UIHC Guidelines

Emergent Therapy for Acute-Onset, Severe Hypertension during Pregnancy and the Postpartum Period

Note: this guideline does not address the comprehensive treatments necessary for patients with preeclampsia and eclampsia

In these guidelines, Provider is defined as a clinical staff member who is authorized to prescribe medications in compliance with Iowa Code and UIHC Bylaws, Rules and Regulations.

➢ Diagnosis

Acute-onset, severe systolic hypertension, severe diastolic hypertension, or both can occur during the prenatal, intrapartum, or postpartum periods. Pregnant women or women in the postpartum period with acute-onset, severe systolic hypertension, severe diastolic hypertension, or both require urgent antihypertensive therapy (within 30–60 minutes).

Hypertensive Emergency Definition

Severe hypertension occurs when one or both of these occur for 15 minutes or longer:	Value
Systolic blood pressure (SBP)	≥ 160 mm Hg
Diastolic blood pressure (DBP)	≥ 110 mm Hg

Blood pressure should be accurately measured using standard techniques (including correct cuff size).

- In clinic, patient should be:
  - Comfortably seated or semi-reclining, legs uncrossed, back and arm supported
  - Relaxed and not talking
    - Expose the upper arm fully by removing any constricting clothing. Do not place the BP cuff over clothing.
  - Middle of blood pressure cuff on upper arm should be level with the heart
  - NOTE: Patient should **NOT** be repositioned to reclining or side because it will provide a falsely low reading
- In the hospital, patient should be:
  - As listed above “in clinic”
  - Acceptable alternative if clinically indicated: Left lateral recumbent position with arm at heart level

Once the criteria for severe hypertension is met:

1. Notify the LIP
2. If diagnosed in the clinic setting, transfer patient to the hospital for treatment
3. Antepartum:
   a. Begin continuous electronic fetal monitoring
   b. Prepare for emergent delivery
   c. Must be either in Emergency Department or Labor & Delivery or Mother Baby Care Unit (6JPP or 3JPP) prior to antihypertensive treatment
      i. Exception: If severe hypertension is identified in clinic nifedipine may be administered while awaiting transport to the hospital if a Provider specializing Obstetrics is present.

Postpartum:

a. Must be on either in Emergency Department or Labor & Delivery or Mother Baby Care Unit (6JPP or 3JPP) for antihypertensive treatment

b. Exception: If severe hypertension is identified in clinic in a patient who is 6 or less weeks post-partum, nifedipine may be administered while awaiting transport to the hospital if a Provider specializing Obstetrics is present.

➢ Treatment

Requirements for acute onset, severe hypertension treatment in antepartum and postpartum patients:

- **Antepartum patients must either be in the ED or L&D or Mother Baby Care Unit (6JPP or 3JPP)**
  - Exception: If severe hypertension is identified in clinic, nifedipine may be administered while awaiting transport to the hospital if a Provider specializing in Obstetrics is present.
- **Postpartum patients must be either in ED or L&D or Mother Baby (6JPP or 3JPP)**
  - Exception: If severe hypertension is identified in clinic in a patient who is 6 or less weeks post-partum, nifedipine may be administered while awaiting transport to the hospital if a Provider specializing Obstetrics is present.
- **The Provider must complete a timely beside evaluation and be readily available on the OB units during the administration for all doses.**
- **In order to not delay treatment, the medication may be administered prior to completion of the bedside evaluation.**

Goals

Achieve a range of:	Value
Systolic blood pressure (SBP)	140 – 150 mm Hg
Diastolic blood pressure (DBP)	90 - 100 mm Hg

First-Line Regimen:

- Labetalol IV **(refer to Appendix A)**
  - Dose: 20 mg IV bolus; if not effective in 10-15 min, give 40 mg IV; if not effective in 10-15 min, give 80 mg IV; if there is not an adequate response, try hydralazine IV
  - Hold for maternal HR < 60 BPM
  - Adverse events to be aware of: maternal bradycardia, neonatal bradycardia

Second-Line Regimens:

- Hydralazine IV **(refer to Appendix B)**
  - Dose: 5-10 mg IV bolus; if not effective in 20 min, give 10 mg IV
  - May be considered first-line for patients with asthma, heart disease, or congestive heart failure
  - Adverse event to be aware of: maternal hypotension
- Nifedipine Immediate Release Orally **(refer to Appendix C)**

  May be considered first-line if no IV access or contraindications to labetalol or hydralazine
  - Dose: 10 mg orally; if not effective in 20 minutes, give 20 mg orally; if not effective in 20 minutes, give 20 mg orally

- Note: Administer orally and do not puncture or otherwise administer sublingually
- May be considered first-line if no IV access or contraindications to labetalol or hydralazine
- Adverse event to be aware of: maternal hypotension, maternal tachycardia

Alternative Regimens:

- Labetalol Orally
  - Dose: 200 mg orally; if not effective in 30 minutes, give 200 mg orally
  - Adverse events to be aware of: maternal bradycardia, neonatal bradycardia
- If elevations in blood pressure are refractory to the agents listed above (if given in successive, appropriate doses), emergent consultation with a maternal-fetal medicine specialist, anesthesiologist, or intensivist is recommended as patient should be evaluated for treatment with an infusion (with invasive arterial blood pressure monitoring):

  Nicardipine

  Esmolol

  Nitroprusside: reserved for extreme emergencies and use for the shortest amount of time possible because of concerns about cyanide and thiocyanate toxicity in mom and fetus/newborn and increased intracranial pressure with potential worsening of cerebral edema in the mom

  Nitroglycerin: avoid around the time of delivery due to the effect on uterine tone and risk for postpartum hemorrhage

➢ **<u>Monitoring</u>**

Close maternal and continuous fetal monitoring are advised during the treatment of acute-onset, severe hypertension.

Post-drug administration monitoring is dependent on the pharmacokinetics of the drug being used.

Drug	**Onset (min)**	**Peak (min)**	**Duration of effect (hours)**	**Monitoring**
Labetolol IV	5	30	3 - 8	Once goal BP is met, check BP, HR, RR every 10 min for 1 hour, then every 15 min for 1 hour, then every 30 min for 1 hour, then every hour for 4 hours post-dose
Hydralazine IV	5 - 15	10 - 60	3 - 8	Once goal BP is met, check BP, HR, RR every 10 min for 1 hour, then every 15 min for 1 hour, then every 30 min for 1 hour, then every hour for 4 hours post-dose
Nifedipine Oral, Immediate Release	10	30	4 - 8	Once goal BP is met, check BP, HR, RR every 10 min for 1 hour, then every 15 min for 1 hour, then every 30 min for 1 hour, then every hour for 4 hours post-dose

During/after administration of antihypertensives, notify LIP immediately if:

- Systolic blood pressure drops below 110 mm Hg
- Diastolic blood pressure drops below 70 mm Hg
- Maternal HR > 120 beats per minute or HR < 60 beats per minute

- Changes in fetal heart rate including minimal variability, absent variability, variable decelerations, or late decelerations.
- Signs/symptoms of hypotension (e.g., flushing, headache, nausea, dizziness, shortness of breath). If hypotension occurs:
  - Position patient on left side with head of bead flat
  - Elevate patient's legs
  - Apply oxygen at 10 L via mask if there is evidence of fetal compromise
  - Notify Anesthesia

After initial stabilization, the team should monitor blood pressure closely and institute maintenance therapy as needed.

Ensure patients are carefully monitored well into the postpartum period.

References:

American College of Obstetricians and Gynecologists. Emergent therapy for acute-onset, severe hypertension during pregnancy and the postpartum period. Committee opinion no. 692. 2017 April. Retrieved from http://www.acog.org/Resources-AndPublications/Committee-Opinions/Committee-on-Obstetric-Practice/Emergent-Therapy-for-Acute-Onset-Severe-Hypertension-DuringPregnancy-and-the-Postpartum-Period

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Bernstein PS, Martin JN Jr, Barton JR, et al. Consensus bundle on severe hypertension during pregnancy and the postpartum period. *J Obstet Gynecol Neonatal Nurs*. 2017 Jul 1. pii: S0884-2175(17)30284-8. doi: 10.1016/j.jogn.2017.05.003. [Epub ahead of print].

Podovei M, Bateman BT. The consensus bundle on hypertension in pregnancy and the anesthesiologist: doing all the right things for all patients all of the time. *Anesth Analg*. 2017;125:383-5.

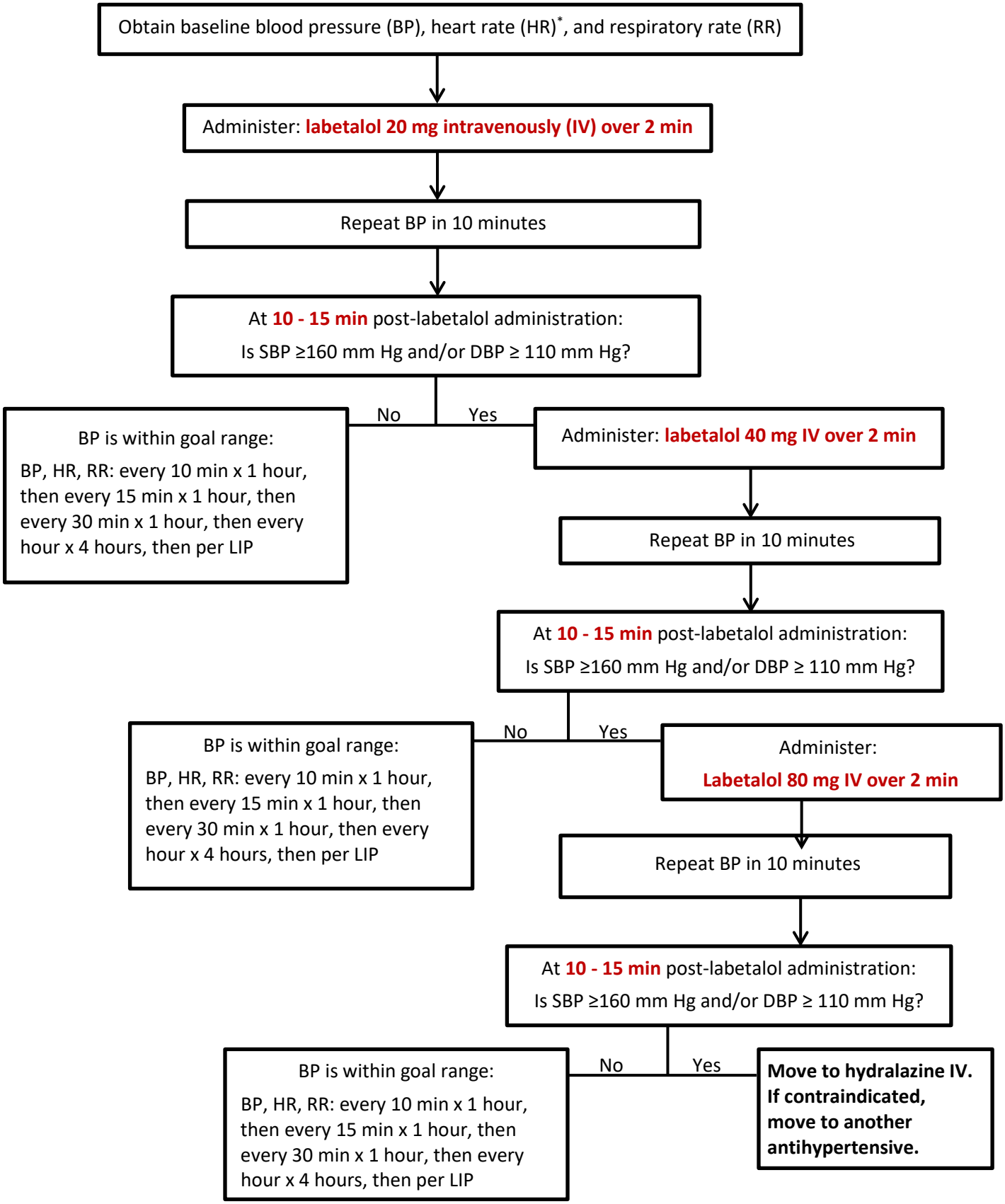
Last revision: October 2020

Approved at P&T: October 27, 2020

Appendix A

Labetalol IV for Severe Hypertension during Pregnancy and the Postpartum Period

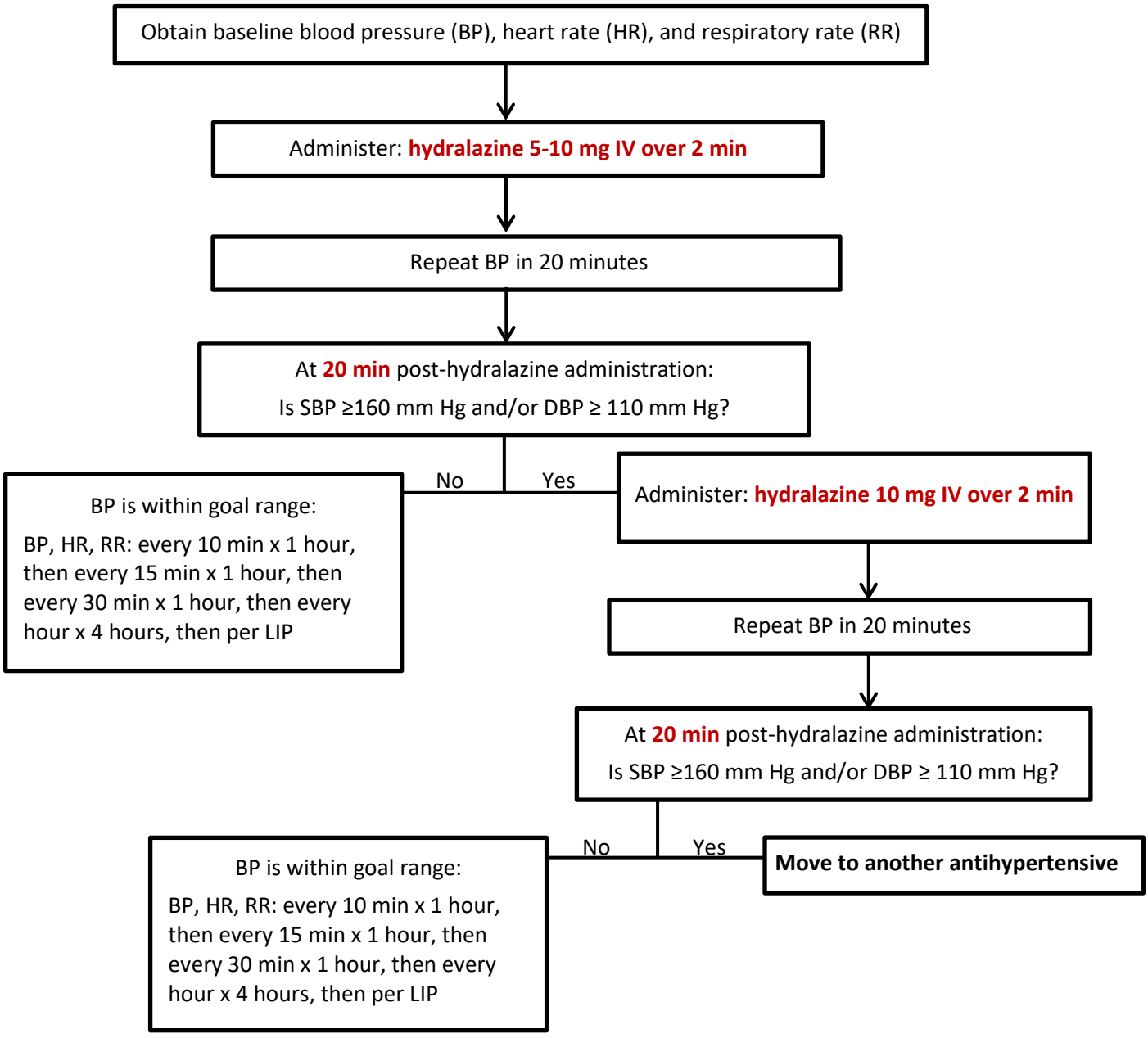
*** Continuous fetal monitoring is advised during treatment of acute onset severe hypertension***



Appendix B

Hydralazine IV for Severe Hypertension during Pregnancy and the Postpartum Period

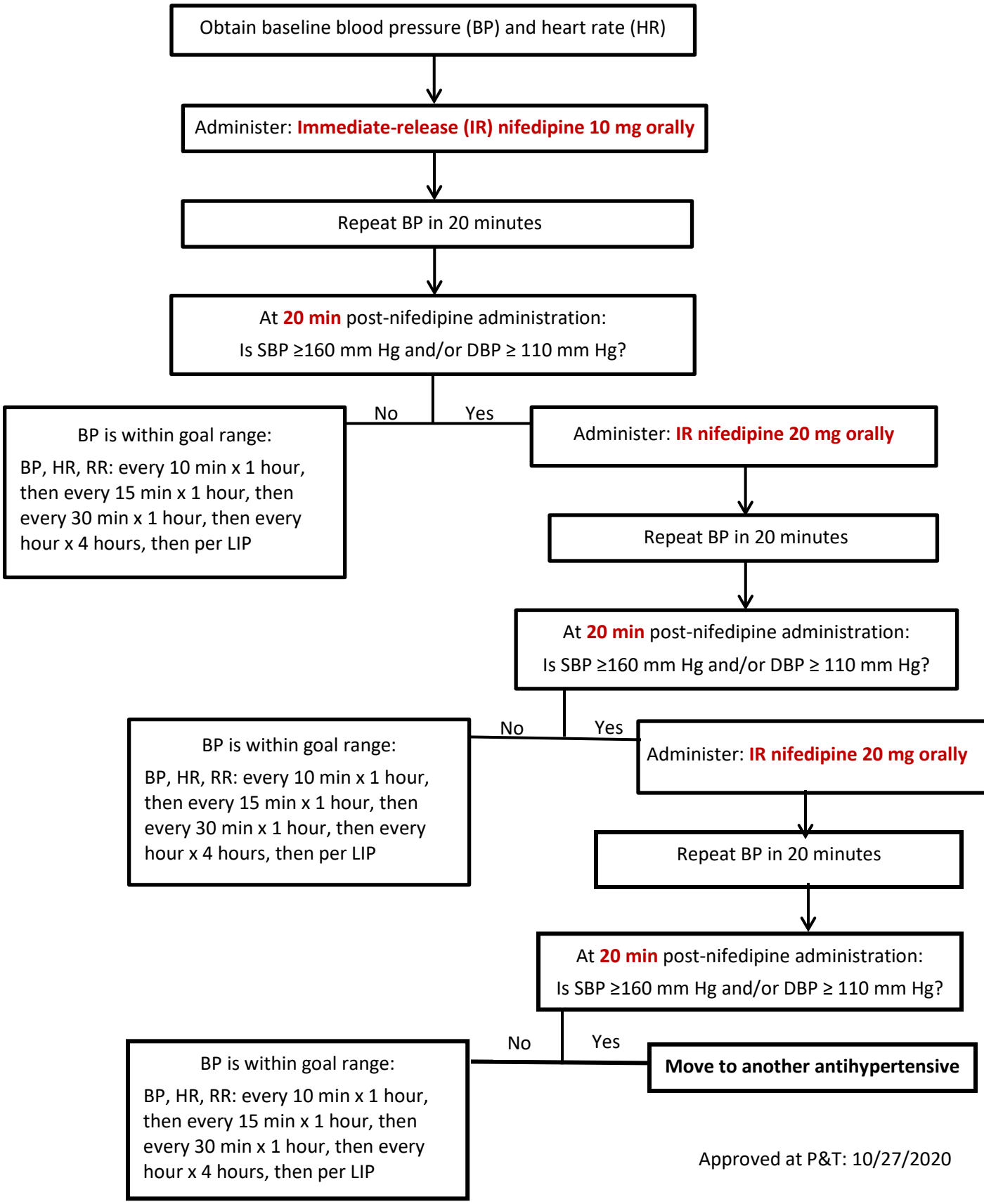
*** Continuous fetal monitoring is advised during treatment of acute onset severe hypertension***



Appendix C

Immediate-Release Nifedipine for Severe Hypertension during Pregnancy and the Postpartum Period

*** Continuous fetal monitoring is advised during treatment of acute onset severe hypertension***



Approved at P&T: 10/27/2020