Alberta Health Services

PROTOCOL

TITLE

INITIAL MANAGEMENT OF HYPERTENSION AND PREECLAMPSIA IN OBSTETRICAL OUTPATIENTS

SCOPE Provincial: Women's and Infant Health	**DOCUMENT #** HCS-299-01
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NOTE: The first appearance of terms in bold in the body of this document (except titles) are defined terms – please refer to the Definitions section.

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OBJECTIVES

- To provide direction to **health care professionals** on the recognition and management of **patients** presenting to a Labour and Delivery Obstetrical (LD/OB) Triage, or within any **Service Delivery Model Hospital Level** 1A or above with **hypertension** and/or symptoms of **preeclampsia**.
- To assist health care professionals when implementing specific diagnostics, therapeutics, and interventions for patients, prior to the **most responsible health practitioner (MRHP)** initial assessment.

APPLICABILITY

Compliance with this document is required by all Alberta Health Services employees, members of the medical and midwifery staffs, students, volunteers, and other persons acting on behalf of Alberta Health Services (including contracted service providers as necessary).

ELEMENTS

1. Points of Emphasis

1.1 The health care professional shall:

a) Perform a triage assessment as per the AHS Obstetrical Triage Acuity Scale (OTAS) and notify the MRHP accordingly. (Refer to AHS *Obstetrical Triage Acuity Scale* [*OTAS*] Guideline).

(i) Obstetrical patients initially seen in an Emergency Department should be assigned Canadian Triage and Acuity Scale (CTAS) score, as per site process.

b) Notify the MRHP immediately for urgent in-person assessment and consider notifying the Emergency Support Team, if appropriate, for any obstetrical patient (see inclusion and exclusion criteria in Sections 2 and 3 below) who present with or develops:

(i) severe hypertension, as defined in section 4.1b(ii) below;

(ii) suspected preeclampsia, as outlined in Section 4.1(c) below);

(iii) recent or active seizure; and/or

(iv) deteriorating clinical condition.

c) Where there is a delay to in-person MRHP assessment in 1.1(b) above, obtain a patient-specific **order** for anti-hypertensive and/or anti-seizure prophylaxis, as appropriate.

1.2 This Protocol may be implemented without an order and the patient should be in an appropriate **treatment area** to manage initial assessment and reassessment.

Exception: A patient-specific order shall be obtained for any fluid infusion greater than 30 millilitres per hour (mL/hr) or to insert an indwelling urinary catheter. See Section 7.1(b) below.

1.3 All patients shall be offered information about the risks, benefits and alternatives associated with their treatment to ensure **informed consent** has been obtained and documented, in accordance with the AHS *Consent to Treatment / Procedure(s)* Policy.

1.4 When this Protocol has been implemented for any patient, including those who subsequently leave prior to MRHP assessment: Follow local process, including documentation requirements and patient follow-up of abnormal results.

1.5 In consultation with the MRHP, consider as appropriate:

a) early specialty consultation by Physician, Nurse Practitioner or Midwife via Referral, Access, Advice, Placement, Information & Destination (RAAPID);

b) transfer of care, if required, shall occur in accordance with the AHS *Criteria* to *Support Appropriate Level of Obstetrical Care* Guideline;

c) notification of the Obstetrical Anaesthetic Care Provider and the Pediatric or Neonatal Care Team (if applicable); and

d) notification of the Operating Theatre (OR) Team and/or Intensive Care Unit (ICU), if applicable.

2. Inclusion Criteria

2.1 This Protocol is intended for use with obstetrical outpatients or those up to six (6) weeks postpartum who present with hypertension and/or signs of preeclampsia, as outlined in Section 4 below.

3. Exclusion Criteria

3.1 This Protocol is not intended for patients who:

a) present:

(i) beyond six (6) weeks postpartum; or

(ii) to facilities that do not provide obstetrical care; or

b) are admitted as an inpatient under the care of a MRHP.

4. Initial Assessment

4.1 The health care professional shall:

a) Use initial triage blood pressure (BP) assessment for the Obstetrical Triage Acuity Scale (OTAS) scoring, as appropriate.

(i) Ensure the accuracy of BP readings by:

- using the appropriate size cuff (1½ times longer than the arm circumference);
- having the patient sit with arm at level of the heart; and
- measuring the BP in both arms, if appropriate.
    - Use the arm with the higher BP measurement for subsequent assessments.

b) Assess the patient for hypertension:

(i) In the healthcare environment, hypertension is present when at least two (2) measurements taken in the same limb at least 15 minutes apart after the patient is at rest for minimum of five (5) minutes and the:

- systolic BP remains greater than or equal to 140 millimetres of mercury (mmHg); and/or

- diastolic BP remains greater than or equal to 90 mmHg.

(ii) **Severe hypertension** is suspected if two (2) BP readings taken within 15 minutes confirm:

- systolic BP greater than or equal to 160 mmHg; and/or
- diastolic BP greater than or equal to 110 mmHg.

c) Assess the patient for signs or symptoms of preeclampsia:

(i) Preeclampsia is suspected when hypertension is present with any one (1) or more of the following signs or symptoms that include, but are not limited to:

- dyspnea and/or chest pain;
- headache;
- visual disturbances;
- cognitive changes;
- epigastric pain or right upper quadrant pain;
- severe nausea and vomiting;
- hyperreflexia (see Appendix A: *Deep Tendon Reflexes*); and/or
- abdominal pain with vaginal bleeding (e.g., abruption). Health care professionals may refer to the AHS *Assessment and Management of Antepartum Vaginal Bleeding* Protocol.

Note: Very rarely, atypical **HELLP syndrome** is present in the absence of hypertension. The above signs and symptoms, along with abnormal labs, can alert to the presence of HELLP syndrome.

(ii) Notify the MRHP of any signs or symptoms that are listed above, regardless of the patient's blood pressure.

d) Perform fetal health surveillance (FHS) as appropriate, for gestational age and clinical indications, as outlined in the *SOGC Fetal Health Surveillance Guideline* and MNCY SCN *Fetal Health Surveillance Toolkit*.

e) Perform a urine **Point of Care Testing (POCT)** and/or send a urinalysis in the presence of:

(i) hypertension; and/or

(ii) signs or symptoms of preeclampsia.

f) Notify the MRHP:

(i) as per Section 1.1(b) above (urgent assessment);

(ii) as directed by OTAS; or

(iii) if urine protein is greater than or equal to plus one (1+).

5. Reassessment

5.1 Assessment frequency may be increased or decreased based on any new or worsening signs and symptoms, including changes in BP.

a) If the patient's systolic BP remains greater than or equal to 140 mmHg or the diastolic BP is greater than or equal to 90 mmHg:

(i) Repeat the BP, HR and oxygen saturation (SpO_2) at minimum every 15 minutes until three (3) consecutive readings of 140/90 or less are obtained.

- Provided the patient is asymptomatic, serial BP measurement may be discontinued; and

(ii) then, continue with BP measurement every one (1) hour until direction is obtained from the MRHP.

b) Repeat assessment for signs and symptoms of preeclampsia at minimum hourly.

c) Notify the MRHP for any new or worsening signs and symptoms including clinical deterioration, which will require increased monitoring frequency.

6. Laboratory Tests

6.1 For patients with hypertension and/or suspected preeclampsia, the health care professional shall review the patient's **health record** (if available) to determine if a diagnosis of preeclampsia has been made by an Obstetrical Care Provider during this pregnancy. (Refer to the *Preeclampsia [PEC] Laboratory Investigations*).

a) If a diagnosis of preeclampsia is not documented: Collect and send:

(i) complete blood count (CBC);

(ii) alanine aminotransferase (ALT);

(iii) serum creatinine;

(iv) serum urate; and

(v) urine for a protein/creatinine ratio.

b) If a diagnosis of preeclampsia is documented: Review the patient's most recent CBC, ALT and serum creatinine results and if:

(i) Normal results: Then, collect and send:

- CBC;
- ALT; and
- serum creatinine.

(ii) Abnormal results or HELLP syndrome is suspected: Then, in addition to the above, collect and send:

- partial thromboplastin time (PTT);
- prothrombin time (PT) / international normalized ratio (INR);
- fibrinogen;
- lactate dehydrogenase (LD); and
- albumin.

(iii) Add a urine for protein/creatinine ratio only if the most recent lab result is less than 30 milligrams per millimole (mg/mmol).

c) Notify the MRHP for direction regarding laboratory investigations if:

(i) the health care professional is uncertain which laboratory tests outlined in this protocol (Section 6.1[b]) are appropriate because:

- laboratory results and/or prenatal records are unavailable; or,
- it is not clear to the healthcare professional whether a diagnosis exists or not; or,

(ii) hypertension is absent and the patient presents with signs or symptoms of preeclampsia only (Refer to Section 4.1[c] above).

6.2 Local process may determine or affect the availability of the laboratory tests that are included as part of this Protocol.

7. Interventions for Patients with Severe Hypertension or Suspected Preeclampsia

7.1 In addition to notifying the MRHP, the health care professional should:

a) Initiate one (1) or two (2) large bore (18 gauge or greater) intravenous (IV) with either lactated ringers, or if unavailable, 0.9% sodium chloride at 30 mL/h and place on an infusion pump, as available. Monitor:

(i) hourly intake and output; and

(ii) for signs of fluid overload, as these patients are at increased risk.

b) Obtain a patient-specific order from the MRHP for:

(i) infusion rate greater than 30 mL/hr or any IV boluses; and/or

(ii) indwelling urinary catheter with urometer where strict in and out is indicated (e.g., prior to initiation of magnesium sulfate, renal insufficiency).

c) Administer supplemental oxygen if SpO_2 is less than 95 percent (%) or if the patient exhibits signs of shock or hemodynamic compromise.

(i) If administered, titrate to maintain oxygen SpO_2 at or above 95%. Use nasal prongs for rates below five (5) litres per minute.

d) Ensure seizure precautions are in place as appropriate, including:

(i) rapid access to operational oxygen, suction and emergency airway equipment;

(ii) anti-hypertensive and anti-seizure medications are readily available;

(iii) elevated, padded bed-rails;

(iv) bed at the lowest height; and

(v) dim, quiet room (if possible).

7.2 Consult the MRHP to obtain an order for medications (e.g., anti-hypertensive, anti-seizure), if appropriate.

8. Documentation

8.1 The health care professional shall document on the patient's health record:

a) implementation of this Protocol, including notification to the MRHP and entering orders;

b) assessments;

c) reassessments;

d) interventions; and

e) patient's responses to interventions.

DEFINITIONS

Health care professional means an individual who is a member of a regulated health discipline, as defined by the *Health Professions Act* (Alberta), and who practises within scope and role.

Health record means the collection of all records documenting individually identifying health information in relation to a single person.

HELLP syndrome means Hemolysis, Elevated Liver Enzymes, Low Platelets.

Hypertension in the health care environment is present when at least two (2) measurements taken in the same limb at least 15 minutes apart after the patient is at rest for minimum of five (5) minutes and the systolic BP remains greater than or equal to 140 millimetres of mercury (mmHg); and/or diastolic BP remains greater than or equal to 90 mmHg.

Informed consent means the patient's agreement (or alternate decision-maker) to undergo a treatment/procedure after being provided, in a manner the patient can understand, with the relevant information about the nature of the treatment/procedure(s), its benefits, potential risks and alternatives, and the potential consequences of refusal.

Most responsible health practitioner (MRHP) means the health practitioner who has responsibility and accountability for the specific treatment/procedure(s) provided to a patient and who is authorized by Alberta Health Services to perform the duties required to fulfill the delivery of such a treatment/procedure(s) within the scope of their practice.

Order means a direction given by a regulated health care professional to carry out specific activity(-ies) as part of the diagnostic and/or therapeutic care and treatment to the benefit of a patient. An order may be written (including handwritten and/or electronic), verbal, by telephone, or facsimile.

Patient means an adult or child who received or who has requested health care services from Alberta Health Services and its health care providers or individuals authorized to act on behalf of Alberta Health Services. This term is inclusive of residents, clients and outpatients.

Point of Care Testing (POCT) means any testing that typically occurs outside a designated laboratory environment, and is completed nearer to, or at the site of the patient/client. This includes all testing performed by non-laboratory personnel regardless of the location of the examination.

Preeclampsia means, for the purpose of this document, Gestational or Chronic Hypertension along with new onset proteinuria or one (1) or more maternal adverse conditions defined as maternal organ complication (renal, liver, neurologic, hematologic) or evidence of uteroplacental dysfunction (e.g., fetal growth restriction).

Service Delivery Model Hospital Level means for the purpose of this document:

- Level 0 = no obstetrical services
- Level 1 A Hospital = no operating room capacity;
- Level 1 B Hospital = hospital with 24/7 Operating Room (OR) and Caesarean Section capability;
- Level 1 C Hospital = hospital with 24/7 OR plus obstetrical specialist;
- Level 2 Hospital = hospital with full obstetrics, surgical and pediatric services including Level 2 Neonatal Intensive Care Unit (NICU); and
- Level 3 Hospital = hospital with full obstetrics, surgical and neonatal services including Level 2 and 3 NICU.

Severe hypertension means, for the purpose of this document, a systolic blood pressure greater than 160 mmHg or a diastolic BP greater than or equal to 110 mmHg over two (2) or more readings taken within 15 minutes.

Treatment area for the purposes of this document means the area of the Labour and Delivery or Emergency department where detailed assessment and treatment may occur.

REFERENCES

- Appendix A: *Deep Tendon Reflexes*
- Appendix B: *Assessment and Initial Management of a Hypertensive Disorder of Pregnancy*
- Alberta Health Services Governance Documents:
  - *Consent to Treatment/Procedure(s)* Policy (#PRR-01)
  - *Criteria to Support Appropriate Level of Obstetrical Care* Guideline (#HCS-201-01)
  - *Obstetrical Triage Acuity Scale (OTAS)* Guideline (#HCS-207-01)
  - *Point of Care Testing (POCT)* Policy (#PS-90)
  - *Assessment and Management of Antepartum Vaginal Bleeding* Protocol (#HCS-287-01)
- Alberta Health Services Resources:
  - *Fetal Health Surveillance Toolkit* (MNCY SCN)
  - *Preeclampsia (PEC) Laboratory Investigations*
- Non-Alberta Health Services Resources:
  - *Canadian Triage Acuity Scale* (Canadian Association of Emergency Physicians)

- *Implementation of a Clinical Decision Laboratory Ordering Algorithm for Preeclampsia: A Quality Improvement Initiative* (Thompson X, Sullivan, M.B., Wong, A., Crawford, J, Sia, W [2020] J Obstet Gynaecol Can 2020; 42(10):1223–1229)
- *Obstetrical Triage Assessment Scale* (London Health Sciences Centre*)*
- *Obstetrical Triage Assessment Scale- Early Pregnancy (<20 weeks)*
- Society of Obstetrics and Gynecology Canada:
  - *Hypertensive disorders of pregnancy: diagnosis, prediction, prevention, and management (2022)*
  - No. 396-Fetal Health Surveillance: Intrapartum Consensus Guideline (2020)

APPENDIX A

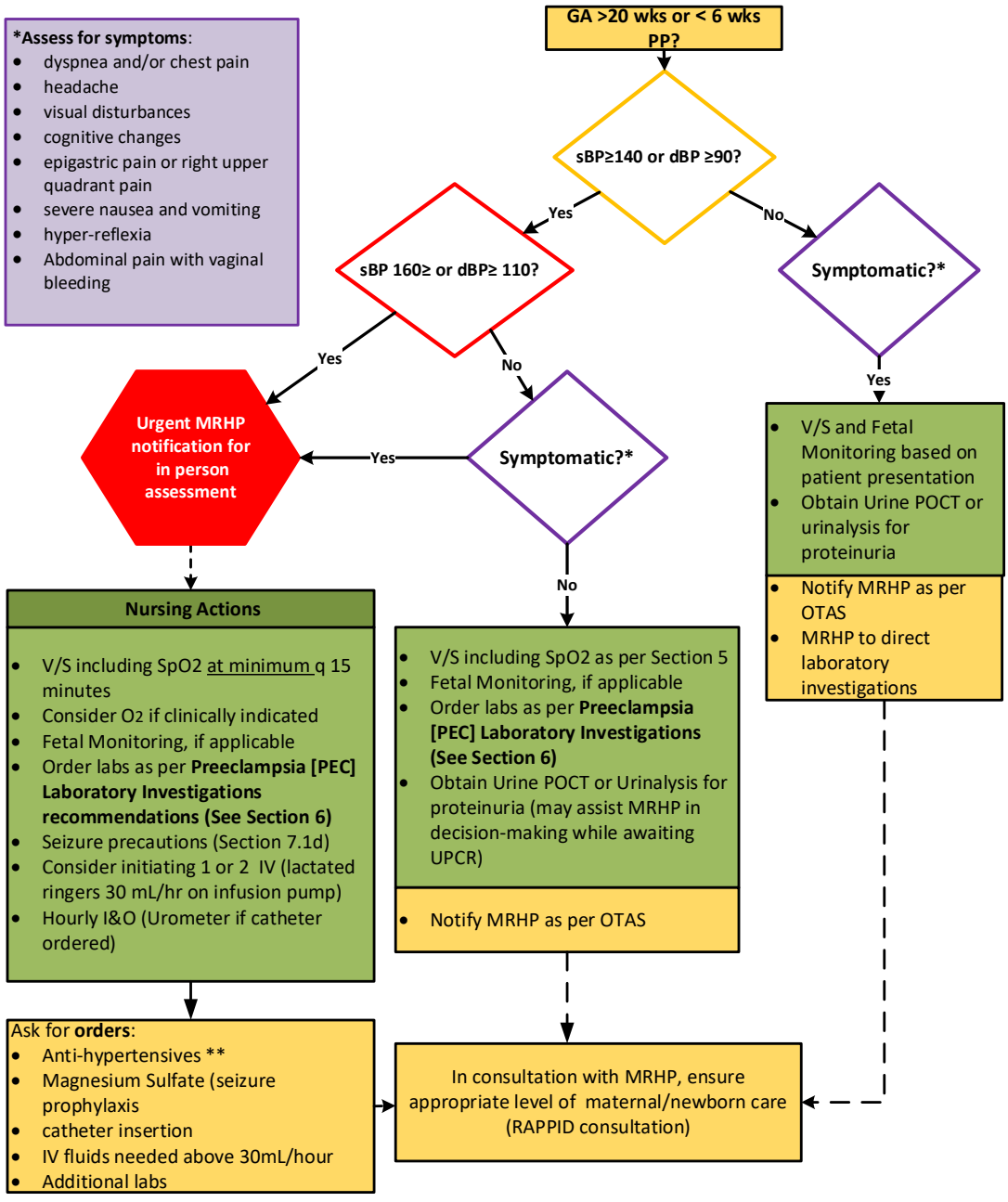
Deep Tendon Reflexes

0	No Response
+1	Slight muscular contraction; no limb movement
+2	Visible muscle twitch and movement. This is a normal reflex
+3	Brisk, slightly exaggerated muscle twitch and movement
4+	Very exaggerated twitch and jerk of the limb with repetitions

*Patellar, Brachioradialis or Biceps tendon may be assessed.

APPENDIX B

Assessment and Initial Management of a Hypertensive Disorder of Pregnancy



** SOGC recommends administration target of within 60 mins