

# BP Variations

-Factors affecting accuracy of blood pressure measurement

Factor	Effect	How to eliminate risk
White coat effect	+ 11-30 /	Have someone else take measurement, use home measurements
Not determining the maximum inflation level	Underestimate systolic or miss auscultatory gap	Train examiners to estimate systolic, then add 20-30 mmHg to the pulse for inflation level
Deflation rate faster than 2-3 mmHg per second	Underestimates / overestimates	Train examiners to deflate cuff at a rate of 2-3 mmHg/second
Failure to detect auscultatory gap	Record a falsely lower systolic	Train examiners to estimate systolic & determine the maximum inflation level
Heavy pressure on the stethoscope	Pulse may be heard below systolic or to Zero	Use light pressure to hold stethoscope in place
Cuff too short or narrow	+ $\geq$ 10 / +2-8	Choose correct cuff size - bladder length at least 80% and width at least 40% of arm circumference. When in doubt use larger cuff
Cuff too long or too wide	False low	
Cuff not centered over brachial artery	+ 4 /	Center bladder over brachial artery
Cuff applied over clothing	+ 5-50 / unknown	Apply cuff to bare arm
Back unsupported	+ 6-10 / unknown	Support back (sit on chair, do not sit on exam table)
Arm not at heart level. BP taken- -Above heart level -Below heart level -Parallel to body	False low False high + 9-13 / unknown	Adjust table or chair so arm rests on firm surface at heart level  For every 1" above or below heart level, the reading may be off by 2mmHg
Arm unsupported on firm surface, sitting	+ 1-7 / +5-11	Rest arm on firm surface, do not hold patient's arm
Arm unsupported on firm surface, standing	+ 6-8 /	
Talking, using hand gestures or active listening	+ 7-10 / +10	No talking during measurement
Not resting 5 minutes before taking measurement	False high	Take measurement after 5 minute rest or at end of visit
Feet not flat on floor or legs crossed	+ 2-8 /	Sit with feet flat on the floor
Caffeine/tobacco or exercise	+ 6-20 / unknown	Advise to avoid for 30 min. before measurement
Full bladder	+ $\geq$ 10-15 / +10	Empty bladder before measurement

Pickering et al., 2005; Perry & Potter, 2006; Handler, 2009)