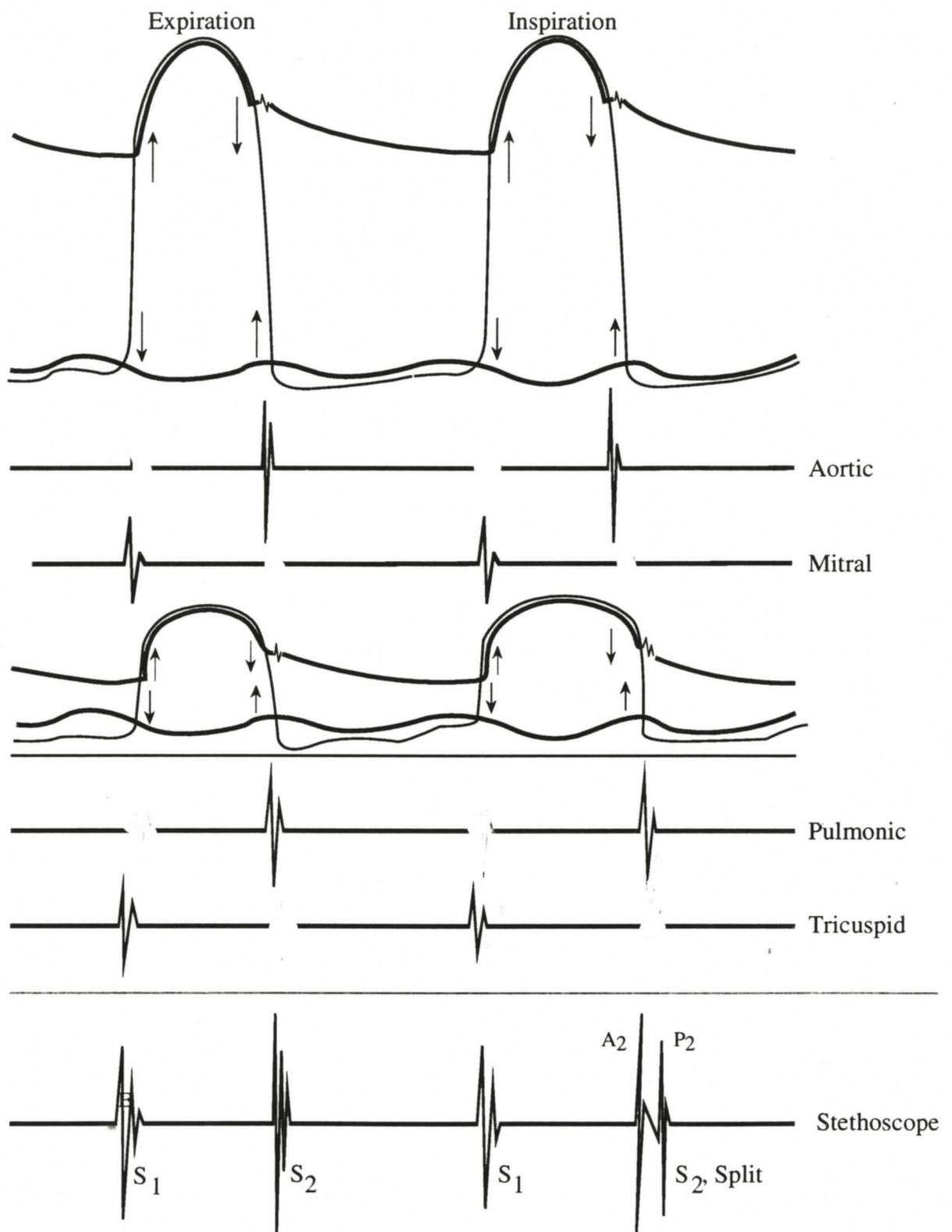
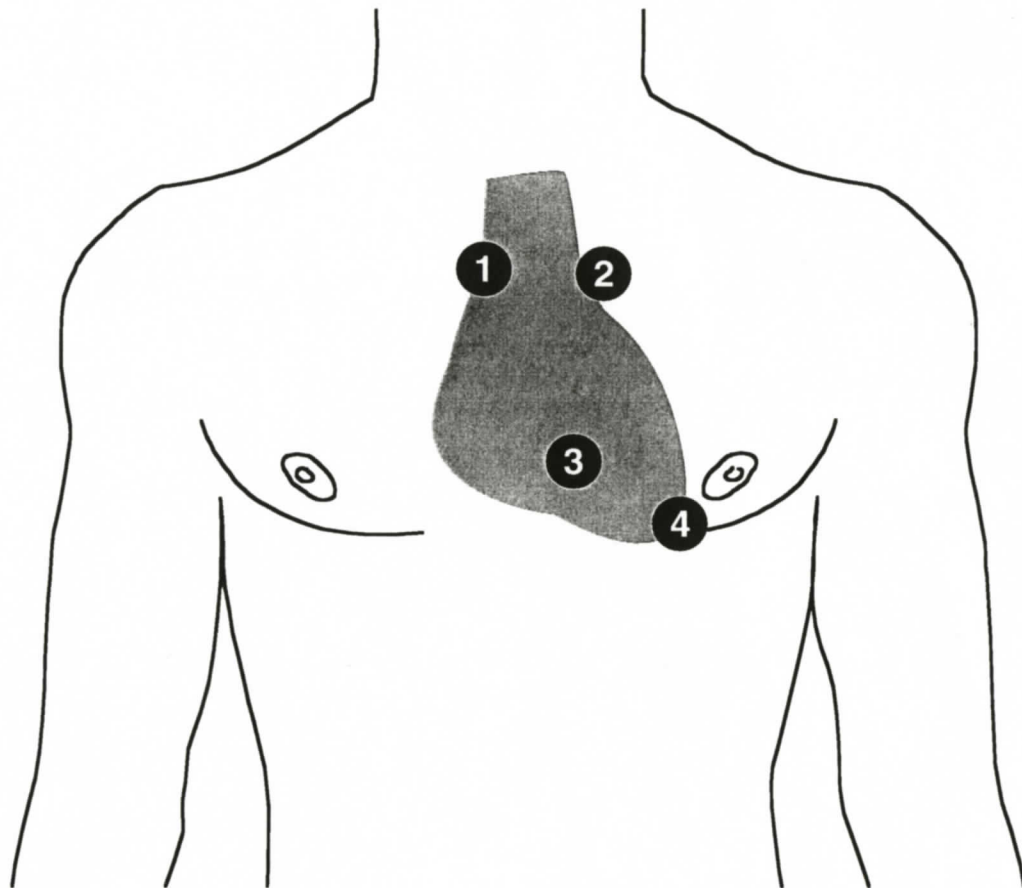




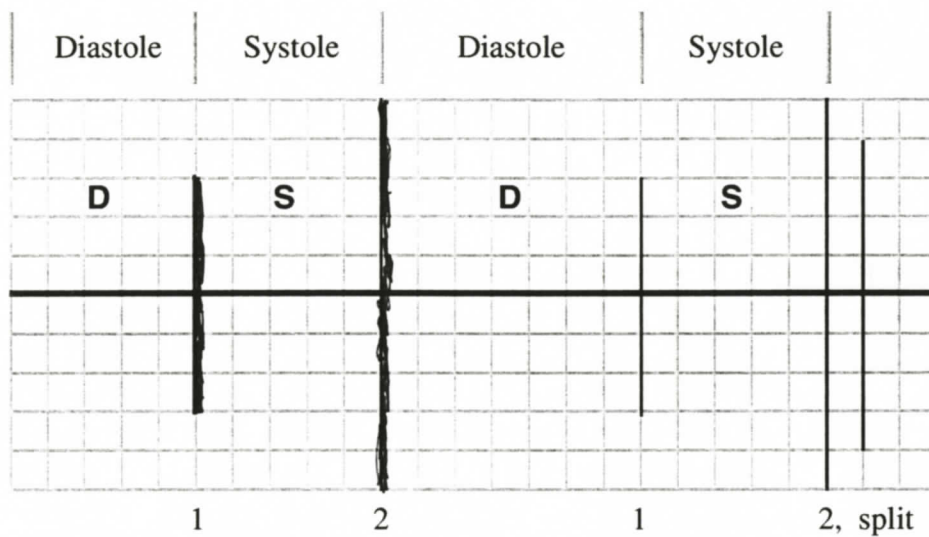
Figure 7.— Primary Areas for Cardiac Auscultation



- 1 Aortic Area (2RSB)
- 2 Pulmonic Area (2LSB)
- 3 Tricuspid Area (4LSB)
- 4 Mitral, (Apical) Area (5MCL)

As you progress you will find that additional areas are necessary in cardiac auscultation.

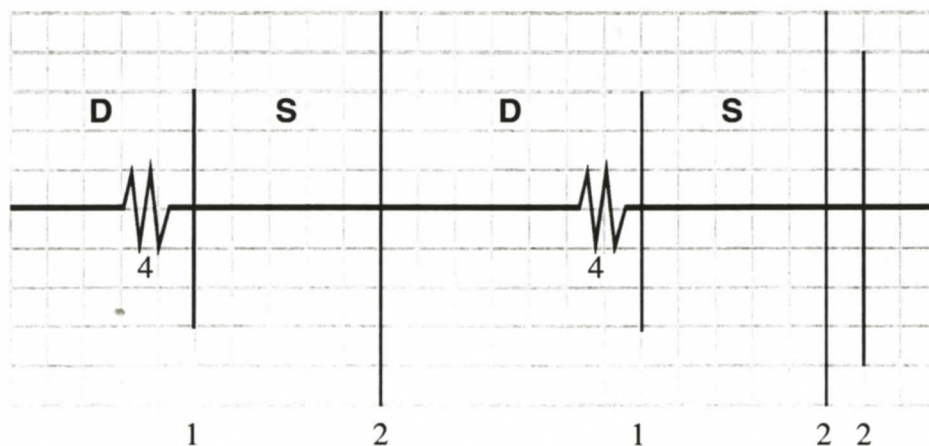
Figure 8.— Heart Sound Diagrams



Normal  
S<sub>1</sub>, S<sub>2</sub>



Third  
Sound, S<sub>3</sub>



Fourth  
Sound,  
S<sub>4</sub>



Figure 9.— Diagrams and Description of Heart Sounds/Murmurs

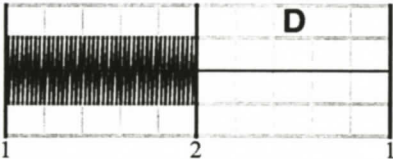
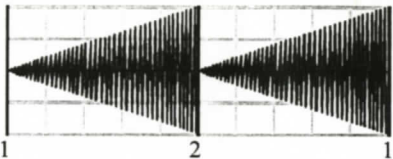
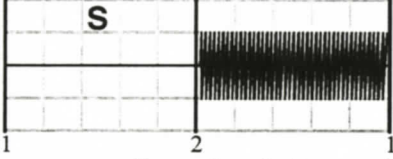
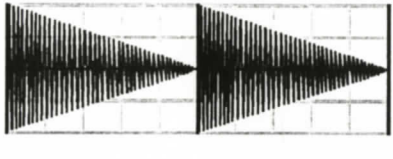
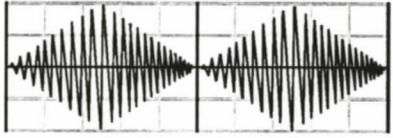
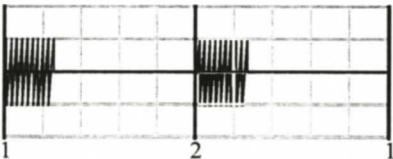
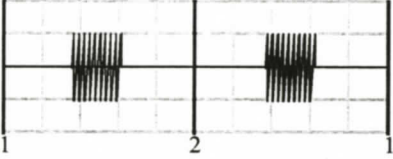
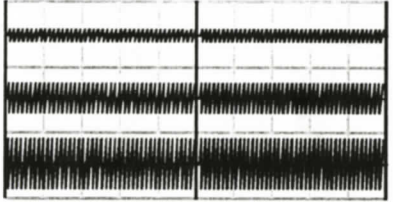

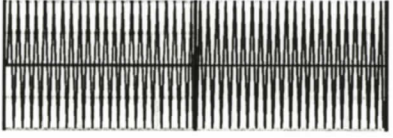
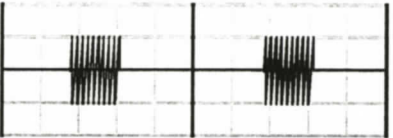

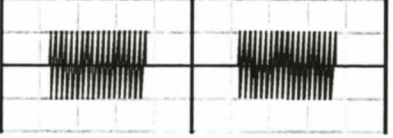
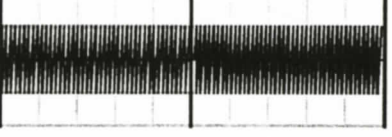
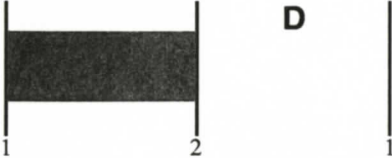

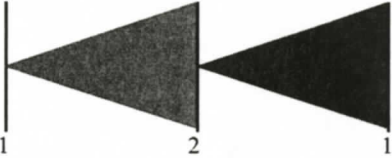
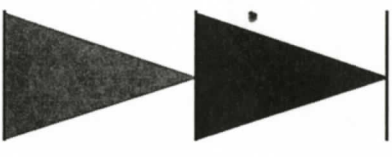
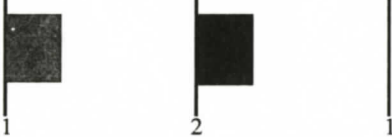

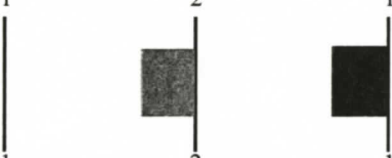



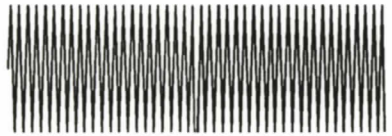


Diagram	Description	Diagram	Description
<b>Timing: Interval</b>		<b>Shape: (Independent of duration)</b>	
	Systolic		Crescendo (rising)
	Diastolic		Decrescendo
<b>Location in Interval</b>			
	Early	<b>Amplitude (intensity)</b>	
	Mid		
	Late	<b>Pitch: (frequency)</b>	
<b>Duration</b>			
	Short ("brief")		
	Long	<b>Quality:</b>	
	Pan or Holo (entire interval)	NA	
Note: "Pre-" and "Post" are closely associated with another event; e.g., pre systolic		<b>Location, variation with respiration</b>	
		NA	
		Describe where loudest, radiation	

Figure 9.— Diagrams and Description of Heart Sounds/Murmurs

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<b>Timing: Interval</b>  		<b>Shape (Independent of duration)</b>  	
<b>Location in Interval</b>   		<b>Amplitude (intensity)</b> 	
<b>Duration</b>  		<b>Pitch (frequency)</b>  	
		<b>Quality</b>   	
<p>Note: "Pre-" and "Post" are closely associated with another event; e.g., pre systolic</p>		<b>Location, variation with respiration</b>  	
		<p>Describe where loudest, radiation</p>	