BOX 33–1 Guidelines for Blood Pressure Assessment

Review of Korotkoff's Sounds

The first sound heard is the systolic pressure; at least two consecutive sounds should be clear. If the sound disappears and then is heard again 10 to 15 mm later, an auscultatory gap is present; this may be a normal variant, or it may be associated with hypertension. The first diastolic sound is heard as a muffling of the Korotkoff's sound and is considered the best approximation of the true diastolic pressure. The second diastolic sound is the level at which sounds are no longer heard.

The American Heart Association recommends documenting all three readings when measuring blood pressure, for example, 120/72/64. If only two readings are documented, the systolic and the second diastolic pressure are taken, for example, 120/64.

Technique Reminders

- Choose a cuff of an appropriate size: The cuff should snugly cover two-thirds of the upper arm, and the bladder should completely encircle the arm. The bladder should be centered over the brachial artery, with the lower edge 2 to 3 cm above the antecubital space.
- The client's arm should be slightly flexed and supported (on a table or by the examiner) at heart level.
- To determine how high to inflate the cuff, palpate the brachial pulse, and inflate the cuff to the point on the manometer at which the pulse is no longer felt; then, add 30 mmHg to this reading, and use the sum as the target for inflation. Wait 15 seconds before reinflating the cuff to auscultate the BP.
- To recheck a BP, wait at least 30 seconds before attempting another inflation.
- Always inflate the cuff completely, then deflate it. Once deflation begins, allow it to continue; do not try to reinflate the cuff if the first systolic sound is not heard or if the cuff inadvertently deflates.
- The bell of the stethoscope more effectively transmits the low-pitched sounds of BP.

Sources of Error

- Falsely high readings can occur if the cuff is too small, too loose, or if the client supports his or her own arm.
- Falsely low readings can occur if a standard cuff is used on a client with thin arms.
- Inadequate inflation may result in underestimation of the systolic pressure or overestimation of the diastolic pressure if an auscultatory gap is present.
- Rapid deflation and repeated or slow inflations (causing venous congestion) can lead to underestimation of the systolic BP and overestimation of the diastolic BP.

Factors Altering Blood Pressure

- A change from the horizontal to upright position causes a slight decrease (5 to 10 mm) in systolic BP; the diastolic BP remains unchanged or rises slightly.
- BP taken in the arm is lower when the client is standing.
- If the BP is taken with the client in the lateral recumbent position, a lower BP reading may be obtained in both arms; this is especially apparent in the right arm with the client in the left lateral position.
- Factors that increase BP include exercise, caffeine, cold environment, eating a large meal, painful stimuli, and emotions.
- Factors that lower BP include sleep (by 20 mmHg) and very fast, slow, or irregular heart rates.
- BP tends to be higher in taller or heavier clients.

Alternative Methods of Blood Pressure Measurement

- The palpatory method may be necessary if severe hypotension is present and the BP is inaudible. Palpate the brachial pulse, and inflate the cuff 30 mm above the point where the pulse disappears; deflate the cuff, and note the point on the manometer where the pulse becomes palpable again. Record this as the palpatory systolic BP.
- Leg BP measurement may be needed when there is injury of the arms or to rule out coarctation of the aorta or aortic insufficiency when arm diastolic BP is over 90 mmHg. Place the client in the prone or supine position with the leg slightly flexed. Place a large leg cuff on the thigh with the bladder centered over the popliteal artery. Place the bell of the stethoscope over the popliteal space. Normal leg systolic BP is higher than arm BP; diastolic BP should be equal to or lower than arm BP. Abnormally low leg BP occurs with aortic insufficiency and coarctation of the aorta.