Clinical Tip

What is helpful to know about "oscillometric" blood pressure (BP) measurement?[29-32]

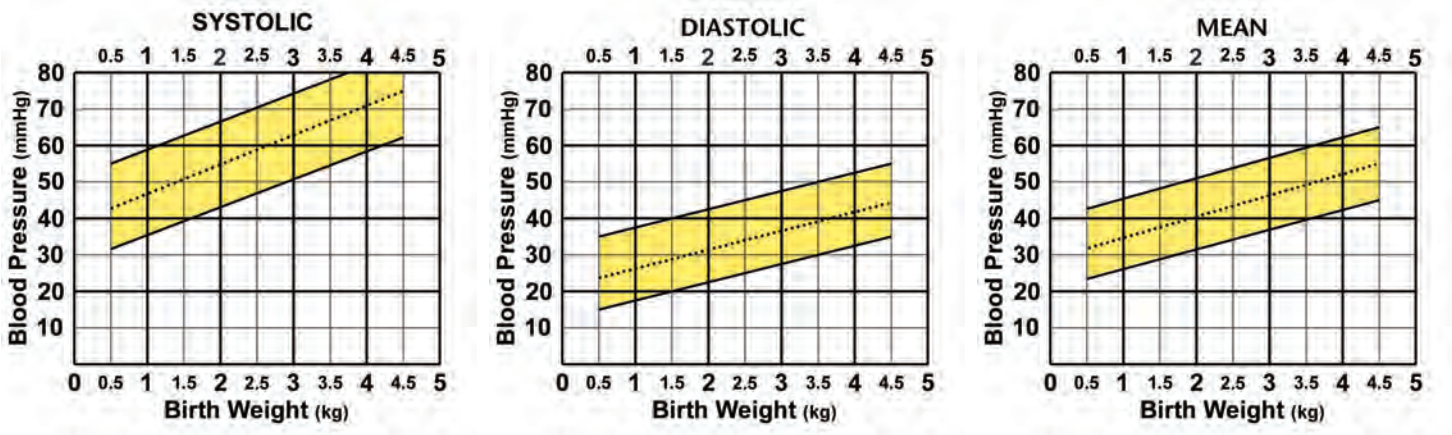
In nurseries and NICUs worldwide, noninvasive oscillometric measurement is the most common method for evaluating the infant's BP. A few important things to consider when assessing oscillometric BP results are:

- The BP will be higher when the infant is in an awake state compared with sleeping
- A second or third reading taken two minutes apart may be slightly lower than the initial reading
- Movement interferes with the accuracy of the reading
- Selecting the correct cuff size is very important[32]

To select the correct cuff, measure the arm circumference and then follow the manufacturer's recommendations for cuff size. For example, if using the Critikon® Neonatal Blood Pressure Cuff, a size 1 would be selected for a limb circumference of 3 to 6 centimeters, size 2 for 4 to 8 centimeters and size 3 for 6 to 11 centimeters, etc. A few important points about cuff size are:

- An undersized cuff will overestimate the BP, giving false reassurance that the infant has a normal blood pressure, when in fact it may be hypotensive.
- An oversized or loose cuff underestimates the BP, and will give a hypotensive reading, when in fact it may be normotensive.

To enable comparison of results, it is helpful to take the BP on the same limb (right upper arm if possible). Abnormal BP results should be repeated and always correlate findings with patient assessment.



The shaded yellow area is considered normal.

Figure 4.2. Average systolic, diastolic, and mean blood pressures during the first 12 hours of life in normal newborn infants according to birth weight. Evaluation of blood pressure is an important component of patient evaluation, however, the decision to treat shock should be based on history, physical and laboratory exam, and patient condition, not just blood pressure.

Graphs adapted with permission from Versmold, HT, et al. (1981). Aortic blood pressure during the first 12 hours of life in infants with birth weight 610 to 4,220 grams. Pediatrics, 67(5), 607-613.[27,28]

Note:

The mean blood pressure values in Versmold's study were used for comparison in a recent study by Pejovic[32] who evaluated normal blood pressures in preterm and term infants using oscillometric (cuff) measurement. The mean blood pressures in the two studies were nearly identical.[27,32] Systolic and diastolic measurements were not compared, however visual inspection of graphs from both studies reveals the numbers are very comparable. For more information, see reference Pejovic.[32]