



Complete Summary

GUIDELINE TITLE

Diagnosis and classification. In: Diagnosis, evaluation and management of the hypertensive disorders of pregnancy.

BIBLIOGRAPHIC SOURCE(S)

Magee LA, Helewa M, Moutquin JM, von Dadelszen P, Hypertension Guideline Committee, Society of Obstetricians and Gynaecologists of Canada. Diagnosis and classification. In: Diagnosis, evaluation, and management of the hypertensive disorders of pregnancy. J Obstet Gynaecol Can 2008 Mar;30(3 Suppl 1):S9-15.

GUIDELINE STATUS

This is the current release of the guideline.

COMPLETE SUMMARY CONTENT

SCOPE

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INSTITUTE OF MEDICINE (IOM) NATIONAL HEALTHCARE QUALITY REPORT

CATEGORIES

IDENTIFYING INFORMATION AND AVAILABILITY

DISCLAIMER

SCOPE

DISEASE/CONDITION(S)

Hypertensive disorders of pregnancy (HDP)

- Pre-existing hypertension with comorbid conditions or preeclampsia
- Gestational hypertension with comorbid conditions or preeclampsia

GUIDELINE CATEGORY

Diagnosis

Evaluation

Screening

CLINICAL SPECIALTY

Cardiology
Family Practice
Internal Medicine
Obstetrics and Gynecology

INTENDED USERS

Advanced Practice Nurses
Nurses
Physician Assistants
Physicians

GUIDELINE OBJECTIVE(S)

To summarize the quality of the evidence to date and provide a reasonable approach to the diagnosis, evaluation, and classification of hypertensive disorders of pregnancy (HDP)

TARGET POPULATION

Pregnant women with hypertension, preeclampsia, and/or proteinuria

INTERVENTIONS AND PRACTICES CONSIDERED

Diagnosis/Evaluation

1. Blood pressure measurement and diagnosis of hypertension
2. Measurement of proteinuria (urinary dipstick testing, urinary protein: creatinine ratio, or 24-hour urine collection) and diagnosis of clinically significant proteinuria
3. Classification of hypertensive disorders of pregnancy (HDP)
4. Investigation to classify HDP (serum creatinine, serum potassium, urinalysis, Doppler velocimetry of umbilical and uterine arteries, additional maternal and fetal tests [see Table 3 in the original guideline document for details])

MAJOR OUTCOMES CONSIDERED

- Risk of development of preeclampsia
- Sensitivity and specificity of urinary protein measurement tests
- Adverse maternal outcomes (maternal syndrome)
- Adverse fetal outcomes (fetal syndrome)

METHODOLOGY

METHODS USED TO COLLECT/SELECT EVIDENCE

Searches of Electronic Databases

DESCRIPTION OF METHODS USED TO COLLECT/SELECT THE EVIDENCE

The literature reviewed included the original hypertensive disorders of pregnancy (HDP) guidelines and their reference lists and an update from 1995. Each subgroup leader provided the Canadian Hypertension Society (CHS) with key words for a subgroup literature search of MEDLINE (1995–2005). Searches were subsequently updated by subgroup members in 2006. Articles were restricted to those published in French or English. The key words used are listed in the Appendix of the original guideline document. The concepts explored for pregnancy and hypertension were diagnosis, evaluation, classification, prediction (using clinical and laboratory markers), prevention, prognosis, treatment of hypertension, other treatments of the hypertensive disorders, general management issues (such as mode of delivery and anaesthetic considerations), and postpartum follow-up (for subsequent pregnancies and long-term health).

A focus was placed on consideration of randomized controlled trials (RCTs) for therapy and evaluation of substantive clinical outcomes (rather than surrogate markers such as laboratory values).

NUMBER OF SOURCE DOCUMENTS

Not stated

METHODS USED TO ASSESS THE QUALITY AND STRENGTH OF THE EVIDENCE

Weighting According to a Rating Scheme (Scheme Given)

RATING SCHEME FOR THE STRENGTH OF THE EVIDENCE

Quality of Evidence Assessment*

I: Evidence obtained from at least one properly randomized controlled trial

II-1: Evidence from well-designed controlled trials without randomization

II-2: Evidence from well-designed cohort (prospective or retrospective) or case-control studies, preferably from more than one centre or research group

II-3: Evidence obtained from comparisons between times or places with or without the intervention. Dramatic results in uncontrolled experiments (such as the results of treatment with penicillin in the 1940s) could also be included in this category

III: Opinions of respected authorities, based on clinical experience, descriptive studies, or reports of expert committees

*Adapted from the Evaluation of Evidence criteria described in the Canadian Task Force on Preventive Health Care.

METHODS USED TO ANALYZE THE EVIDENCE

Systematic Review

DESCRIPTION OF THE METHODS USED TO ANALYZE THE EVIDENCE

Not stated

METHODS USED TO FORMULATE THE RECOMMENDATIONS

Expert Consensus

DESCRIPTION OF METHODS USED TO FORMULATE THE RECOMMENDATIONS

Canadian obstetricians and internists knowledgeable about hypertensive disorders of pregnancy (HDP) and guideline development participated in the project. Invitations to participate took into account geographical representation, previous involvement in developing HDP guidelines, ongoing interest and expertise in HDP, and membership in Canadian Hypertension Society (CHS) and/or Society of Obstetricians and Gynaecologists of Canada (SOGC).

RATING SCHEME FOR THE STRENGTH OF THE RECOMMENDATIONS

Classification of Recommendations*

- A.** There is good evidence to recommend the clinical preventive action
- B.** There is fair evidence to recommend the clinical preventive action
- C.** The existing evidence is conflicting and does not allow to make a recommendation for or against use of the clinical preventive action; however, other factors may influence decision-making
- D.** There is fair evidence to recommend against the clinical preventive action
- E.** There is good evidence to recommend against the clinical preventive action
- I.** There is insufficient evidence (in quantity or quality) to make a recommendation; however, other factors may influence decision-making

*Adapted from the Evaluation of Evidence criteria described in the Canadian Task Force on Preventive Health Care.

COST ANALYSIS

A formal cost analysis was not performed and published cost analyses were not reviewed.

METHOD OF GUIDELINE VALIDATION

External Peer Review
Internal Peer Review

DESCRIPTION OF METHOD OF GUIDELINE VALIDATION

This guideline has been reviewed and approved by the Hypertension Guideline Committee and approved by the Executive and Council of the Society of Obstetricians and Gynaecologists of Canada (SOGC).

RECOMMENDATIONS

MAJOR RECOMMENDATIONS

Definitions of the levels of evidence (I, II-1, II-2, II-3, and III) and grades of recommendations (A-E and I) are provided at the end of the "Major Recommendations" field.

Diagnosis and Classification

Measurement of Blood Pressure (BP)

1. BP should be measured with the woman in the sitting position with the arm at the level of the heart. **(II-2A)**
2. An appropriately sized cuff (i.e., length of 1.5 times the circumference of the arm) should be used. **(II-2A)**
3. Korotkoff phase V should be used to designate diastolic BP. **(I-A)**
4. If BP is consistently higher in one arm, the arm with the higher values should be used for all BP measurements. **(III-B)**
5. BP can be measured using a mercury sphygmomanometer, calibrated aneroid device, or an automated BP device that has been validated for use in preeclampsia. **(II-2A)**
6. Automated BP machines may underestimate BP in women with preeclampsia, and comparison of readings using mercury sphygmomanometry or an aneroid device is recommended. **(II-2A)**
7. Ambulatory BP monitoring (by 24-hour or home measurement) may be useful to detect isolated office (white coat) hypertension. **(II-2B)**
8. Patients should be instructed on proper BP measurement technique if they are to perform home BP monitoring. **(III-B)**

Diagnosis of Hypertension

1. The diagnosis of hypertension should be based on office or in-hospital BP measurements. **(II-2B)**
2. Hypertension in pregnancy should be defined as a diastolic BP of ≥ 90 mm Hg, based on the average of at least two measurements, taken using the same arm. **(II-2B)**
3. Women with a systolic BP of ≥ 140 mm Hg should be followed closely for development of diastolic hypertension. **(II-2B)**
4. Severe hypertension should be defined as a systolic BP of ≥ 160 mm Hg or a diastolic BP of ≥ 110 mm Hg. **(II-2B)**

5. For non-severe hypertension, serial BP measurements should be recorded before a diagnosis of hypertension is made. **(II-2B)**
6. For severe hypertension, a repeat measurement should be taken for confirmation in 15 minutes. **(III-B)**
7. Isolated office (white coat) hypertension should be defined as office diastolic BP (dBP) of ≥ 90 mm Hg, but home BP of $< 135/85$ mm Hg. **(III-B)**

Measurement of Proteinuria

1. All pregnant women should be assessed for proteinuria. **(II-2B)**
2. Urinary dipstick testing may be used for screening for proteinuria when the suspicion of preeclampsia is low. **(II-2B)**
3. More definitive testing for proteinuria (by urinary protein: creatinine ratio or 24-hour urine collection) is encouraged when there is a suspicion of preeclampsia, including in hypertensive pregnant women with rising BP or in normotensive pregnant women with symptoms or signs suggestive of preeclampsia. **(II-2A)**

Diagnosis of Clinically Significant Proteinuria

1. Proteinuria should be strongly suspected when urinary dipstick proteinuria is $\geq 2+$. **(II-2A)**
2. Proteinuria should be defined as ≥ 0.3 gram/day (g/d) in a 24-hour urine collection or ≥ 30 mg/mmol) urinary creatinine in a spot (random) urine sample. **(II-2B)**
3. There is insufficient information to make a recommendation about the accuracy of the urinary albumin: creatinine ratio. **(II-2 I)**

Classification of Hypertensive Disorders of Pregnancy (HDP)

1. Hypertensive disorders of pregnancy should be classified as pre-existing or gestational hypertension on the basis of different diagnostic and therapeutic factors. **(II-2B)**
2. The presence or absence of preeclampsia must be ascertained, given its clear association with more adverse maternal and perinatal outcomes. **(II-2B)**
3. In women with pre-existing hypertension, preeclampsia should be defined as resistant hypertension, new *or* worsening proteinuria, *or* one or more of the other adverse conditions. **(II-2B)**
4. In women with gestational hypertension, preeclampsia should be defined as new-onset proteinuria *or* one or more of the other adverse conditions. **(II-2B)**
5. Severe preeclampsia should be defined as preeclampsia with onset before 34 weeks' gestation, with heavy proteinuria or with one or more adverse conditions. **(II-2B)**
6. The term PIH (pregnancy-induced hypertension) should be abandoned, as its meaning in clinical practice is unclear. **(III-D)**

Table. Classification of the Hypertensive Disorders of Pregnancy*

Primary Diagnosis	Definition of Preeclampsia ¹
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Primary Diagnosis	Definition of Preeclampsia ¹
Pre-existing Hypertension	
With comorbid conditions ²	
With preeclampsia → (after 20 weeks' gestation)	Resistant hypertension, <i>or</i> New or worsening proteinuria, <i>or</i> One/more adverse condition(s) ³
Gestational Hypertension	
With comorbid conditions ²	
With preeclampsia → (after 20 weeks' gestation)	New proteinuria, <i>or</i> One/more adverse condition(s) ³

* Women may be classified into more than one subgroup.

¹Severe preeclampsia corresponds to preeclampsia: with onset before 34 weeks' gestation, with heavy proteinuria (3 to 5 g/d according to other international guidelines), or with one or more adverse conditions.

²Comorbid conditions, such as type I or II diabetes mellitus, renal disease, or an indication for antihypertensive therapy outside pregnancy.

³Other adverse conditions consist of maternal symptoms (persistent or new/unusual headache, visual disturbances, persistent abdominal or right upper quadrant pain, severe nausea or vomiting, chest pain or dyspnea), maternal signs of end-organ dysfunction (eclampsia, severe hypertension, pulmonary edema, or suspected placental abruption), abnormal maternal laboratory testing (elevated serum creatinine [according to local laboratory criteria]; elevated aspartate aminotransferase [AST], alanine aminotransferase [ALT] or lactate dehydrogenase [LDH] [according to local laboratory criteria] with symptoms; platelet count <100x10⁹/L; or serum albumin < 20 g/L), or fetal morbidity (oligohydramnios, intrauterine growth restriction, absent or reversed end-diastolic flow in the umbilical artery by Doppler velocimetry, or intrauterine fetal death).

Investigations to Classify HDP

1. For women with pre-existing hypertension, serum creatinine, serum potassium, and urinalysis should be performed in early pregnancy if not previously documented. **(II-2B)**
2. Among women with pre-existing hypertension, additional baseline laboratory testing may be based on other considerations deemed important by health care providers. **(III-C)**
3. Women with suspected preeclampsia should undergo the maternal laboratory **(II-2B)** and fetal **(II-1B)** testing described in Table 3 of the original guideline document.
4. If initial testing is reassuring, maternal and fetal testing should be repeated if there is ongoing concern about preeclampsia (e.g., change in maternal and/or fetal condition). **(III-C)**
5. Uterine artery Doppler velocimetry may be useful among hypertensive pregnant women to support a placental origin for hypertension, proteinuria, and/or adverse conditions. **(II-2B)**

6. Umbilical artery Doppler velocimetry may be useful to support a placental origin for intrauterine fetal growth restriction. (**II-2B**)

Definitions:

Quality of Evidence Assessment*

I: Evidence obtained from at least one properly randomized controlled trial

II-1: Evidence from well-designed controlled trials without randomization

II-2: Evidence from well-designed cohort (prospective or retrospective) or case-control studies, preferably from more than one centre or research group

II-3: Evidence obtained from comparisons between times or places with or without the intervention. Dramatic results in uncontrolled experiments (such as the results of treatment with penicillin in the 1940s) could also be included in this category

III: Opinions of respected authorities, based on clinical experience, descriptive studies, or reports of expert committees

Classification of Recommendations**

A. There is good evidence to recommend the clinical preventive action

B. There is fair evidence to recommend the clinical preventive action

C. The existing evidence is conflicting and does not allow to make a recommendation for or against use of the clinical preventive action; however, other factors may influence decision-making

D. There is fair evidence to recommend against the clinical preventive action

E. There is good evidence to recommend against the clinical preventive action

I. There is insufficient evidence (in quantity or quality) to make a recommendation; however, other factors may influence decision-making

*The quality of evidence reported in these guidelines has been adapted from the Evaluation of Evidence criteria described in the Canadian Task Force on the Preventive Health Care.

**Recommendations included in these guidelines have been adapted from the Classification of Recommendations criteria described in the Canadian Task Force on the Preventive Health Care.

CLINICAL ALGORITHM(S)

An algorithm "The pathogenesis of the maternal syndrome of preeclampsia" is provided in the original guideline document.

EVIDENCE SUPPORTING THE RECOMMENDATIONS

TYPE OF EVIDENCE SUPPORTING THE RECOMMENDATIONS

The type of supporting evidence is identified and graded for each recommendation (see "Major Recommendations").

BENEFITS/HARMS OF IMPLEMENTING THE GUIDELINE RECOMMENDATIONS

POTENTIAL BENEFITS

Appropriate diagnosis and classification of hypertensive disorders of pregnancy (HDP)

POTENTIAL HARMS

- Urinary dipstick testing is associated with false-negative results (12% as assessed against 24-hour proteinuria of 0.3 g/d)
- There is a high false positive rate for suspected preeclampsia

QUALIFYING STATEMENTS

QUALIFYING STATEMENTS

This guideline reflects emerging clinical and scientific advances as of the date issued and are subject to change. The information should not be construed as dictating an exclusive course of treatment or procedure to be followed. Local institutions can dictate amendments to these opinions. They should be well documented if modified at the local level.

IMPLEMENTATION OF THE GUIDELINE

DESCRIPTION OF IMPLEMENTATION STRATEGY

An implementation strategy was not provided.

IMPLEMENTATION TOOLS

Clinical Algorithm

For information about [availability](#), see the "Availability of Companion Documents" and "Patient Resources" fields below.

INSTITUTE OF MEDICINE (IOM) NATIONAL HEALTHCARE QUALITY REPORT CATEGORIES

IOM CARE NEED

Getting Better
Staying Healthy

IOM DOMAIN

Effectiveness

IDENTIFYING INFORMATION AND AVAILABILITY

BIBLIOGRAPHIC SOURCE(S)

Magee LA, Helewa M, Moutquin JM, von Dadelszen P, Hypertension Guideline Committee, Society of Obstetricians and Gynaecologists of Canada. Diagnosis and classification. In: Diagnosis, evaluation, and management of the hypertensive disorders of pregnancy. J Obstet Gynaecol Can 2008 Mar;30(3 Suppl 1):S9-15.

ADAPTATION

Not applicable: The guideline was not adapted from another source.

DATE RELEASED

2008 Mar

GUIDELINE DEVELOPER(S)

Society of Obstetricians and Gynaecologists of Canada - Medical Specialty Society

SOURCE(S) OF FUNDING

Society of Obstetricians and Gynaecologists of Canada

GUIDELINE COMMITTEE

Hypertension Guideline Committee

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FINANCIAL DISCLOSURES/CONFLICTS OF INTEREST

Not stated

GUIDELINE STATUS

This is the current release of the guideline.

GUIDELINE AVAILABILITY

Electronic copies: Available in Portable Document Format (PDF) from the [Society of Obstetricians and Gynaecologists of Canada Web site](#).

Print copies: Available from the Society of Obstetricians and Gynaecologists of Canada, La société des obstétriciens et gynécologues du Canada (SOGC) 780 promenade Echo Drive Ottawa, ON K1S 5R7 (Canada); Phone: 1-800-561-2416

AVAILABILITY OF COMPANION DOCUMENTS

None available

PATIENT RESOURCES

None available

NGC STATUS

This NGC summary was completed by ECRI Institute on February 17, 2009. The information was verified by the guideline developer on March 13, 2009.

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