MACON & JOAN BROCK VIRGINIA HEALTH SCIENCES
Eastern Virginia Medical School
AT OLD DOMINION UNIVERSITY

Postpartum Hypertension: Models of Management

Hypertension Management can be dynamic

Management of hypertension in the antepartum period

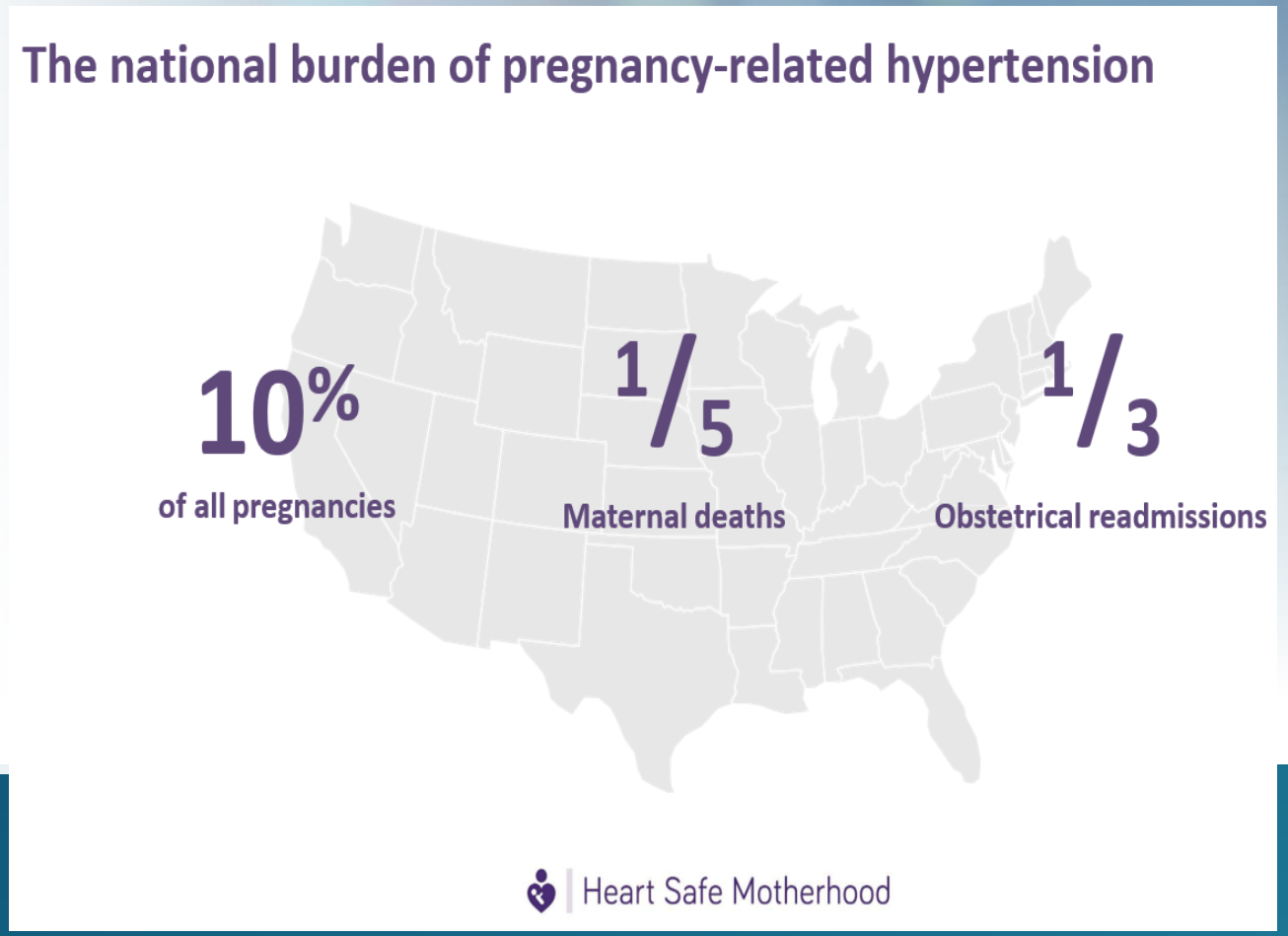
Intrapartum management of hypertensive disorders of pregnancy

Postpartum management

Long-term follow up

The Problem

- Hypertension is one of **leading causes of post-partum hospitalizations** within 2 weeks following delivery and discharge home
- Attendance rates for postpartum care visits are low (~40%)
- **Home blood pressure monitoring programs** have shown efficacy in increasing patient engagement and reducing racial disparities in BP care engagement



36 yo patient with gestational hypertension is delivered at 37 week's for a nonreassuring BPP

Uncomplicated vaginal delivery

Highest BP was 170/90, not treated.

Postpartum Day 1: BP 130-160/70-100
Postpartum Day 2: BP 120-150/70-80

What is the diagnosis?

Different flavors of hypertension

New onset postpartum

Unmasking of chronic hypertension

Preeclampsia

What is the recommended management?

Questions

Do you start antihypertensive medication?

When do you stop the antihypertensive medication?

What is the role of magnesium?

Are any other tests warranted?

What is the counseling of that patient?

Blood Pressure Categories

American Heart Association | American Stroke Association

BLOOD PRESSURE CATEGORY	SYSTOLIC mm Hg (upper number)		DIASTOLIC mm Hg (lower number)
NORMAL	LESS THAN 120	and	LESS THAN 80
ELEVATED	120 – 129	and	LESS THAN 80
HIGH BLOOD PRESSURE (HYPERTENSION) STAGE 1	130 – 139	or	80 – 89
HIGH BLOOD PRESSURE (HYPERTENSION) STAGE 2	140 OR HIGHER	or	90 OR HIGHER
HYPERTENSIVE CRISIS (consult your doctor immediately)	HIGHER THAN 180	and/or	HIGHER THAN 120

RESEARCH SUMMARY

Treatment for Mild Chronic Hypertension during Pregnancy

Tita AT et al. DOI: 10.1056/NEJMoa2201295

CLINICAL PROBLEM

Chronic hypertension during pregnancy increases risk of poor pregnancy and birth outcomes. Although pharmacologic antihypertensive therapy is standard treatment for severe hypertension during pregnancy, its benefits and safety are unclear for mild chronic hypertension in pregnant women.

CLINICAL TRIAL

Design: A U.S. multicenter, open-label, randomized, controlled trial assessed whether treatment of mild chronic hypertension in pregnant women, as compared with no treatment, would reduce adverse pregnancy outcomes without harming fetal growth.

Intervention: 2408 women with a known or new diagnosis of mild chronic hypertension and a singleton fetus at <23 weeks' gestation were randomly assigned to receive either active treatment with antihypertensive medications approved for pregnancy or standard treatment — i.e., no treatment, unless systolic blood pressure was ≥160 mm Hg or diastolic blood pressure was ≥105 mm Hg. The primary outcome was a composite of preeclampsia with severe features, medically indicated preterm birth at <35 weeks, placental abruption, fetal death, or neonatal death.

RESULTS

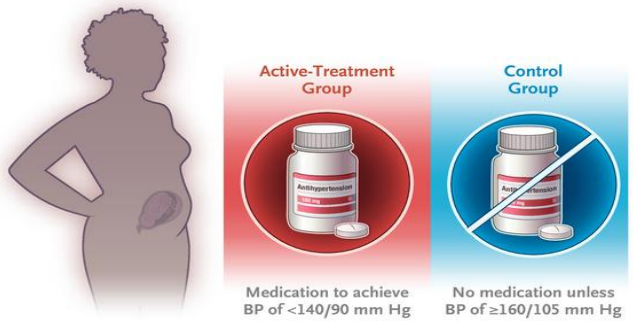
Efficacy: Active treatment of mild chronic hypertension reduced the frequency of primary outcome events.

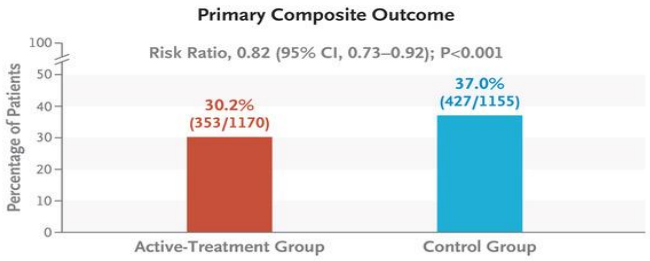
Safety: The percentage of infants who were small for gestational age (<10th percentile) was similar in the active-treatment and control groups.

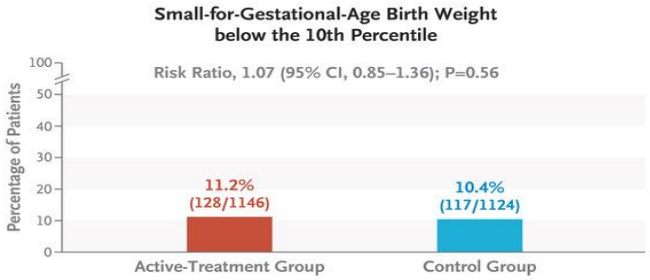
LIMITATIONS AND REMAINING QUESTIONS

- Patients were aware of their treatment group.
- There was a high ratio of women screened to women enrolled (12:1).
- The study was not powered to assess treatment effects across subgroups.

Links: Full Article | NEJM Quick Take | Editorial







CONCLUSIONS

Treating mild chronic hypertension in pregnancy reduced adverse pregnancy outcomes without impairing fetal growth.

What do the guidelines say?

Treatment considerations

What medication should you start?

How do you choose a medication?

How long do you treat?

How do you counsel that patient?

Remember your collaborators

Maternal Fetal Medicine, Sleep Medicine

Requires understanding of pregnancy physiology

Conversations and partnerships before you need them

Chronic hypertension screening

- Cardiometabolic conditions
- Sleep apnea

Patient 1

- Patient presents PPD6
- BP now 160/105, repeat 158/110

- She complains of a headache and feeling unwell

- What are the next steps in management?

Labs

Platelets: 130k

AST/ALT: 28/32

Urine protein/creatinine ratio: 0.1

Diagnosis: Preeclampsia
Proteinuria not required

Recommendation: Delivery

Management

Hospital Admission?

Antihypertensive medication?

Magnesium?

Imaging?

Long term treatment?

Patient 2

37 yo G1 P1 presents for 6 week follow up.

You notice her mild increase in BP today -142/80
Denies previous hypertension

She sees her primary care yearly and is always 111/60-70. This is verified on record review.

She states she is stressed by her appointment and the rush to get in.

On recheck her blood pressure is 115/65.

What is the diagnosis?

How do you counsel her?

White Coat Hypertension

Caused by anxiety, stress, and the unfamiliar environment of a doctor's office

Diagnosis:

Two or more blood pressure readings of 140/90 mmHg or higher in the healthcare setting
But has normal blood pressure readings at home

Not a benign condition

Increased risk of preeclampsia and fetal growth restriction

Let’s talk immediate postpartum.

Guidelines on Postpartum Hypertension

ACOG Guidelines:

- **Initiate** drug therapy for **persistent** postpartum HTN:

Definition: SBP ≥ 150 or DBP ≥ 100 on at least two occasions at least 4 hours apart

- No specific postpartum BP goal or choice of drug therapy has been defined

ACC/AHA guidelines:

- **No specific guidelines for pregnancy or post partum management of HTN**
- **BP goal <130/80 mm Hg in all adult patients** with initiation of drug therapy based on history of CV event and/or ASCVD 10-year risk

Inpatient Management of Post-Partum Hypertension

SBP ≥140 or **DBP ≥90** mm Hg
>2 BP checks at least 4 hours apart

OR

SBP≥160 or **DBP≥110 mm Hg**
Single BP check

Repeat BP in 15 min, if remains in severe range

Initiate IV HTN Treatment as per protocol

Assess for Symptoms + Laboratory Evaluation for Pre-Eclampsia

If repeat BP in 15 minutes **NOT** in severe range

Initiate Oral Anti-Hypertensive Therapy Titrated to SBP <140/<90 mm Hg

Management of Post-Partum Hypertension

If already on HTN treatment

- Up titrate existent agent/s to maximum doses as tolerated
- Consider restarting pre-pregnancy anti-hypertensives after confirming patient's plans for feeding and medication's compatibility with lactation

New or refractory post-partum HTN

Nifedipine 30 mg XR QD
- Up to 120 mg/day, QD dosing preferred

→

Labetalol 200 mg BID
- Up to 2,400 mg/day, BID dosing preferred

→

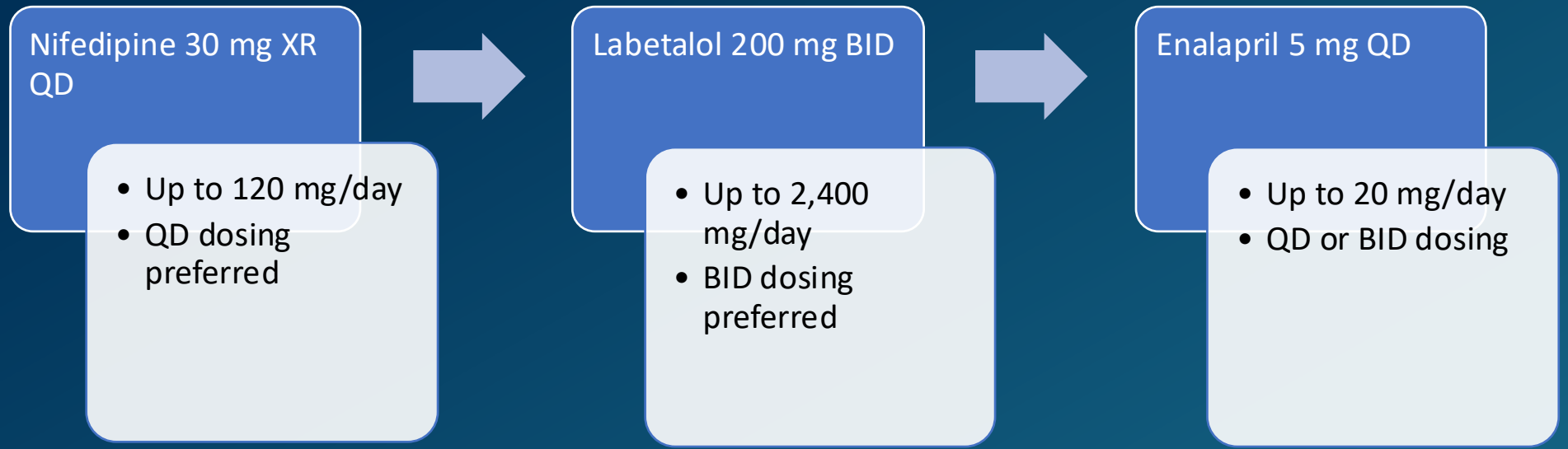
Enalapril 5 mg QD
- Up to 20 mg/day, QD or BID dosing

Presence of Heart Failure

Pre-eclampsia with severe features + signs/symptoms of *clinical heart failure* → Check BNP + TTE → Consider lasix 20 mg PO daily x 5 days

Medication Initiation & Titration

Starting Dose:



1. Start 30 mg XR daily
2. Increase by 30 mg XR daily as needed up to 120 mg daily
3. May give additional 30 mg XR dose 12 hours after

1. Start 200 mg BID
2. Increase by 100 mg increments daily (i.e. 300 mg BID, followed by 400 mg BID)
3. May give

1. Start 5 mg daily
2. Increase by 5 mg daily as needed up to 20 mg daily
3. May give additional 5 mg

Consider Cardiology Consult:

- Post-partum HTN refractory to >2 medications
- Multiple drug intolerances/allergies to anti-hypertensive agents
- Co-existence of hypertension and heart failure or suspected peripartum cardiomyopathy
- Suspected secondary hypertension (i.e, pheochromocytoma, renal artery stenosis, hyperaldosteronism)
- Underlying structural heart disease (i.e peripartum cardiomyopathy, valvular heart disease) as preferred anti-hypertensive agents may differ in these settings

Discharge Criteria

Watch for 24 hours after initiation/titration of new medication

No severe range BPs (SBP ≥160 or DBP ≥110 mm Hg x 24 hours)

SBP <160 and DBP <110

Discharge

Admission to Discharge Workflow for Post-Partum HTN

Step 1

- Initiate **anti-hypertensive therapy** if appropriate criteria are met and monitor for at least 24 hours after initiation to assess effect/need for titration

Step 2

- Discuss **contraception** and **interconception care** in all patients, particularly with use of teratogenic medications (i.e., ACEis, enalapril)

Step 3

- Educate and counsel regarding the safety of anti-hypertensive medications and **lactation** (nifedipine, labetalol, and enalapril all safe in lactation)

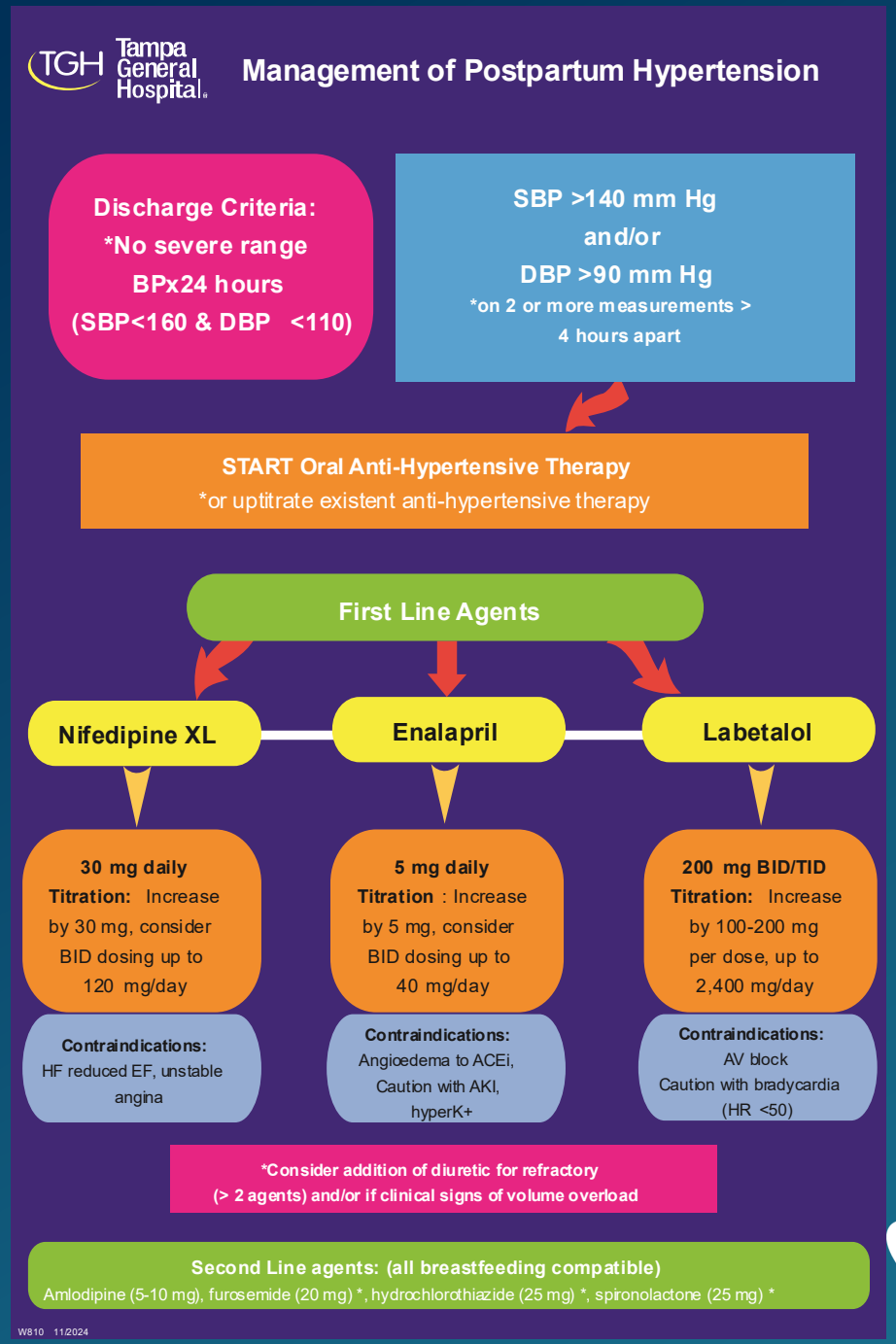
Step 4

- Schedule a **nurse visit** within 3 days post-discharge

Step 5

- **Discharge home** with appropriate **patient education** materials and follow up instructions once discharge criteria are met

Management of Postpartum Hypertension



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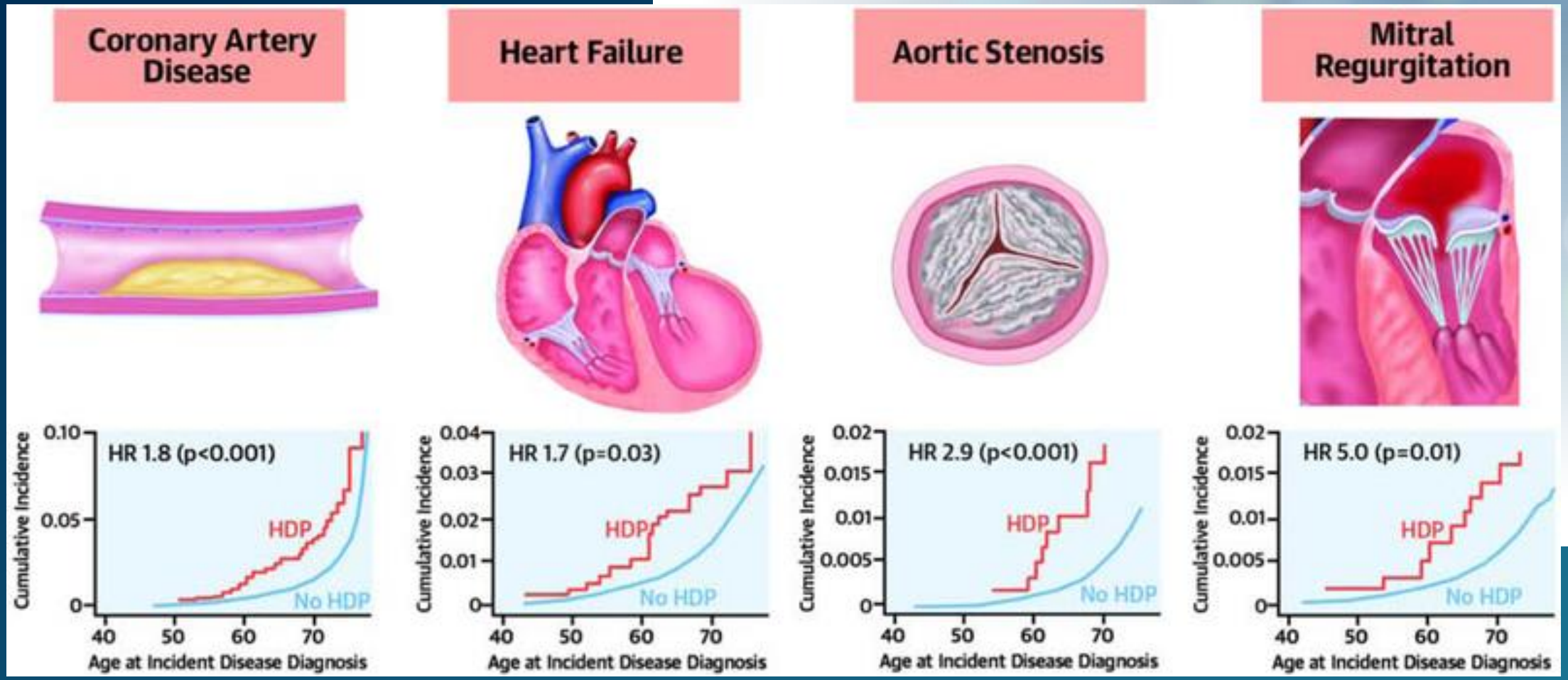
Hypertensive Disorders of Pregnancy are Associated with Higher Lifetime Risk of Cardiovascular Disease



J Am Coll Cardiol. 2019 Dec 3; 74(22): 2743–2754.

Collaborative Efforts: AHA and ACOG

CLINICAL STATEMENTS AND GUIDELINES

Promoting Risk Identification and Reduction of Cardiovascular Disease in Women Through Collaboration With Obstetricians and Gynecologists: A Presidential Advisory From the American Heart Association and the American College of Obstetricians and Gynecologists

Circulation

AHA SCIENTIFIC STATEMENT

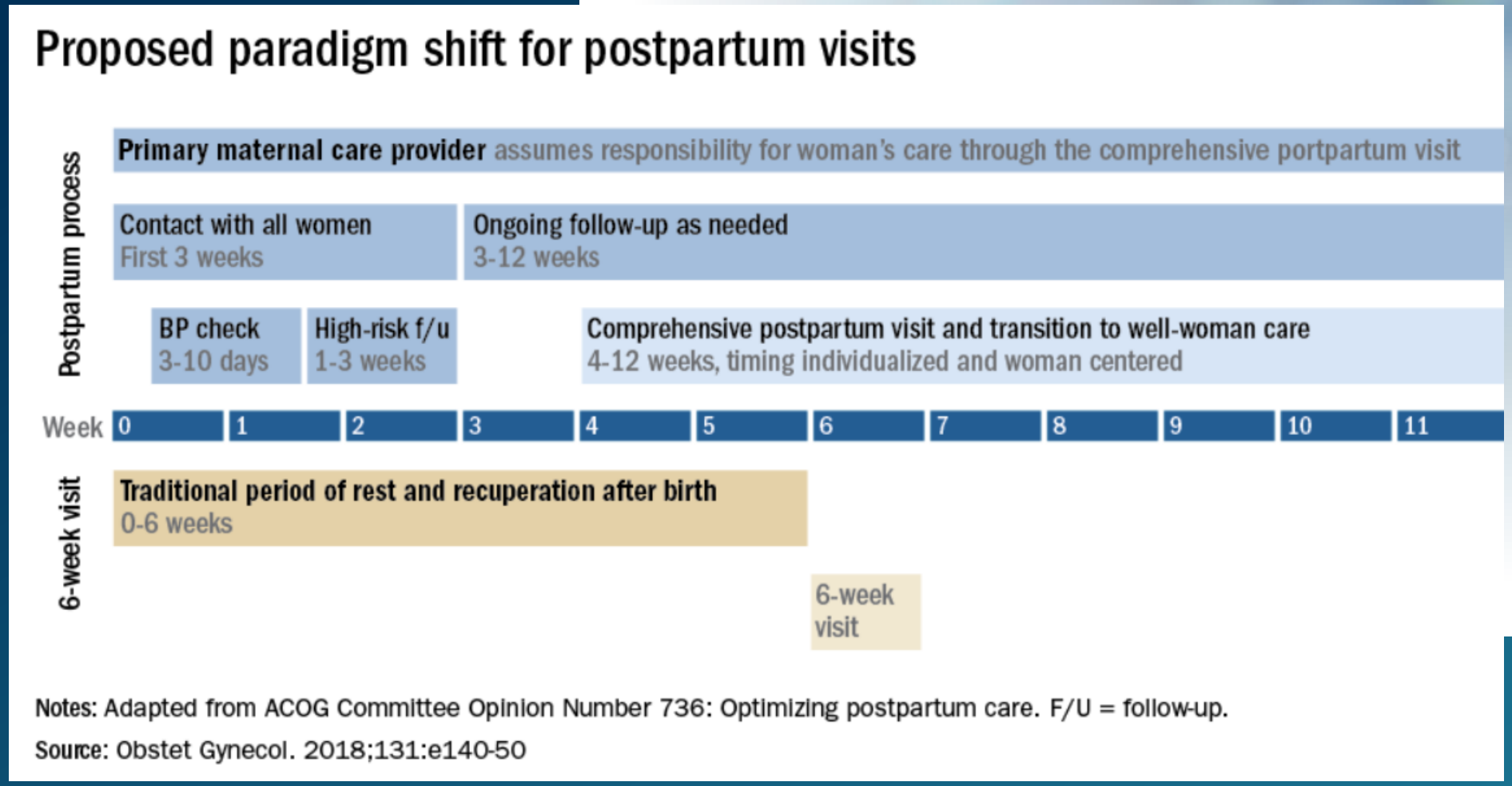
Adverse Pregnancy Outcomes and Cardiovascular Disease Risk: Unique Opportunities for Cardiovascular Disease Prevention in Women

A Scientific Statement From the American Heart Association

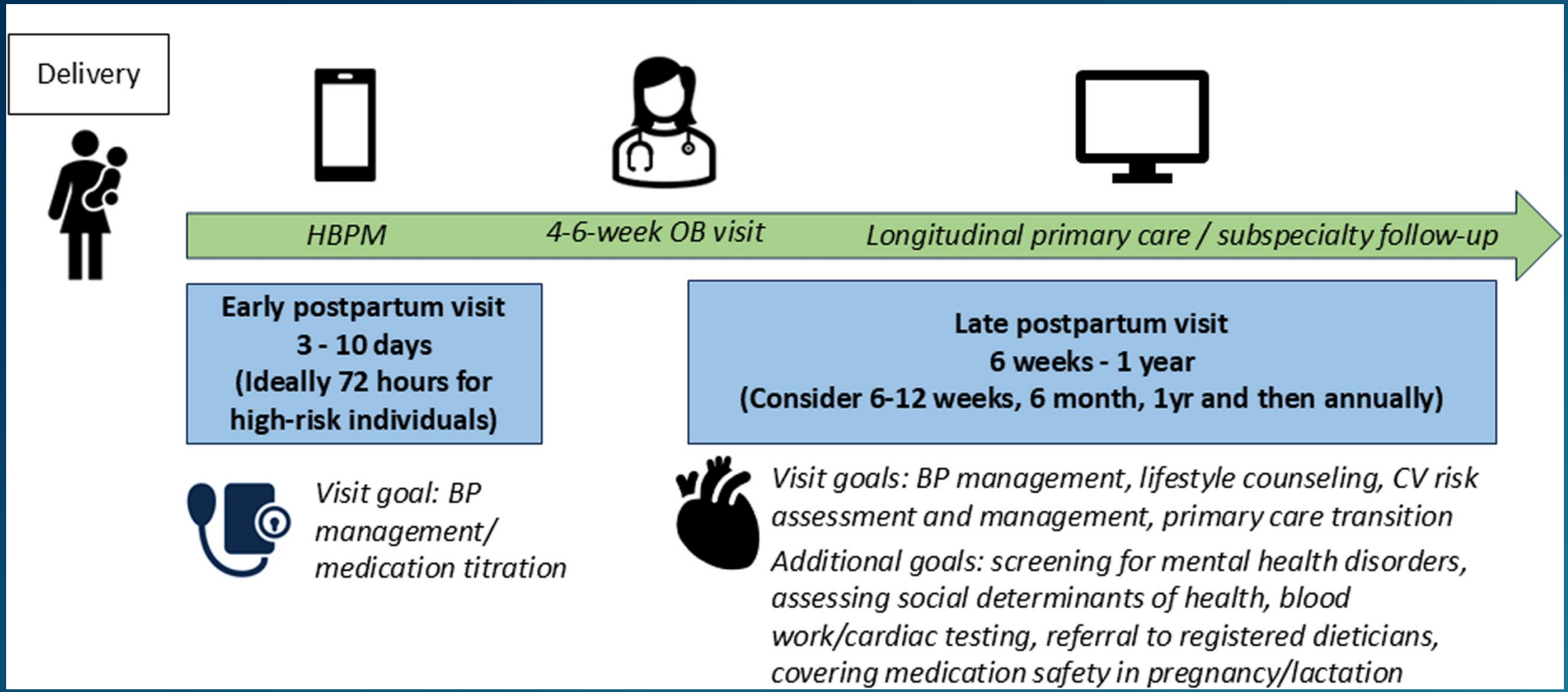
- Early Postpartum Care
- Transitional Clinics
- Home Based Care
- Preventive Care

Circulation. 2018;137:e843–e852 Circulation. 2021;143:e902–e916

Redefining Postpartum Care: The 4th Trimester



Postpartum Trajectory of Care for Women with Hypertensive Disorders of Pregnancy



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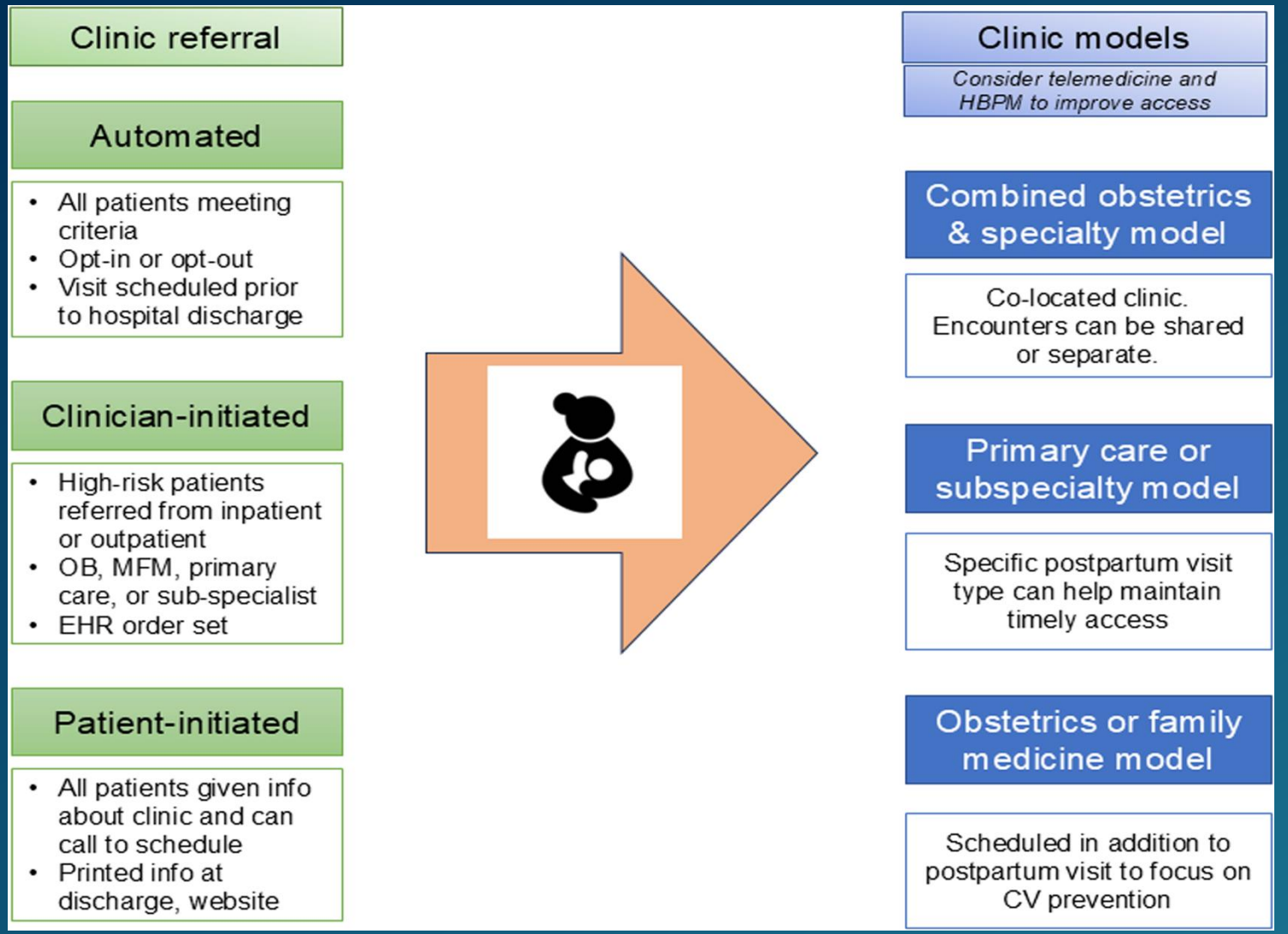
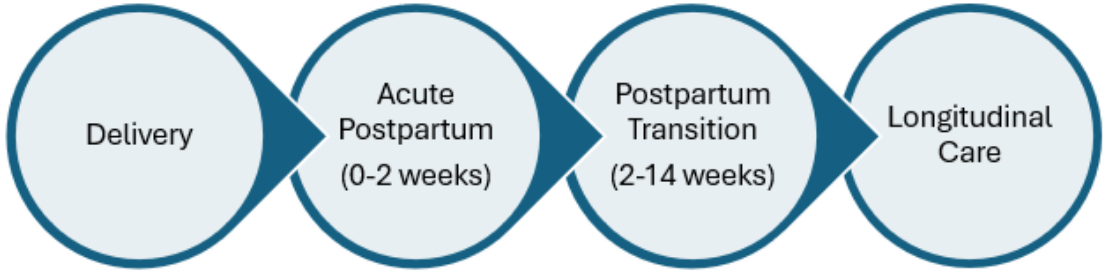
Variation in Postpartum Models of Care



Countouris, Crousillat et al. Circulation. 2025 Feb 18;151(7):490-507.

Healthy Hearts Program @ TGH

Goal: Provide a transitional care platform among under resourced postpartum individuals with HDP to improve patient engagement and reduce blood pressure-related morbidity and mortality



Postpartum individuals with pregnancy complicated by HDP

- Routine Postpartum Care*
- Nurse Navigated Patient Centered Care Coordination
- Patient-Centered Education & BP Management
- Early Engagement with Longitudinal Primary Care
- Virtual Home BP Monitoring
- CVD Risk Stratification & Optimization

Increased patient engagement

Reduction in postpartum BP-related complications

Maximization of maternal-fetal bonding
Early identification and treatment of BP related complications
Increased accessibility through innovative care delivery

Take aways

Proteinuria is not needed to diagnose preeclampsia

BP goal postpartum is <120/80

Despite appropriate treatment postpartum, new onset hypertension will occur

Long term cardiovascular care is indicated

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