ACOG District II's

Severe Hypertension in Pregnancy BUNDLE UPDATES

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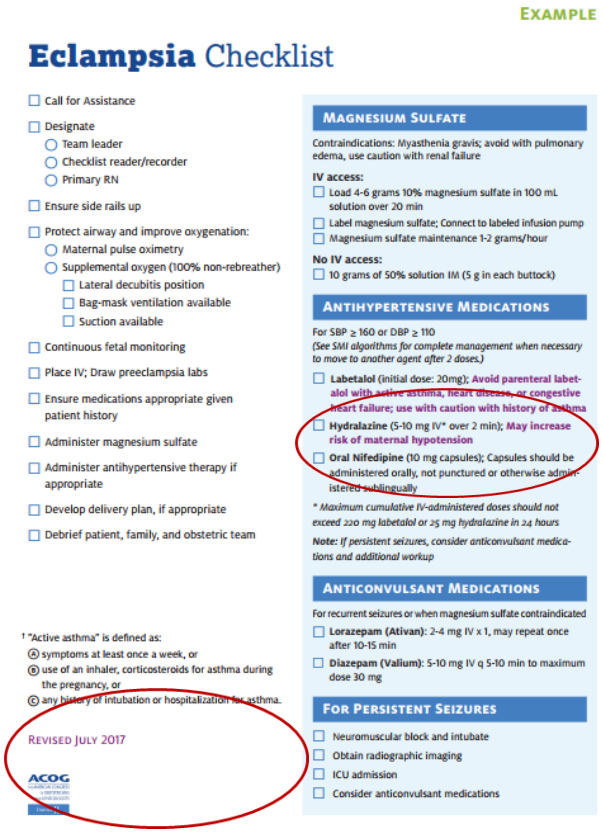
New Changes as of July 2017
(updated materials available on the SMI website & app)

- Changes reflect latest ACOG guidance (April 2017)
- Emphasis on definition of severe hypertension as *"two severe readings more than 15 minutes apart & less than 60 minutes apart."*
- 2nd dose of labetalol removed from algorithm
- Additional 20mg oral nifedipine added to step 5 of algorithm
- 40mg IV labetalol indicated in step 6 of oral nifedipine algorithm
- Definition of "active asthma" clarified to include:
  - use of an inhaler, corticosteroids steroids for asthma during the pregnancy
  - any history of intubation or hospitalization for asthma

Hypertension Checklists



EXAMPLE

Eclampsia Checklist

- ☐ Call for Assistance
- ☐ Designate
  - ○ Team leader
  - ○ Checklist reader/recorder
  - ○ Primary RN
- ☐ Ensure side rails up
- ☐ Protect airway and improve oxygenation:
  - ○ Maternal pulse oximetry
  - ○ Supplemental oxygen (100% non-rebreather)
    - ☐ Lateral decubitis position
    - ☐ Bag-mask ventilation available
    - ☐ Suction available
- ☐ Continuous fetal monitoring
- ☐ Place IV; Draw preeclampsia labs
- ☐ Ensure medications appropriate given patient history
- ☐ Administer magnesium sulfate
- ☐ Administer antihypertensive therapy if appropriate
- ☐ Develop delivery plan, if appropriate
- ☐ Debrief patient, family, and obstetric team

† "Active asthma" is defined as:
Ⓐ symptoms at least once a week, or
Ⓑ use of an inhaler, corticosteroids for asthma during the pregnancy, or
Ⓒ any history of intubation or hospitalization for asthma.

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MAGNESIUM SULFATE

Contraindications: Myasthenia gravis; avoid with pulmonary edema, use caution with renal failure

IV access:
- ☐ Load 4-6 grams 10% magnesium sulfate in 100 mL solution over 20 min
- ☐ Label magnesium sulfate; Connect to labeled infusion pump
- ☐ Magnesium sulfate maintenance 1-2 grams/hour

No IV access:
- ☐ 10 grams of 50% solution IM (5 g in each buttock)

ANTIHYPERTENSIVE MEDICATIONS

For SBP ≥ 160 or DBP ≥ 110
(See SMI algorithms for complete management when necessary to move to another agent after 2 doses.)

- ☐ **Labetalol** (initial dose: 20mg); **Avoid parenteral labetalol with active asthma, heart disease, or congestive heart failure; use with caution with history of asthma**
- ☐ **Hydralazine** (5-10 mg IV* over 2 min); **May increase risk of maternal hypotension**
- ☐ **Oral Nifedipine** (10 mg capsules); Capsules should be administered orally, not punctured or otherwise administered sublingually

** Maximum cumulative IV-administered doses should not exceed 220 mg labetalol or 25 mg hydralazine in 24 hours*

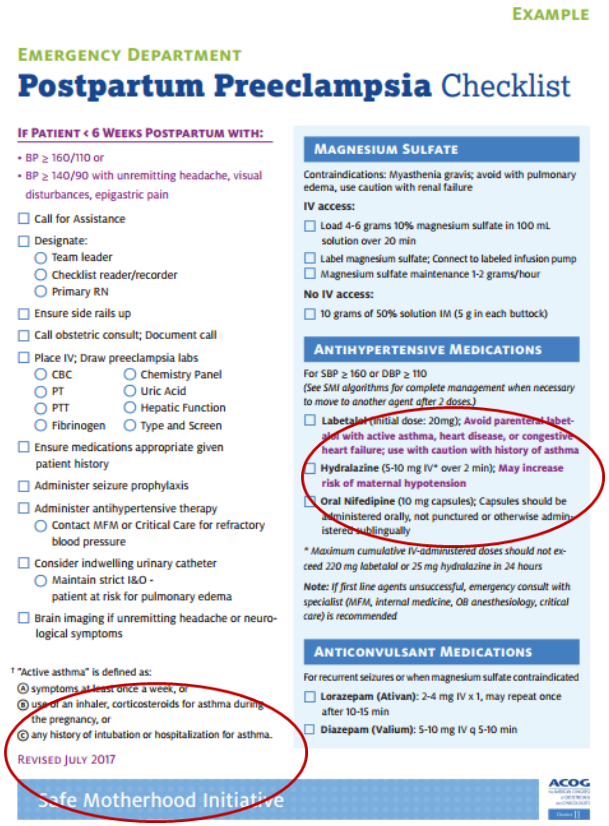
***Note:** If persistent seizures, consider anticonvulsant medications and additional workup*

ANTICONVULSANT MEDICATIONS

For recurrent seizures or when magnesium sulfate contraindicated
- ☐ **Lorazepam (Ativan):** 2-4 mg IV x 1, may repeat once after 10-15 min
- ☐ **Diazepam (Valium):** 5-10 mg IV q 5-10 min to maximum dose 30 mg

FOR PERSISTENT SEIZURES

- ☐ Neuromuscular block and intubate
- ☐ Obtain radiographic imaging
- ☐ ICU admission
- ☐ Consider anticonvulsant medications



EXAMPLE

EMERGENCY DEPARTMENT

Postpartum Preeclampsia Checklist

IF PATIENT < 6 WEEKS POSTPARTUM WITH:
- BP ≥ 160/110 or
- BP ≥ 140/90 with unremitting headache, visual disturbances, epigastric pain

- ☐ Call for Assistance
- ☐ Designate:
  - ○ Team leader
  - ○ Checklist reader/recorder
  - ○ Primary RN
- ☐ Ensure side rails up
- ☐ Call obstetric consult; Document call
- ☐ Place IV; Draw preeclampsia labs
  - ○ CBC
  - ○ PT
  - ○ PTT
  - ○ Fibrinogen
  - ○ Chemistry Panel
  - ○ Uric Acid
  - ○ Hepatic Function
  - ○ Type and Screen
- ☐ Ensure medications appropriate given patient history
- ☐ Administer seizure prophylaxis
- ☐ Administer antihypertensive therapy
  - ○ Contact MFM or Critical Care for refractory blood pressure
- ☐ Consider indwelling urinary catheter
  - ○ Maintain strict I&O - patient at risk for pulmonary edema
- ☐ Brain imaging if unremitting headache or neurological symptoms

† "Active asthma" is defined as:
Ⓐ symptoms at least once a week, or
Ⓑ use of an inhaler, corticosteroids for asthma during the pregnancy, or
Ⓒ any history of intubation or hospitalization for asthma.

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Safe Motherhood Initiative

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MAGNESIUM SULFATE

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IV access:
- ☐ Load 4-6 grams 10% magnesium sulfate in 100 mL solution over 20 min
- ☐ Label magnesium sulfate; Connect to labeled infusion pump
- ☐ Magnesium sulfate maintenance 1-2 grams/hour

No IV access:
- ☐ 10 grams of 50% solution IM (5 g in each buttock)

ANTIHYPERTENSIVE MEDICATIONS

For SBP ≥ 160 or DBP ≥ 110
(See SMI algorithms for complete management when necessary to move to another agent after 2 doses.)

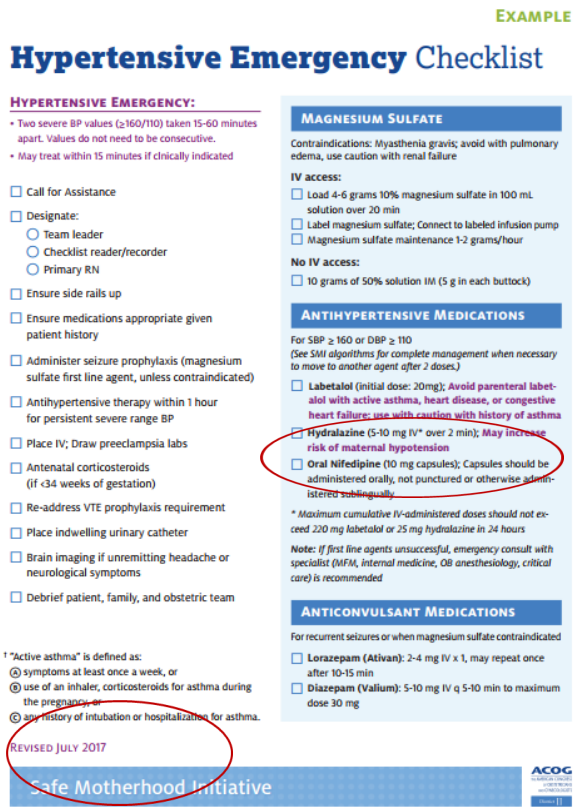
- ☐ **Labetalol** (initial dose: 20mg); **Avoid parenteral labetalol with active asthma, heart disease, or congestive heart failure; use with caution with history of asthma**
- ☐ **Hydralazine** (5-10 mg IV* over 2 min); **May increase risk of maternal hypotension**
- ☐ **Oral Nifedipine** (10 mg capsules); Capsules should be administered orally, not punctured or otherwise administered sublingually

** Maximum cumulative IV-administered doses should not exceed 220 mg labetalol or 25 mg hydralazine in 24 hours*

***Note:** If first line agents unsuccessful, emergency consult with specialist (MFM, internal medicine, OB anesthesiology, critical care) is recommended*

ANTICONVULSANT MEDICATIONS

For recurrent seizures or when magnesium sulfate contraindicated
- ☐ **Lorazepam (Ativan):** 2-4 mg IV x 1, may repeat once after 10-15 min
- ☐ **Diazepam (Valium):** 5-10 mg IV q 5-10 min



EXAMPLE

Hypertensive Emergency Checklist

HYPERTENSIVE EMERGENCY:
- Two severe BP values (≥160/110) taken 15-60 minutes apart. Values do not need to be consecutive.
- May treat within 15 minutes if clinically indicated

- ☐ Call for Assistance
- ☐ Designate:
  - ○ Team leader
  - ○ Checklist reader/recorder
  - ○ Primary RN
- ☐ Ensure side rails up
- ☐ Ensure medications appropriate given patient history
- ☐ Administer seizure prophylaxis (magnesium sulfate first line agent, unless contraindicated)
- ☐ Antihypertensive therapy within 1 hour for persistent severe range BP
- ☐ Place IV; Draw preeclampsia labs
- ☐ Antenatal corticosteroids (if <34 weeks of gestation)
- ☐ Re-address VTE prophylaxis requirement
- ☐ Place indwelling urinary catheter
- ☐ Brain imaging if unremitting headache or neurological symptoms
- ☐ Debrief patient, family, and obstetric team

† "Active asthma" is defined as:
Ⓐ symptoms at least once a week, or
Ⓑ use of an inhaler, corticosteroids for asthma during the pregnancy, or
Ⓒ any history of intubation or hospitalization for asthma.

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IV access:
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- ☐ Label magnesium sulfate; Connect to labeled infusion pump
- ☐ Magnesium sulfate maintenance 1-2 grams/hour

No IV access:
- ☐ 10 grams of 50% solution IM (5 g in each buttock)

ANTIHYPERTENSIVE MEDICATIONS

For SBP ≥ 160 or DBP ≥ 110
(See SMI algorithms for complete management when necessary to move to another agent after 2 doses.)

- ☐ **Labetalol** (initial dose: 20mg); **Avoid parenteral labetalol with active asthma, heart disease, or congestive heart failure; use with caution with history of asthma**
- ☐ **Hydralazine** (5-10 mg IV* over 2 min); **May increase risk of maternal hypotension**
- ☐ **Oral Nifedipine** (10 mg capsules); Capsules should be administered orally, not punctured or otherwise administered sublingually

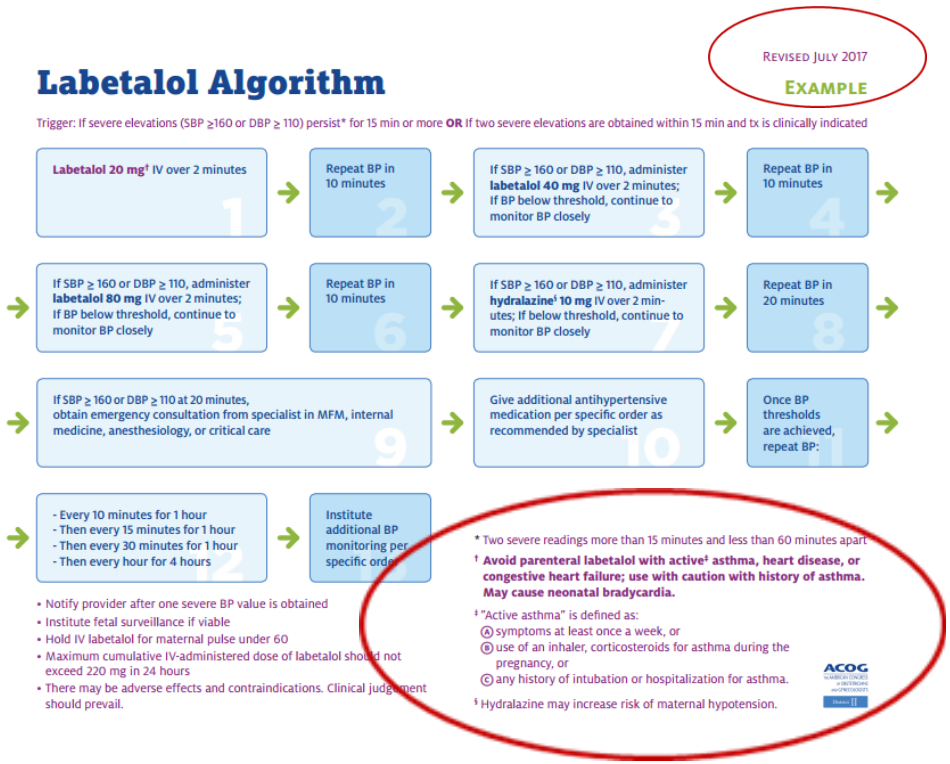
** Maximum cumulative IV-administered doses should not exceed 220 mg labetalol or 25 mg hydralazine in 24 hours*

***Note:** If first line agents unsuccessful, emergency consult with specialist (MFM, internal medicine, OB anesthesiology, critical care) is recommended*

ANTICONVULSANT MEDICATIONS

For recurrent seizures or when magnesium sulfate contraindicated
- ☐ **Lorazepam (Ativan):** 2-4 mg IV x 1, may repeat once after 10-15 min
- ☐ **Diazepam (Valium):** 5-10 mg IV q 5-10 min to maximum dose 30 mg

Hypertension Algorithms



Revised July 2017

EXAMPLE

Labetalol Algorithm

Trigger: If severe elevations (SBP ≥160 or DBP ≥ 110) persist* for 15 min or more **OR** If two severe elevations are obtained within 15 min and tx is clinically indicated

1. **Labetalol 20 mg†** IV over 2 minutes
2. Repeat BP in 10 minutes
3. If SBP ≥ 160 or DBP ≥ 110, administer **labetalol 40 mg** IV over 2 minutes; If BP below threshold, continue to monitor BP closely
4. Repeat BP in 10 minutes
5. If SBP ≥ 160 or DBP ≥ 110, administer **labetalol 80 mg** IV over 2 minutes; If BP below threshold, continue to monitor BP closely
6. Repeat BP in 10 minutes
7. If SBP ≥ 160 or DBP ≥ 110, administer **hydralazine§ 10 mg** IV over 2 minutes; If below threshold, continue to monitor BP closely
8. Repeat BP in 20 minutes
9. If SBP ≥ 160 or DBP ≥ 110 at 20 minutes, obtain emergency consultation from specialist in MFM, internal medicine, anesthesiology, or critical care
10. Give additional antihypertensive medication per specific order as recommended by specialist
11. Once BP thresholds are achieved, repeat BP:
12. - Every 10 minutes for 1 hour
    - Then every 15 minutes for 1 hour
    - Then every 30 minutes for 1 hour
    - Then every hour for 4 hours
13. Institute additional BP monitoring per specific order

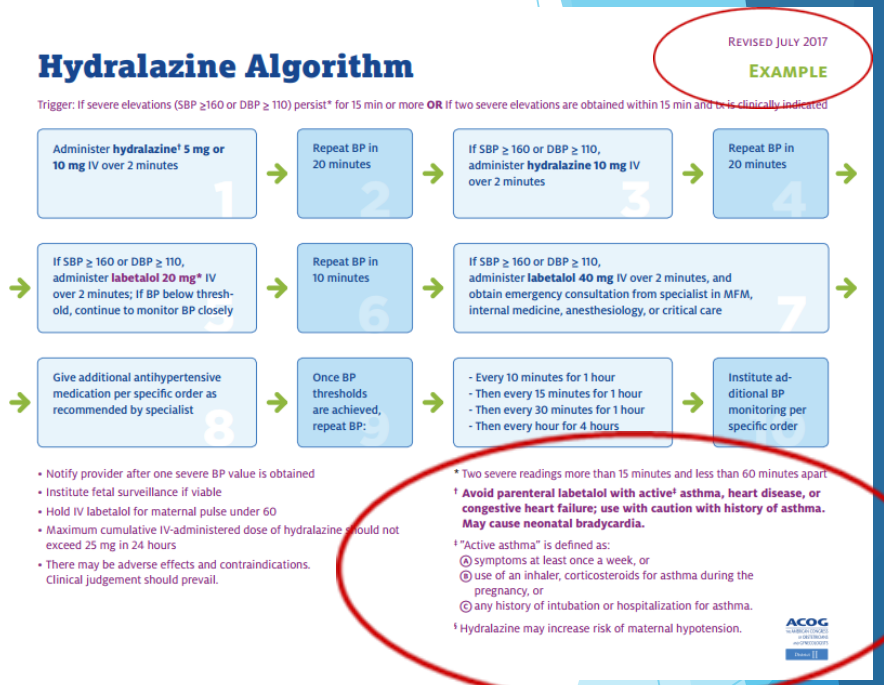
- Notify provider after one severe BP value is obtained
- Institute fetal surveillance if viable
- Hold IV labetalol for maternal pulse under 60
- Maximum cumulative IV-administered dose of labetalol should not exceed 220 mg in 24 hours
- There may be adverse effects and contraindications. Clinical judgment should prevail.

* Two severe readings more than 15 minutes and less than 60 minutes apart

† **Avoid parenteral labetalol with active‡ asthma, heart disease, or congestive heart failure; use with caution with history of asthma. May cause neonatal bradycardia.**

‡ "Active asthma" is defined as:
- (A) symptoms at least once a week, or
- (B) use of an inhaler, corticosteroids for asthma during the pregnancy, or
- (C) any history of intubation or hospitalization for asthma.

§ Hydralazine may increase risk of maternal hypotension.



Revised July 2017

EXAMPLE

Hydralazine Algorithm

Trigger: If severe elevations (SBP ≥160 or DBP ≥ 110) persist* for 15 min or more **OR** If two severe elevations are obtained within 15 min and tx is clinically indicated

1. Administer **hydralazine† 5 mg or 10 mg** IV over 2 minutes
2. Repeat BP in 20 minutes
3. If SBP ≥ 160 or DBP ≥ 110, administer **hydralazine 10 mg** IV over 2 minutes
4. Repeat BP in 20 minutes
5. If SBP ≥ 160 or DBP ≥ 110, administer **labetalol 20 mg*** IV over 2 minutes; If BP below threshold, continue to monitor BP closely
6. Repeat BP in 10 minutes
7. If SBP ≥ 160 or DBP ≥ 110, administer **labetalol 40 mg** IV over 2 minutes, and obtain emergency consultation from specialist in MFM, internal medicine, anesthesiology, or critical care
8. Give additional antihypertensive medication per specific order as recommended by specialist
9. Once BP thresholds are achieved, repeat BP:
10. - Every 10 minutes for 1 hour
    - Then every 15 minutes for 1 hour
    - Then every 30 minutes for 1 hour
    - Then every hour for 4 hours
11. Institute additional BP monitoring per specific order

- Notify provider after one severe BP value is obtained
- Institute fetal surveillance if viable
- Hold IV labetalol for maternal pulse under 60
- Maximum cumulative IV-administered dose of hydralazine should not exceed 25 mg in 24 hours
- There may be adverse effects and contraindications. Clinical judgement should prevail.

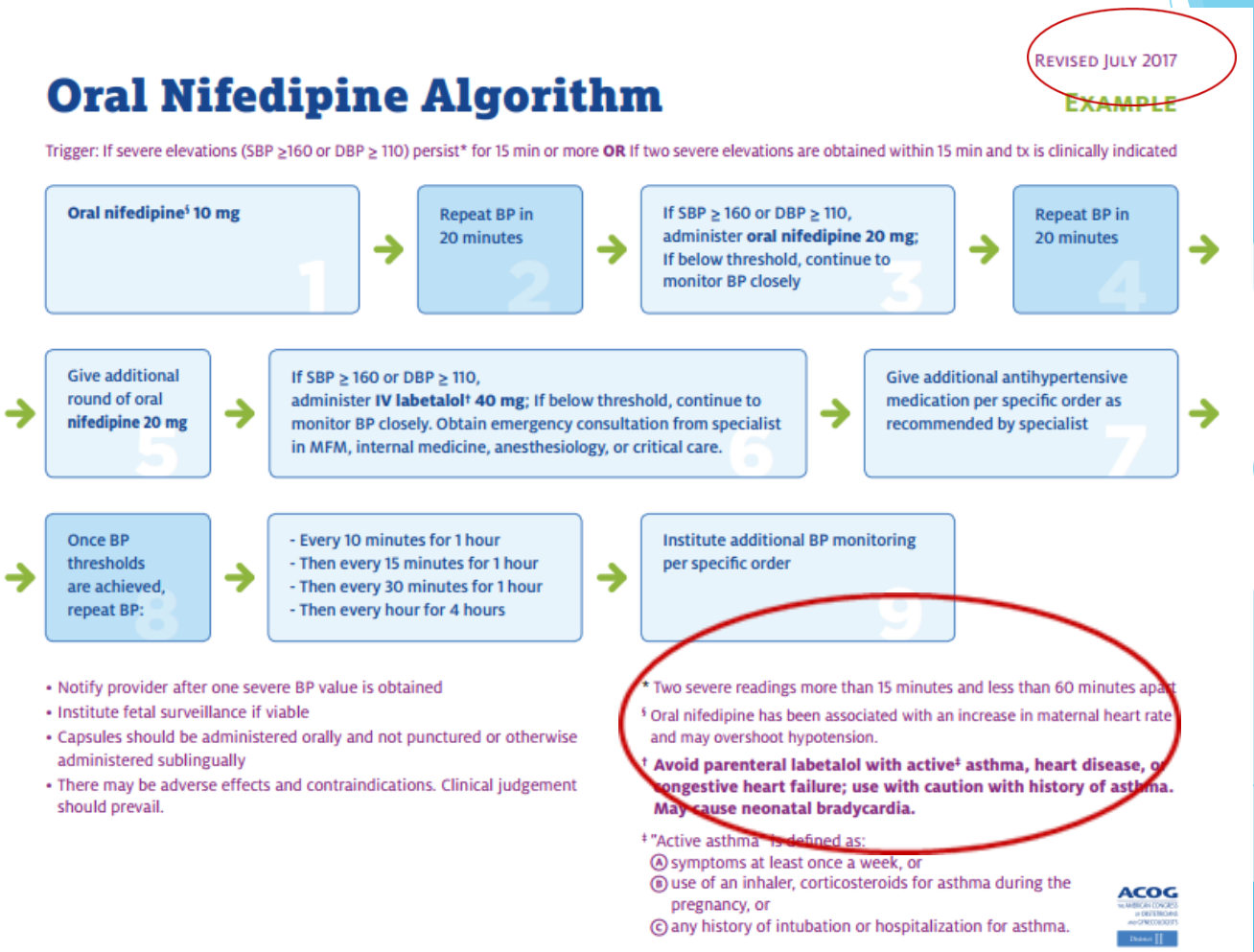
* Two severe readings more than 15 minutes and less than 60 minutes apart

† **Avoid parenteral labetalol with active‡ asthma, heart disease, or congestive heart failure; use with caution with history of asthma. May cause neonatal bradycardia.**

‡ "Active asthma" is defined as:
- (A) symptoms at least once a week, or
- (B) use of an inhaler, corticosteroids for asthma during the pregnancy, or
- (C) any history of intubation or hospitalization for asthma.

§ Hydralazine may increase risk of maternal hypotension.

Hypertension Algorithms



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EXAMPLE

Oral Nifedipine Algorithm

Trigger: If severe elevations (SBP ≥160 or DBP ≥ 110) persist* for 15 min or more **OR** If two severe elevations are obtained within 15 min and tx is clinically indicated

1. **Oral nifedipine[§] 10 mg**
2. Repeat BP in 20 minutes
3. If SBP ≥ 160 or DBP ≥ 110, administer **oral nifedipine 20 mg**; If below threshold, continue to monitor BP closely
4. Repeat BP in 20 minutes
5. Give additional round of oral **nifedipine 20 mg**
6. If SBP ≥ 160 or DBP ≥ 110, administer **IV labetalol[†] 40 mg**; If below threshold, continue to monitor BP closely. Obtain emergency consultation from specialist in MFM, internal medicine, anesthesiology, or critical care.
7. Give additional antihypertensive medication per specific order as recommended by specialist
8. Once BP thresholds are achieved, repeat BP:
   - Every 10 minutes for 1 hour
   - Then every 15 minutes for 1 hour
   - Then every 30 minutes for 1 hour
   - Then every hour for 4 hours
9. Institute additional BP monitoring per specific order

- Notify provider after one severe BP value is obtained
- Institute fetal surveillance if viable
- Capsules should be administered orally and not punctured or otherwise administered sublingually
- There may be adverse effects and contraindications. Clinical judgement should prevail.

* Two severe readings more than 15 minutes and less than 60 minutes apart

§ Oral nifedipine has been associated with an increase in maternal heart rate and may overshoot hypotension.

† **Avoid parenteral labetalol with active‡ asthma, heart disease, or congestive heart failure; use with caution with history of asthma. May cause neonatal bradycardia.**

‡ "Active asthma" is defined as:
- Ⓐ symptoms at least once a week, or
- Ⓑ use of an inhaler, corticosteroids for asthma during the pregnancy, or
- Ⓒ any history of intubation or hospitalization for asthma.

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