



# ASSOCIATION OF ONTARIO MIDWIVES

☞ Represents Registered Midwives and Promotes the Profession of Midwifery in Ontario ☞

## Membership Reference Binder

Section 7

### Clinical Practice Guidelines for Midwives

No. 4

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## GUIDELINE FOR MONITORING BLOOD PRESSURE IN PREGNANCY

*This document was approved by the AOM Board of Directors on September 19, 2001.*

### INTRODUCTION

Hypertensive disorders in pregnancy are a major cause of maternal, fetal and neonatal morbidity and mortality. Midwives are expected to monitor blood pressure throughout pregnancy and refer appropriately. The College of Midwives of Ontario (CMO) sets out in *Indications for Mandatory Discussion, Consultation and Transfer of Care* that the presence of hypertension in a pregnant woman is a CMO Category 2 consultation. When hypertension is accompanied

by proteinuria, the condition warrants a transfer of care (CMO Category 3 consultation).

The Canadian Hypertensive Society published recommendations in 1997 in an attempt to standardise the definitions and classifications of such disorders.<sup>1</sup> The following guideline for midwives is based on those recommendations, and is intended to assist with decision making about alterations in blood pressure.

### DEFINITIONS

**Hypertension:** The recommended diagnostic criterion for identifying hypertension is a diastolic pressure of 90 mm Hg or more, regardless of the amount of rise in either the diastolic or systolic pressure since the previous visit. Diastolic pressures of greater than 90 represent a point beyond which perinatal mortality is significantly increased.<sup>1</sup> A systolic pressure of 140 mm Hg or more without an elevation in the diastolic is also unusual and indicates a need for further assessment.

**Gestational hypertension:** Hypertension that develops after 20 weeks gestation and resolves most often within the first six weeks postpartum.

**Pre-existing hypertension:** Hypertension that predates pregnancy or is diagnosed before 20 weeks gestation. It often persists beyond six weeks postpartum.

**Proteinuria:** A 24-hour urine collection is the most reliable method of measurement. Dipsticks of more than 0.3g/dl may indicate an elevated level of proteins in urine. They are not sufficient for a firm diagnosis as some women who are proteinuric with a 24-hour collection are not proteinuric by dipstick. Therefore, the standard definition is excretion of proteins in urine in excess of 300 mg in 24 hours (0.3 g/dl).

This guideline reflects information consistent with the best practice as of the date issued and is subject to change. The information is not intended to dictate a course of action. Local standards may cause additions to or modifications of this guideline. Such changes should be well documented by practice groups.



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#### ASSESSMENT OF BLOOD PRESSURE

- Record blood pressure at every pre-natal visit
- Use a calibrated sphygmomanometer
- The cuff should be at least 1.5 times the circumference of the woman's arm since a small cuff might need to be wrapped more tightly and result in a false positive
- Allow at least 10 minutes for a rest period before measuring blood pressure
- The woman should be sitting and the cuff should be at the level of the heart

#### RECORDING BLOOD PRESSURES ON CLINICAL RECORDS

Midwives should establish a practice regimen of recording either both Korotkoff sounds IV and V (e.g., 110/70/62), or just Korotkoff IV. Practitioners are more likely to consistently record sound V (cessation of pulsation) because of the ease of identification. However, using phase IV sound may offer a wider margin of safety in identifying pregnant women at risk from complications of hypertension.

The Canadian Hypertensive Society recommends using Korotkoff sound IV of 90 or higher to initiate closer monitoring and further investigation. Therefore, whenever there is a concern about elevated blood pressure, it is strongly recommended that both the phase IV and V numbers be recorded and communicated in any subsequent consultation.

#### RECOMMENDED MIDWIFERY ACTIONS WHEN ELEVATED BLOOD PRESSURE IS DETECTED

1. When there is a diastolic pressure  $>90$  and  $<110$ <sup>1</sup> in the absence of dipstick proteinuria greater than 0.3g/dl, the blood pressure should be verified in a second reading taken within a realistic and practical time frame. This should be no sooner than four hours after the first reading (Grade D recommendation). A period of decreased activity prior to the second assessment is recommended.  
  
A home visit may be optimal for the re-check of blood pressure since women may be normotensive in their own environment. Using identical equipment to that of the first measurement is best, but if different equipment is used the variation in measurement should be systematically determined beforehand. Automated blood pressure machines available in pharmacies are not acceptable for a repeat measurement.  
  
A re-check of urine protein with a dipstick should be done with a re-check of blood
- pressure. The woman should be asked to record fetal movements daily (Grade D recommendation). Further investigations within the midwife's scope of practice that may be initiated at this point include CBC for hemoglobin, hematocrit (Grade D recommendation) and platelets (Grade C recommendation), NST (Grade D recommendation), Biophysical Profile (Grade C recommendation), and urine R&M/C&S (Grade A recommendation).
2. Two successive readings of a diastolic pressure of 90 or more require a medical consultation. Proteinuria greater than 0.3g/dl on dipstick with an elevated diastolic pressure requires a transfer of care when proteinuria is confirmed with a 24-hour urine collection. Abnormal blood-work related to hypertensive disorders also warrants a transfer of care.



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#### RECOMMENDED MIDWIFERY ACTIONS WHEN ELEVATED BLOOD PRESSURE IS DETECTED (Continued)

3. A diastolic pressure >110 (with or without proteinuria) requires transfer to an appropriate facility for an immediate consult.
4. A diastolic pressure of 90 or more with significantly elevated urine protein (1.0g/dl or more) requires immediate transfer of care.
5. A sustained systolic pressure of 140 mm Hg or more with a diastolic <90 should be assessed by a consultant.

#### ADDITIONAL CONSIDERATIONS

An elevated blood pressure is a symptom of underlying pathology and is associated with an array of disorders beyond chronic and gestational hypertension (for example HELLP syndrome, acute fatty liver, thrombocytopenia). Increased blood pressure may be accompanied by symptoms such as epigastric pain, vomiting, visual disturbances, hyperreflexia, headache, etc. However, serious conditions may present without an initial rise in blood pressure.

Midwives, therefore, need to be vigilant about the detection of all relevant symptoms and not just the detection of hypertension. The signs, symptoms, and sequelae of disorders related to elevated blood pressure should be reviewed, with clear instructions regarding reasons to page the midwife. A rise in blood pressure might be transient and could reflect a situational response. However, sustained or recurrent diastolic readings at or near 90 mm Hg should, at least, warrant a CMO Category 1 consultation.

#### REFERENCES

<sup>1</sup> Helewa ME, Burrows RF, Smith J, Williams K, Brian P, Rabkin SW. Report of the Canadian Hypertension Society Consensus Conference: 1. Definitions, evaluation and classification of hypertensive disorders in pregnancy. *CMAJ* 1997;157(6):715-725.

#### SOURCES

Cunningham FG, MacDonald PC, Gant NF, Leveno KJ, Gilstrap LC, Hankins GDV, Clark SL. *Williams Obstetrics*. 20<sup>th</sup> edition. Stamford, Conn: Appleton and Lange, 1997.

McAlister FA, Cheung LA, Hamilton PG, Lewanczuk RZ. Hypertension in pregnancy. *Journal SOGC* 1996;18:1227-38.

O'Brien E. Will mercury manometers soon be obsolete? *J Human Hypertension* 1995;12:933-4.

**Note:** The Canadian Hypertension Society recommends as the standard of practice the use of a calibrated mercury sphygmomanometer. However, institutions are banning the use of mercury devices because of toxicity hazards if they are broken. There is as yet no widely used standardised substitute. Until such time as other standardised equipment can be recommended, midwives are advised as a minimum to have their personal and clinic equipment checked and calibrated at regular intervals.



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#### APPENDIX 1

*Excerpted from the Canadian Medical Association Journal, September 15, 1997;157(6)*

#### Levels of evidence for rating studies of diagnosis

- I.
  - (a) Independent interpretation of test procedure (without knowledge of result of diagnostic standard)
  - (b) Independent interpretation of diagnostic standard (without knowledge of result of test procedure)
  - (c) Selection of patients or subjects who are suspected but not known to have the disorder of interest
  - (d) Reproducible description of both the test and the diagnostic standard
  - (e) At least 50 patients with and 50 without the disorder
- II. Meets 4 of the criteria in I
- III. Meets 3 of the criteria in I
- IV. Meets 2 of the criteria in I
- V. Meets 1 of the criteria in I
- VI. Meets none of the criteria in I

#### Levels of evidence for rating studies of prognosis

- I.
  - (a) Inception cohort
  - (b) Reproducible inclusion and exclusion criteria
  - (c) Follow-up of at least 80% of subjects
  - (d) Statistical adjustment for extraneous prognostic factors (confounders)
  - (e) Reproducible descriptions of outcome measures
- II. Inception cohort but meets only 3 of the other criteria in I
- III. Inception cohort but meets only 2 of the other criteria in I
- IV. Inception cohort but meets only 1 of the other criteria in I
- V. Inception cohort but meets none of the other criteria in I
- VI. Meets none of the criteria in I

#### Grading system for recommendations

- A. The recommendation is based on 1 or more studies at level I
- B. The best evidence available was at level II
- C. The best evidence available was at level III
- D. The best evidence available was lower than level III and included expert opinion