

# South Australian Perinatal Practice Guidelines

# Blood Pressure (recording) in Pregnancy

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## *Introduction*

- > As 10 – 12 % of pregnant women have or develop hypertension during pregnancy, detection of hypertension and accurate measurement of blood pressure is essential

## *Technique for auscultatory measurement of blood pressure*

- > Korotkoff phase V (K5) (point of disappearance) should be used to record the diastolic blood pressure. If phase V is not present, Korotkoff 1V (when sounds muffle) should be recorded
- > The blood pressure (BP) cuff should be kept at the level of the woman's heart and should be of an appropriate size. A large or extra large cuff should be used where the upper arm circumference is > 33 cm

## *Other recommendations*

- > The woman should be seated with the legs uncrossed for 2-3 minutes before the BP is taken
- > The BP should be recorded on the right arm (to ensure it is always measured on the same arm). If, unexpectedly, there is a significant difference in BP between arms, seek consultant physician opinion
- > If the BP is abnormal or doubt exists, then at least two measurements a few minutes apart should be made
- > If the woman is confined to bed, supine position should be avoided for the measurement of BP
- > Unfamiliar surroundings may lead to higher blood pressure (white coat hypertension) in pregnant women. This may explain the tendency for mild hypertension to settle when blood pressure is taken frequently over a period of time, or if it is recorded at home rather than in hospital

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## Application of the blood pressure cuff

- > The cuff and stethoscope should be placed on bare skin
- > It is preferable that the blood pressure is not measured on the arm where an IV infusion is sited
- > The bladder of the cuff should surround 80 % of the circumference of the arm. (usually a cuff with a bladder about 35 cm long)
- > Larger cuffs (a bladder of 42 cm) are available for obese women
- > The cuff should firmly surround the arm, with the bladder roughly centred over the course of the brachial artery. The direction of the tubing does not affect the results
- > The clothing above the cuff must be loose
- > The manometer should be placed at the observer's eye level and be less than 100 cm from the observer. The column should be vertical unless designed to tilt at a defined angle
- > The stethoscope should be in good condition with well fitting earpieces
- > The pulse at the brachial artery should be palpated and the cuff inflated to about 30 mm Hg above the point at which the pulse disappears
- > Deflation should be smooth and slow (2-3 mm / second). Jerky deflation can result in over-estimation of the diastolic and under estimation of the systolic pressure. Too slow deflation can hurt or bruise
- > Errors in recording BP can be introduced due to exercise, bladder distension, smoking, eating or drinking alcohol

## Alternative methods of blood pressure measurement

- > Mercury sphygmomanometry is the recommended method for the blood pressure measurement during pregnancy to detect hypertension
- > Aneroid manometers are less accurate as they lose their accuracy over time, particularly if handled roughly. They require calibrating at regular intervals. (Check with the Biomedical Engineering Department in individual hospitals)
- > Automated oscillometric blood pressure devices often underestimate systolic pressure although they may give accurate assessment of mean arterial pressure. Consequently they should not be used routinely for women who are pregnant. However, they have a role in the acute care setting e.g. in the operating theatre and recovery (Pickering et al. 2005)
- > Radial (or other) artery cannulation and direct intra-arterial pressure measurement is indicated in the management of some critically ill pregnant women, e.g. massive post-partum haemorrhage. In most instances this will be commenced in the operating theatre. This method enables continuous measurement of blood pressure and facilitates regular blood investigations. These women require close observations (Rowe and Stevenson 2007) in a high dependency or intensive care setting depending upon the local circumstances

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### *Elevated blood pressure*

*(for further information, refer to the PPG 'Hypertensive disorders in pregnancy')*

- > A recording of a systolic pressure of 170 mm Hg or more or a diastolic pressure of 110 mm Hg or more requires immediate medical review
- > The medical clinician must attend the woman and assess her condition in addition to retaking the blood pressure. Further assessment is required; no pregnant woman should have a blood pressure of  $\geq 170 / 110$  mm Hg
- > Sustained blood pressure at  $\geq 170$  or  $\geq 110$  mm Hg systolic and diastolic pressures for more than 15 minutes is a medical emergency and requires admission to a hospital immediately
- > If the woman is in hospital, treatment to lower blood pressure needs to be instituted with the aim of achieving blood pressure reduction to less than 160 / 95 mm Hg and preferably to about 140 / 90 mm Hg
- > Reduction of blood pressure may be achieved over a period of 1-2 hours or longer. Precipitous falls of blood pressure may be harmful to the woman or her fetus

### *References*

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3. O'Brien E, Asmar R, Beilin L, Imai Y, Mallian JM, Mancia G, et al. European Society of Hypertension recommendations for conventional, ambulatory and home blood pressure measurement. Journal of Hypertension 2003, Vol 21, 5: 821-848.
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### *Version control and change history*

**PDS reference:** OCE use only

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1.0	18 Dec 03	29 Dec 08	Original version
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