GaPQC

GEORGIA PERINATAL QUALITY COLLABORATIVE

Maternal Webinar Series:

"Hypertension in Pregnancy: The Short and Long-Term Implications for Women"

December 3, 2024

Maternal Updates

- Next GaPQC Maternal Webinar Tuesday, January 7th at 2:00 PM EST

  Dr. Kathryn L. Berlacher – guest speaker – "4th Trimester Care for High-Risk Patients and Telemedicine to Reduce Re-admissions"

- Data

  Q1 Jan – March – submission due by April 30th
  Q2 April – June – submission due by July 31st
  Q3 July –Sept. – submission due by October 31st
  Q4 Oct. – Dec. – submission due by January 31st

- Hypertension will be going into sustainability in the Spring 2025.

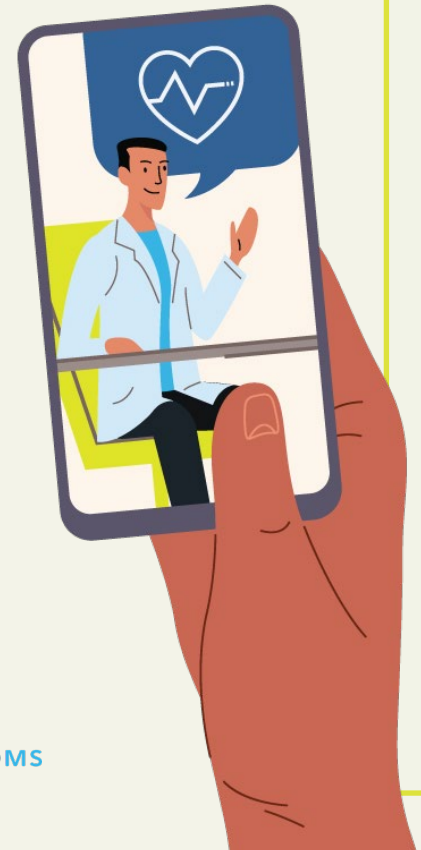
- **2025 GaPQC Annual Conference** – Mark Your Calendar & SAVE THE DATE

  Thursday and Friday, April 24th & 25th 2025– Emory Conference Center

VIDEO CONTEST

GAPQC is reaching out to residency programs and birthing partners to help socialize Cardiovascular Disease Screening in pregnancy and up to 1 year postpartum.

- **All participants are welcome (residents, midwives, nurses, doulas, etc.)**
- **Create a 15 second to 1 minute TikTok/Instagram Reel/story, educating about CVD screening in pregnancy and postpartum.**
- **Videos should be directed to either patients or physicians.**



GaPQC
GEORGIA PERINATAL QUALITY COLLABORATIVE

HOPE FOR GEORGIA MOMS

FOR PATIENTS

Using the "PEACH Card" (CVD warning signs) and/or "Heart Emergency Card"

- The **"PEACH card"** educates patients on the warning signs of possible cardiovascular emergencies that can happen during pregnancy or postpartum.
- The **"Heart Emergency Card"** educates patients on what to tell providers (in Emergency departments, urgent care, offices) when they are experiencing symptoms of possible cardiovascular emergencies.

The video should highlight that this can happen during pregnancy and even up to one year postpartum.

If desired, a link to the magnets/cards can be provided (**https://georgiapqc.org/cardiac-education**), and/or this link to more information can be included:

https://saferbirth.org/aim-resources/aim-cornerstones/urgent-maternal-warning-signs-2/

FOR PROVIDERS

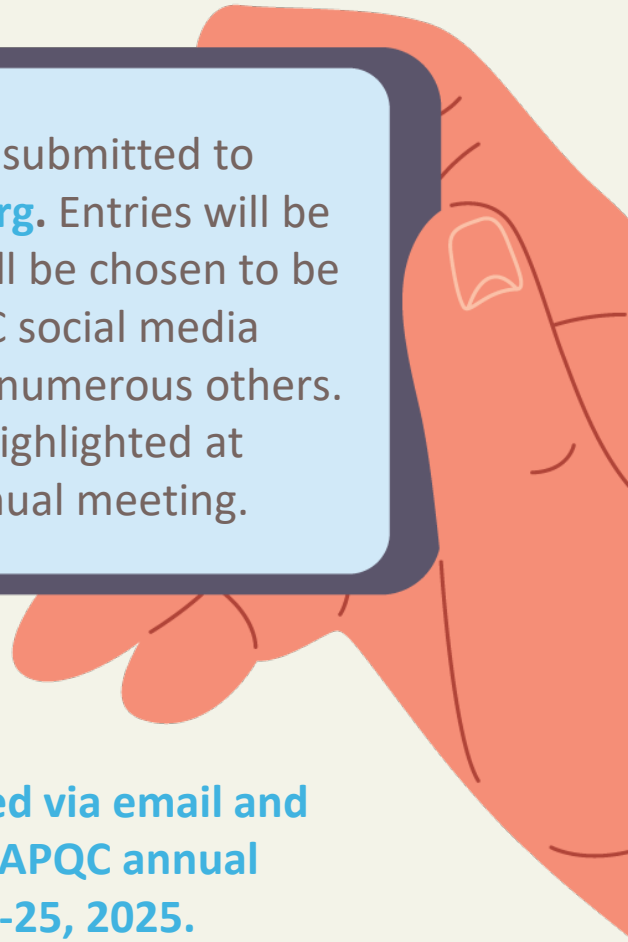
Using the CVD in Pregnancy & Postpartum Algorithm this video should:

- Remind providers that the majority of cardiac events are occurring in the postpartum period.
- Remind providers to ask about current or recent pregnancy.
- Educate providers on when to suspect CVD emergencies and what first tests to order if a CVD emergency is suspected.
- Provide a link to the CVD in Pregnancy & Postpartum Algorithm:

  https://www.acog.org/-/media/project/acog/acogorg/files/pdfs/programs/ob-emergencies/cardiovascular-disease-in-pregnancy-and-postpartum_algorithm.pdf

DEADLINE FOR SUBMISSION IS APRIL 18

All entries should be submitted to **Teresa.Byrd@wellstar.org**. Entries will be reviewed and winners will be chosen to be advertised on GAPQC social media platforms and tagged on numerous others. Videos will also be highlighted at conferences and annual meeting.



Winners will be notified via email and announced at the GAPQC annual meeting April 24-25, 2025.

GaPQC GEORGIA PERINATAL QUALITY COLLABORATIVE

HOPE FOR GEORGIA MOMS

To Register:
Northside.com/HOTM2025

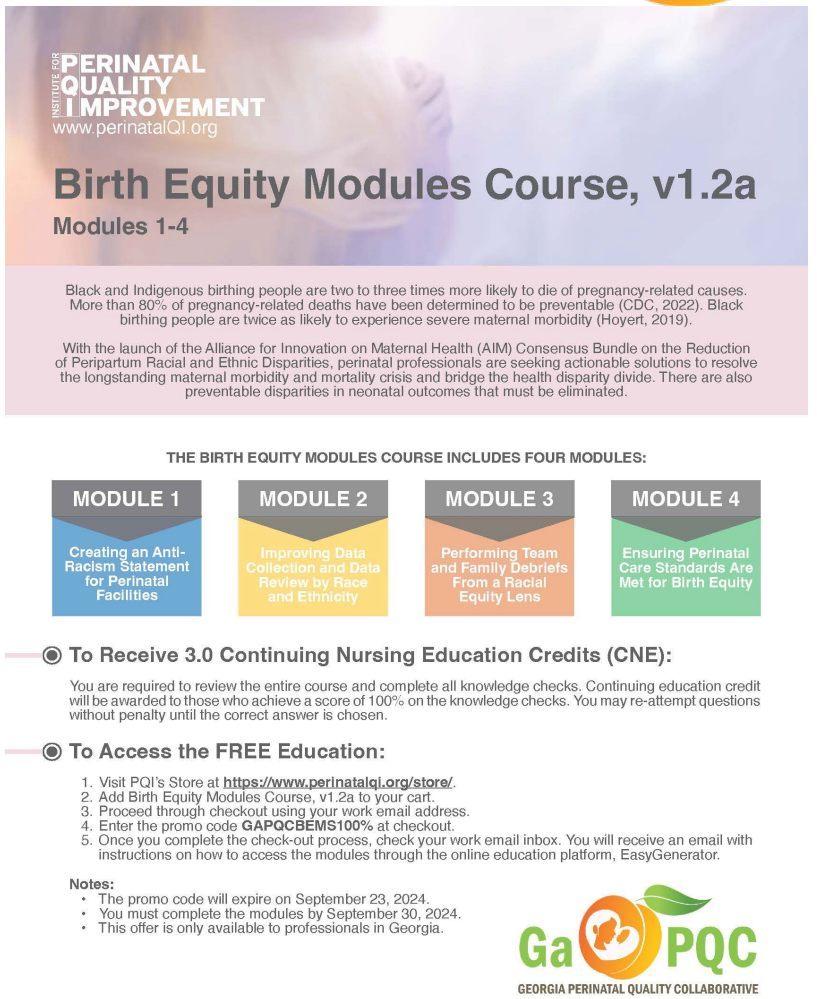

GEORGIA PERINATAL QUALITY COLLABORATIVE
GaPQC
THE FOURTH TRIMESTER:
The Forgotten Phase
2025 ANNUAL MEETING
APRIL 24 & 25, 2025
EMORY CONFERENCE
CENTER HOTEL
1615 CLIFTON RD
ATLANTA, GEORGIA
THE "FORGET ME NOT" FLOWER HONORS THOSE IMPACTED BY PREGNANCY AND
REPRODUCTIVE LOSS AND RAISES AWARENESS FOR THE MILLIONS OF PEOPLE IMPACTED.

INSTITUTE FOR PERINATAL QUALITY IMPROVEMENT

THE BIRTH EQUITY MODULES COURSE INCLUDES FOUR MODULES:

MODULE 1	MODULE 2	MODULE 3	MODULE 4
Creating an Anti-Racism Statement for Perinatal Facilities	Improving Data Collection and Data Review by Race and Ethnicity	Performing Team and Family Debriefs From a Racial Equity Lens	Ensuring Perinatal Care Standards Are Met for Birth Equity

Please complete ALL Modules ASAP



INSTITUTE FOR PERINATAL QUALITY IMPROVEMENT
www.perinatalQI.org

Birth Equity Modules Course, v1.2a

Modules 1-4

Black and Indigenous birthing people are two to three times more likely to die of pregnancy-related causes. More than 80% of pregnancy-related deaths have been determined to be preventable (CDC, 2022). Black birthing people are twice as likely to experience severe maternal morbidity (Hoyert, 2019).

With the launch of the Alliance for Innovation on Maternal Health (AIM) Consensus Bundle on the Reduction of Peripartum Racial and Ethnic Disparities, perinatal professionals are seeking actionable solutions to resolve the longstanding maternal morbidity and mortality crisis and bridge the health disparity divide. There are also preventable disparities in neonatal outcomes that must be eliminated.

THE BIRTH EQUITY MODULES COURSE INCLUDES FOUR MODULES:

MODULE 1	MODULE 2	MODULE 3	MODULE 4
Creating an Anti-Racism Statement for Perinatal Facilities	Improving Data Collection and Data Review by Race and Ethnicity	Performing Team and Family Debriefs From a Racial Equity Lens	Ensuring Perinatal Care Standards Are Met for Birth Equity

To Receive 3.0 Continuing Nursing Education Credits (CNE):

You are required to review the entire course and complete all knowledge checks. Continuing education credit will be awarded to those who achieve a score of 100% on the knowledge checks. You may re-attempt questions without penalty until the correct answer is chosen.

To Access the FREE Education:

1. Visit PQI's Store at https://www.perinatalqi.org/store/.
2. Add Birth Equity Modules Course, v1.2a to your cart.
3. Proceed through checkout using your work email address.
4. Enter the promo code **GAPQCBEMS100%** at checkout.
5. Once you complete the check-out process, check your work email inbox. You will receive an email with instructions on how to access the modules through the online education platform, EasyGenerator.

Notes:

- The promo code will expire on September 23, 2024.
- You must complete the modules by September 30, 2024.
- This offer is only available to professionals in Georgia.

GaPQC
GEORGIA PERINATAL QUALITY COLLABORATIVE

GaPQC
GEORGIA PERINATAL QUALITY COLLABORATIVE

NEEDS YOUR HELP!

CARDIAC CONDITIONS IN OBSTETRICAL CARE

To reduce severe morbidity & mortality related to maternal cardiac conditions in eorgia & support optimal care in pregnancy & postpartum.

WHO WE ARE?

aPQC is a network of perinatal stakeholders working together to improve the quality of care and outcomes for eorgia mothers and babies.

aPQC leads statewide implementation of quality improvement initiatives through technical assistance, quality improvement training, education, and data support to hospitals.

ENROLL TODAY

SUPPORT THE CARDIAC CONDITIONS IN OB CARE INITIATIVE

https://georgiapqc.org/cardiac-conditions

GaPQC's CARDIAC INITIATIVE

Cardiac conditions were the leading cause of pregnancy related deaths in eorgia between the years of 20 20 .

eorgia will be the first state in the country to implement the Alliance for Innovation on Maternal Health s (AIM) Cardiac Conditions in Obstetrical Care patient safety bundle.

The aPQC partners with AIM to support best practices that make birth safer, improve maternal health outcomes and save lives.

https://www.georgiapqc.org

gapqc@dph.ga.gov

Cardiac Conditions in Obstetrical Care

Enrollment Form

GaPQC
GEORGIA PERINATAL QUALITY COLLABORATIVE

Hospital Name*

Indicate your level of participation :

☐ **Learning Collaborative**
Please provide your contact information

Name	Email	Phone	Credentials

☐ **Active Improvement Team**
Please complete the rest of the form

Initative Champions	Name	Email	Include on GaPQC Emails	Phone	Credentials
Physician or Advance Practice Provider Champion					
Project Champion					
Data Lead					

Additional Multidisciplinary Champions

Specialty (e.g. Cardiology, Emergency Medicine, Anesthesiology, Labor and Delivery, etc.)	Name	Email	Include on GaPQC Emails	Phone	Credentials

By signing below, I acknowledge my understanding of the goals and expectations of Georgia Perinatal Quality Collaborative and commit to full participation in the mutually agreed upon initiative(s).

Physician or Advance Practice Provider Champion	Signed:		Date:	
	Name:			
Project Champion	Signed:		Date:	
	Name:			

*Please check this box if you would like to join the Learning Collaborative as an individual and not as a representative of a hospital ☐

Email your completed enrollment form to:

Lisa Ehle
Maternal Quality Improvement
Lisa.Ehle@dph.ga.gov

Resources and Opportunities

These sessions will focus on various data-related topics.

Occur every other month starting January 2025

2025 AIM Data Lunch & Learns

Topic	Month
Which Data Collection Platform Fits Your Needs? An Overview of QI Data Collection Platforms	January 2025
Uploading Your Data to the AIM Data Center	March 2025
Visualizing Your Patient Safety Bundle Implementation Data: Practical Tips for REDCap, Excel, and Tableau	May 2025
Severe Obstetric Complications: What You Need to Know About PC-07	July 2025

More Information coming soon!

MOMMAS Voices
Maternal Mortality & Morbidity Advocates

AIM
ALLIANCE FOR INNOVATION ON MATERNAL HEALTH

Lived Experience Integration into QI Community of Learning

The Lived Experience Integration into Quality Improvement (QI) Community of Learning (COL) offers guidance for QI teams on how to effectively build a patient engagement culture, and perform work that integrates patients and those with lived experience into Patient Support Bundle implementation and QI work.

Topics Include

- Our Philosophy
- Culture Change
- Get Prepared
- Recruiting Patients
- Onboarding
- Feedback Tools
- Reporting & Data

Cohort	Session Dates
Cohort 1 (PQCs)	Sept 3 - Sept 24
Cohort 2 (Hospitals)	Oct 7 - Oct 28
Cohort 3 (PQCs)	Jan 14 - Feb 4
Cohort 4 (Hospitals)	Feb 25 - March 18

Register for one of our fall 2024 cohorts today!

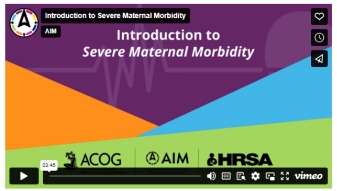
www.mommasvoices.org/col

AIM

https://saferbirth.org/severe-maternal-morbidity/

SEVERE MATERNAL MORBIDITY

Severe maternal morbidity (SMM) is defined as unexpected outcomes during the delivery hospitalization that result in significant short- and long-term consequences to a person's health (CDC). AIM has developed and curated resources to support understanding of SMM and how it informs quality improvement and perinatal care.



QUICK LINKS

SMM CODES LIST & RESOURCES

- SMM Codes List
- SMM Flagging Tables
- Guide to Implementing SMM Algorithm
- Federally Available Resource Data (FAD) Resource Document (External)
- Healthcare Cost and Utilization Project (HCUP) Fast Stats (External)

Key Driver Diagram: Maternal Cardiac Conditions

GOAL:

To reduce severe morbidity & mortality related to maternal cardiac conditions in Georgia.

SMART AIM:

By 02/6/2026, National Wear Red Day, to reduce harm related to existing and pregnancy related cardiac conditions through the 4th trimester by 20%.

Key Drivers

Readiness: EVERY UNIT - Implementation of standard processes for optimal care of cardiac conditions in pregnancy and post-partum.

Recognition & Prevention: EVERY PATIENT - Screening and early diagnosis of cardiac conditions in pregnancy and post-partum.

Response: EVERY UNIT - Care management for every pregnant or postpartum woman with cardiac conditions in pregnancy and post-partum.

Reporting/System Learning: EVERY UNIT - Foster a culture of safety and improvement for care of women with cardiac conditions in pregnancy and post-partum.

Respectful, Equitable, and Supportive Care — EVERY UNIT/PROVIDER/TEAM MEMBER - Inclusion of the patient as part of the multidisciplinary care team.

INTERVENTIONS

- ❑ Train all obstetric care providers to perform a basic Cardiac Conditions Screen.
- ❑ Establish a protocol for rapid identification of potential pregnancy-related cardiac conditions in all practice settings to which pregnant and postpartum people may present.
- ❑ Develop a patient education plan based on the pregnant and postpartum person's risk of cardiac conditions.
- ❑ **Establish a multidisciplinary "Pregnancy Heart Team" or consultants appropriate to their facility's designated Maternal Level of Care to design coordinated clinical pathways for people experiencing cardiac conditions in pregnancy and the postpartum period.** S1
- ❑ Establish coordination of appropriate consultation, co-management and/or transfer to appropriate level of maternal or newborn care.
- ❑ Develop trauma-informed protocols and training to address health care team member biases to enhance quality of care
- ❑ Develop and maintain a set of referral resources and communication pathways between obstetric providers, community-based organizations, and state and public health agencies to enhance quality of care. *

- ❑ Obtain a focused pregnancy and cardiac history in all care settings, including emergency department, urgent care, and primary care.
- ❑ **In all care environments assess and document if a patient presenting is pregnant or has been pregnant within the past year.** S2
- ❑ Assess if escalating warning signs for an imminent cardiac event are present.
- ❑ Utilize standardized cardiac risk assessment tools to identify and stratify risk.
- ❑ Conduct a risk-appropriate work-up for cardiac conditions to establish diagnosis and implement the initial management plan.

- ❑ Facility-wide standard protocols with checklists and escalation policies for management of **cardiac symptoms**.
- ❑ Facility-wide standard protocols with checklists and escalation policies for management of people **with known or suspected cardiac conditions.**
- ❑ Coordinate transitions of care including the discharge from the birthing facility to home and transition from postpartum care to ongoing primary and specialty care.
- ❑ Offer reproductive life planning discussions and resources, including access to a full range of contraceptive options in accordance with safe therapeutic regimens. *
- ❑ **Provide patient education focused on general life-threatening postpartum complications and early warning signs, including instructions of who to notify if they have concerns, and time and date of a scheduled postpartum visit**.

- ❑ For pregnant and postpartum people at high risk for a cardiac event, establish a culture of multidisciplinary planning, admission huddles and post-event debriefs.
- ❑ **Perform multidisciplinary reviews of serious complications (e.g. ICU admissions for other than observation) to identify systems issues.** S4
- ❑ Monitor outcomes and process data related to cardiac conditions, with disaggregation by race and ethnicity due to known disparities in rates of cardiac conditions experienced by Black and Indigenous pregnant and postpartum people. **Process Measures – 1-5**

- ❑ Screen for structural and social drivers of health that might impact clinical recommendations or treatment plans and provide linkage to resources that align with the pregnant or postpartum person's health literacy, cultural needs, and language proficiency.
- ❑ Engage in open, transparent, and empathetic communication with pregnant and postpartum people and their identified support network to understand diagnoses, options, and treatment plans.
- ❑ **Include each pregnant or postpartum person and their identified support network as respected members of and contributors to the multidisciplinary care team.** *S5

Monika Sanghavi, MD, FACC

Associate Professor of Medicine – Division of Cardiology

University of Pennsylvania

Penn Medicine

Hypertension in Pregnancy:
The Short and Long-Term Implications for Women

Georgia Perinatal Quality Collaborative

December 3, 2024

Monika Sanghavi, MD
Associate Professor of Medicine, Division of Cardiology
Director Women's CV Health Program at Pennsylvania Hospital
Associate Program Director, Cardiovascular Disease Fellowship
University of Pennsylvania

@MonSangh

Disclosures

None

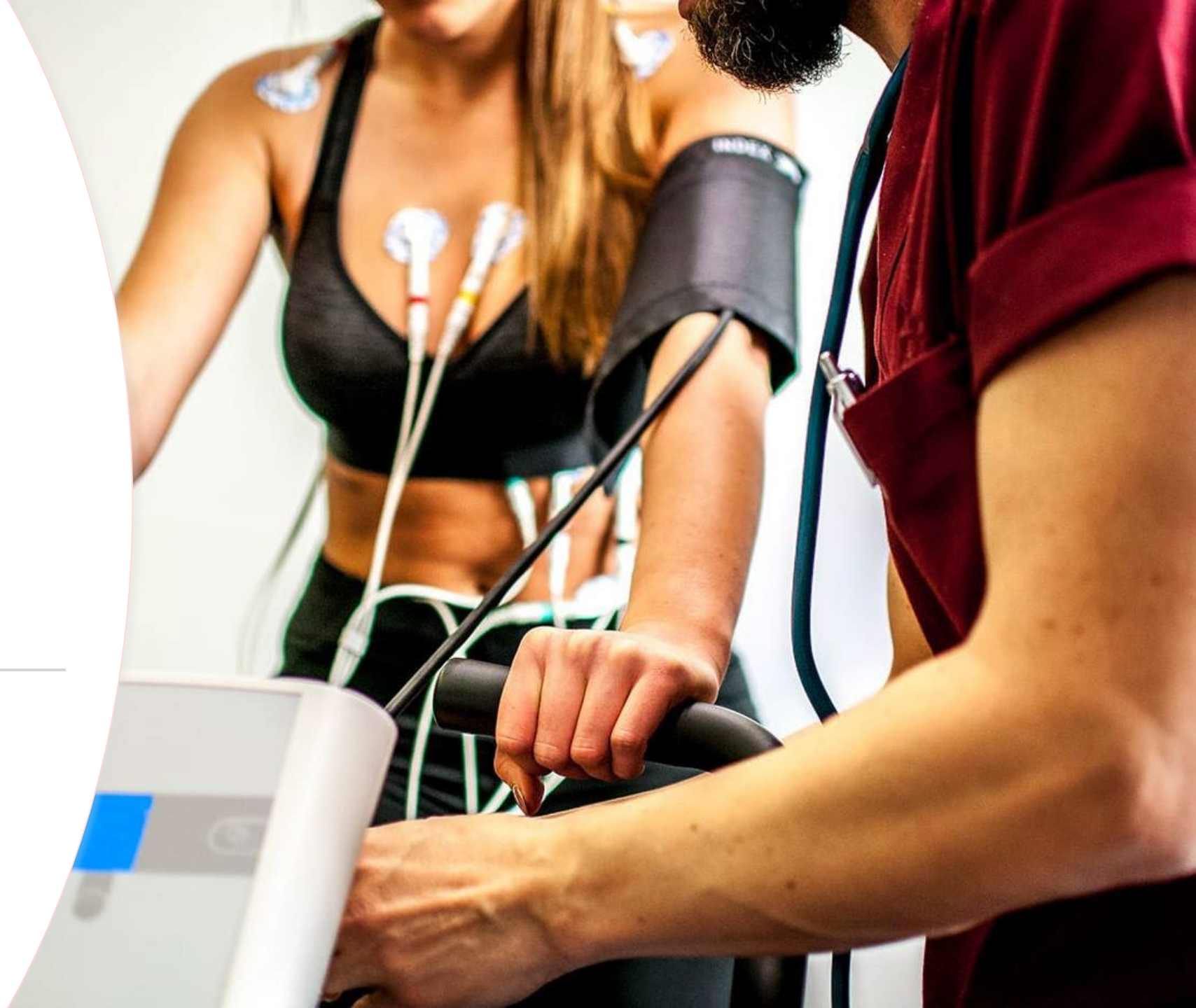
Pregnancy has been an island for too long.

Objectives

Describe	Describe the hemodynamic changes associated with pregnancy
Review	Review the pathophysiology and diagnosis of preeclampsia
Discuss	Discuss management of hypertension in pregnancy
Understand	Understand the short and long-term implications on women’s CV health

Pregnancy is a Landmark Event in a Woman's Life

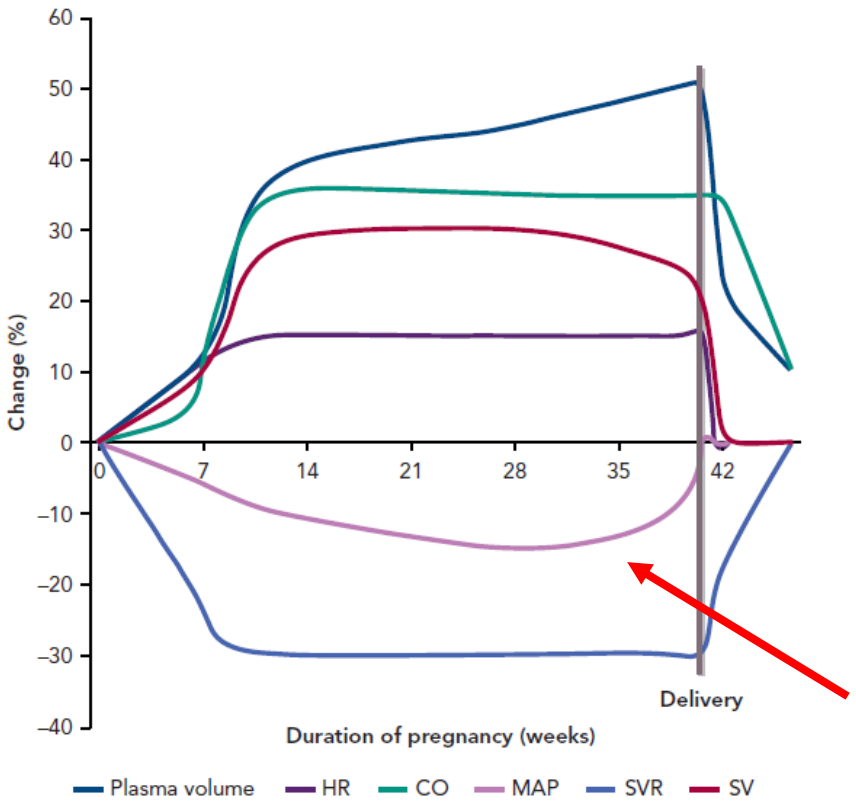
Pregnancy “Nature’s Stress Test for Women”



Significant changes occur: Physical, Hemodynamic, Metabolic

Hemodynamic Changes in Pregnancy

Figure 1: Hemodynamic Changes Throughout Pregnancy



CO = cardiac output; HR = heart rate; MAP = mean arterial pressure; SV = stroke volume; SVR = systemic vascular resistance. Source: Halpern et al.[21] Reproduced with permission from McGraw Hill.

	1st Trimester	2nd Trimester	3rd Trimester	During Labor	Early Postpartum *(<3 Months)*	Late Postpartum *(3-6 Months)*
Cardiac Output	↑	↑	↑	↑	↔	↔
Blood Pressure	↓	↓	↑	↑	↓	↔
Heart Rate	↑	↑	↑	↑	↓	↔
Systemic Vascular Resistance	↓	↓	↓	↓	↑	↔

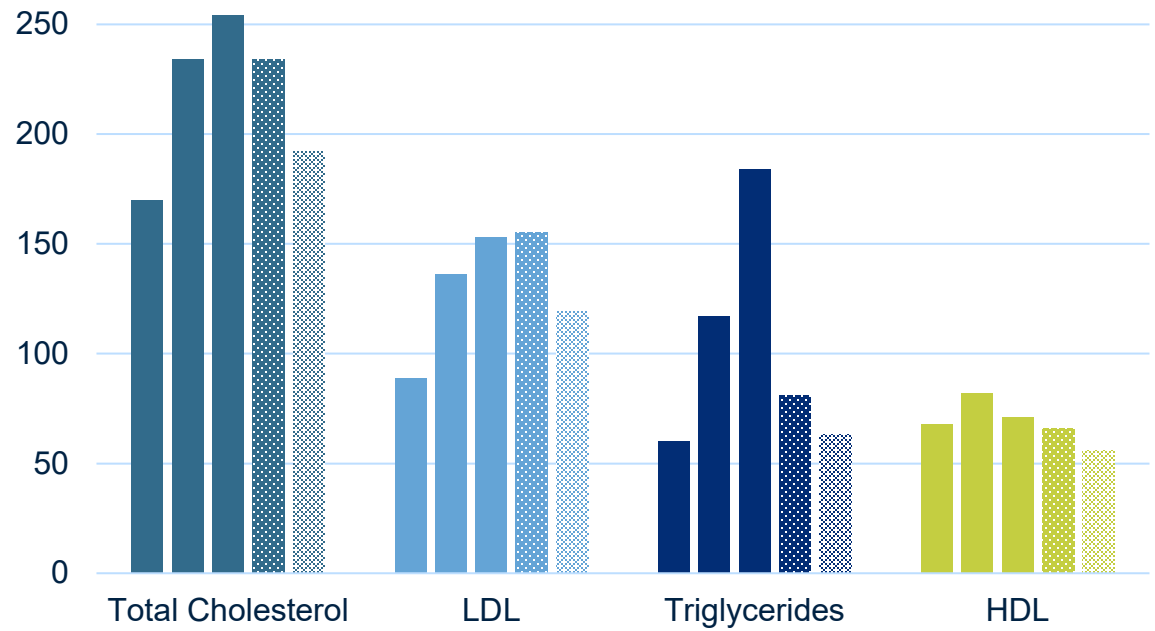
Metabolic Changes in Pregnancy

Early Normal Pregnancy

- Normal hepatic glucose production
- Normal/Slightly improved insulin sensitivity
- Increased insulin secretion to oral glucose (1.5x)
- Normal glucose tolerance

⇒ These early changes favors lipogenesis and fat storage

Cholesterol and Triglyceride values during pregnancy, postpartum, and post-lactation (mg/dL)

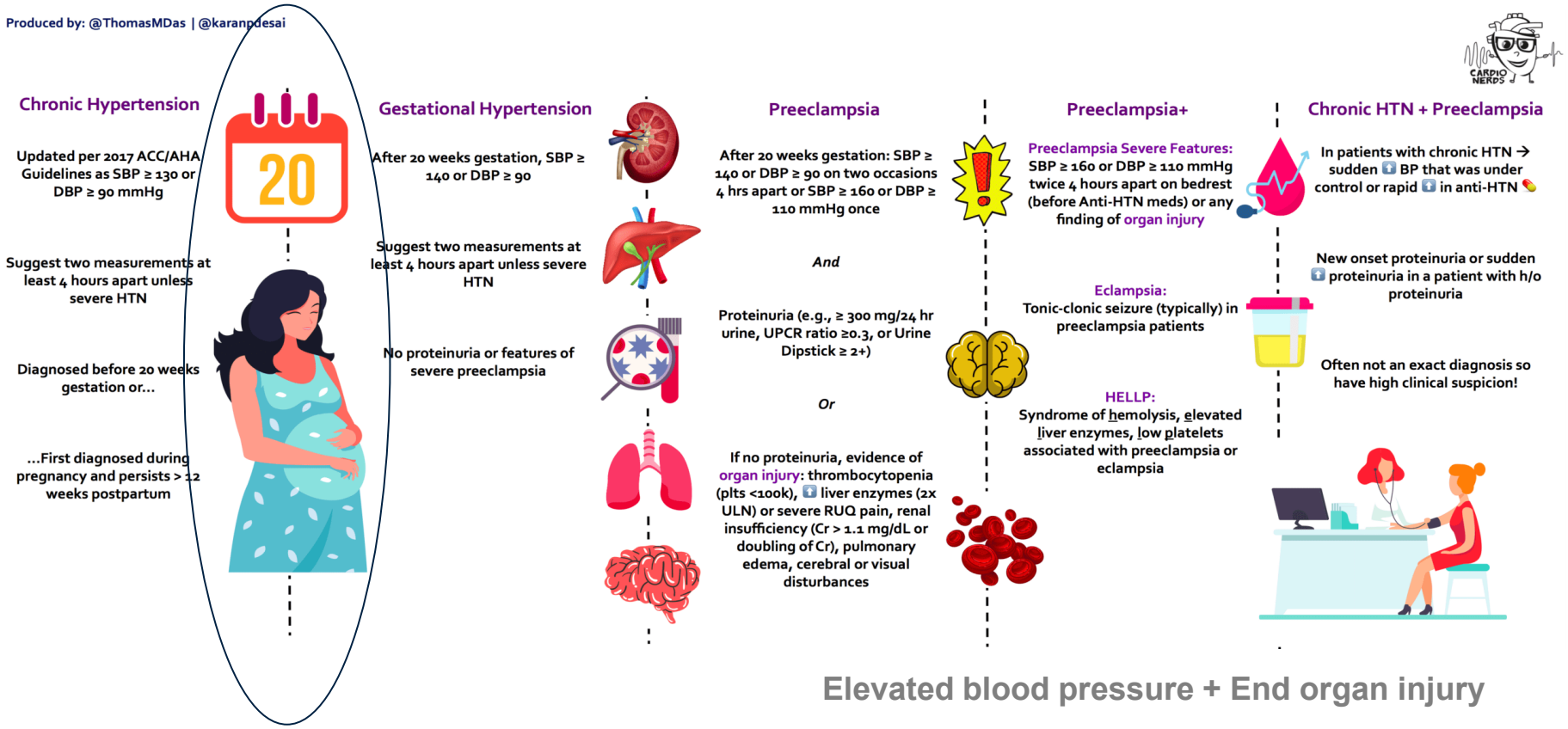


Patient MJ

- 31 year old female G1P1 with no prior medical history recently delivered her baby at 34 weeks due to high blood pressure.
  - She has no prior history and wants to understand why this happened?
  - She wants to know when her blood pressure is going to normalize
  - She wants to grow her family and is scared about the implications for future pregnancies and heart health.

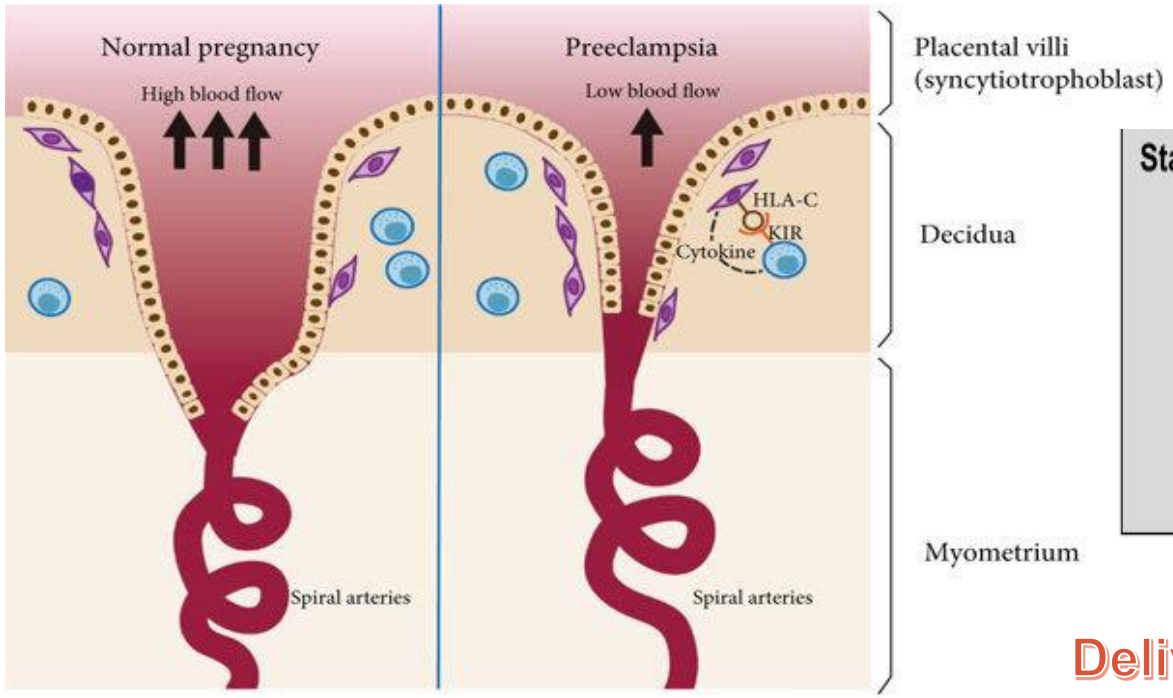
What we learn from a woman's pregnancy has implications for her future health

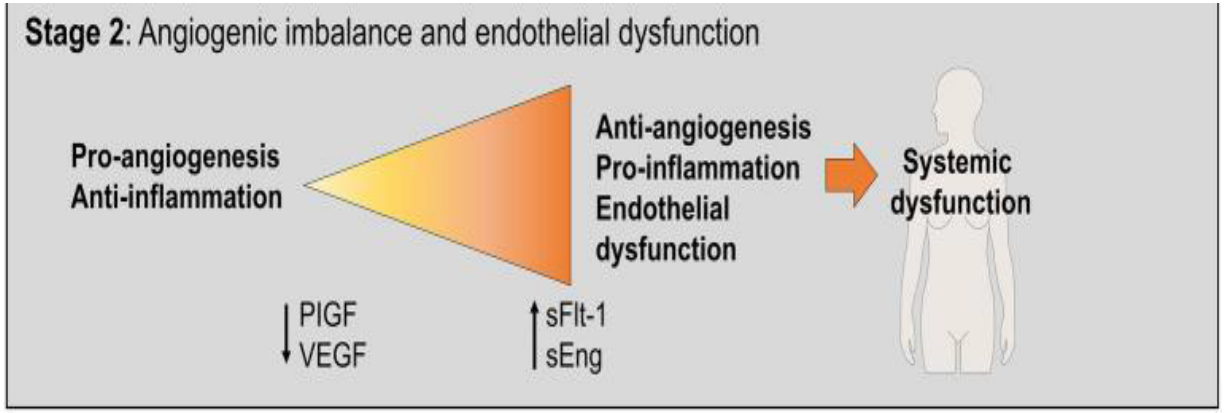
Hypertensive Disorders of Pregnancy



Two Stage Theory of Preeclampsia

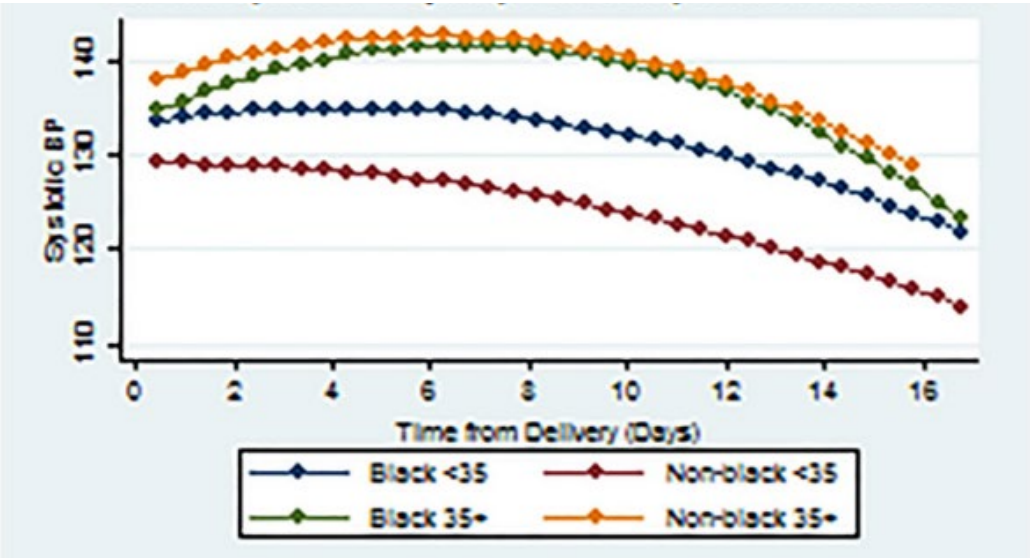
First Stage



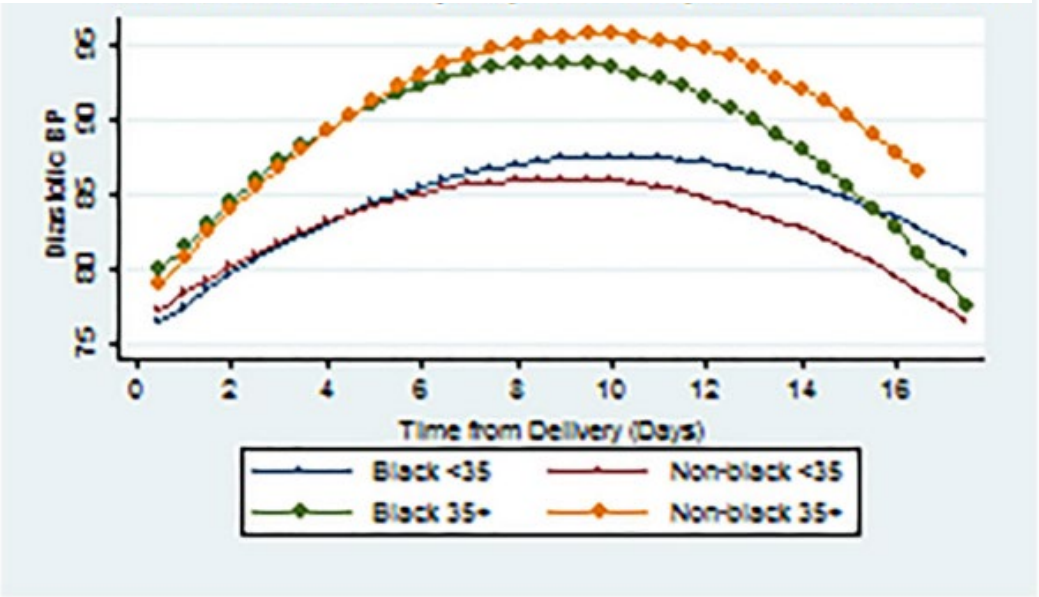


Delivery of placenta is treatment of preeclampsia

Blood Pressure Trajectory Postpartum in Preeclampsia



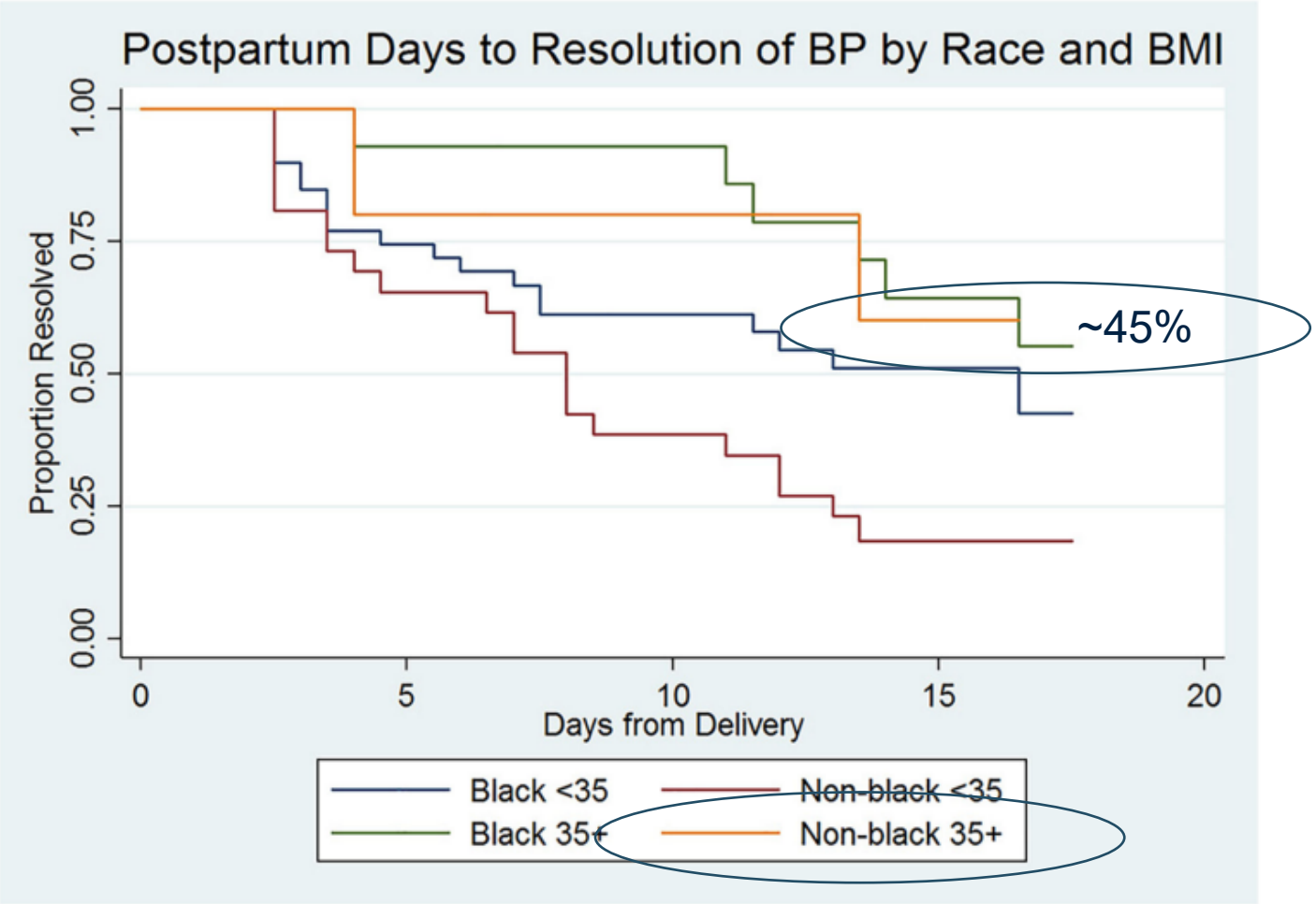
Systolic Blood Pressure
Peaks at ~8 days



Diastolic Blood Pressure
Peaks at ~10 days

Perdigao et al. Pregnancy Hypertension. 2020

Postpartum Blood Pressure Trends



Normalization of BP depends on:
BMI
Race
Presence of chronic HTN
Severity of disease
Use of antihypertensive medications on discharge.

By 12 weeks postpartum,
- ~80% normalize, but at least 20% don't
- Consider diagnosis of chronic HTN

Perdigao et al. Pregnancy Hypertension. 2020

Heart Safe Motherhood
Text-based postpartum BP monitoring program

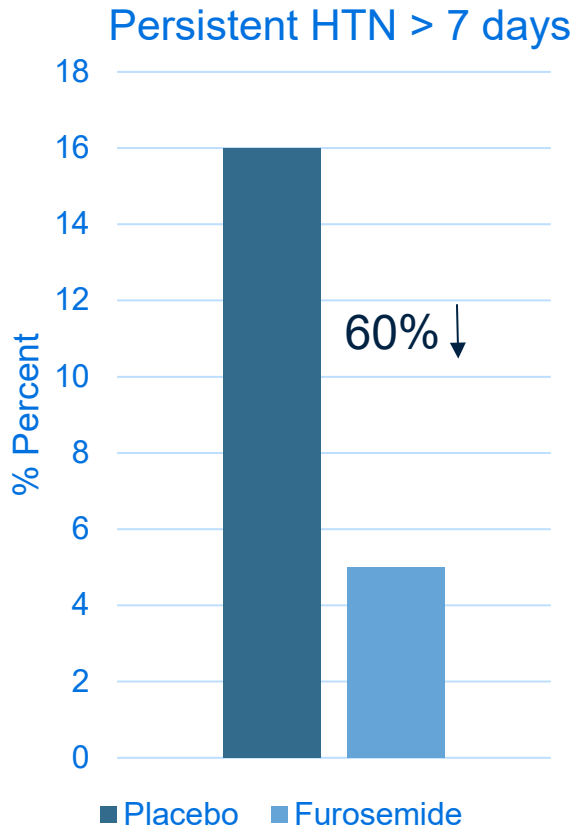
Heart Safe Motherhood

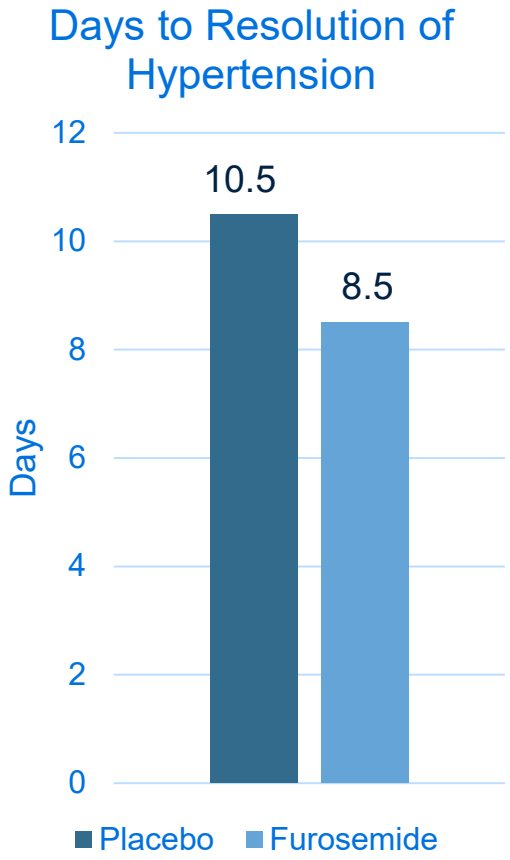
Randomized Controlled Trial Results Summary

	Standard care Office visits, n=103	Intervention Text messaging, n=103	P values
One BP Reading in 10 Days Percent of patients with one blood pressure obtained within 10 days post-discharge	43.7%	92.2%	<0.001
Readmission Rate 7-day readmission rate for postpartum hypertension	3.9%	0.0%	0.04
Postpartum Visit Attendance Percentage of patients attending their six-week postpartum visit	58.2%	68.9%	0.04
ACOG Guideline Adherence Percent of patients meeting ACOG guidelines for postpartum blood pressure monitoring	0%*	84%	
Likelihood to Recommend Median score on Likert scale of 5 (strongly agree) to 1 (strongly disagree)		5 (5-5)	

Delivery/Postpartum

Furosemide for accelerated Recovery of Blood Pressure



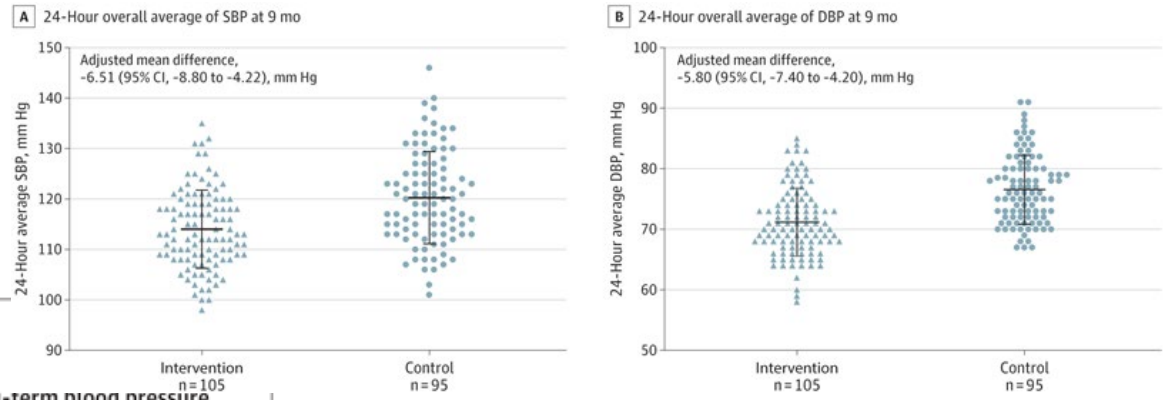


- Postpartum hypertension may be associated with increased fluid shifts
- 384 women
- 5 days of 20mg po Lasix postpartum in women with gestational hypertension and preeclampsia.

Delivery/Postpartum

Perdigao et al. Hypertension. 2021.

POP-HT Trial:



JAMA

QUESTION Does self-monitoring and physician-guided titration of antihypertensive medications provide better long-term blood pressure control among women with gestational hypertension or preeclampsia than usual care at 9 months after discharge?

CONCLUSION Self-monitoring and physician-guided titration of antihypertensive medications vs usual postnatal care was associated with lower blood pressure 9 months after discharge.

POPULATION

220 Participants

Participants (≥18 y) with gestational hypertension or preeclampsia who needed antihypertensive medicine at discharge

Mean age: 32.6 years

LOCATIONS

1 Center in the UK

INTERVENTION

220 Participants randomized
200 Participants analyzed

112 **Self-monitoring**
Self-monitored daily blood pressure readings transmitted via app triggering titration notifications to patients

108 **Standard care**
Blood pressure review within 7 to 10 days with midwife and review within 6 to 8 weeks with general practitioner

PRIMARY OUTCOME

24-Hour mean diastolic blood pressure 9 months after discharge, adjusted for baseline postnatal blood pressure

FINDINGS

24-Hour mean diastolic blood pressure at 9 months

Self-monitoring: 71.2 (SD, 5.8) mm Hg

Standard care: 76.6 (SD, 5.7) mm Hg

Antihypertensive titration vs standard care was associated with lower blood pressure at 9 months:

Between-group difference, −5.8 mm Hg (95% CI, −7.4 to −4.20 mm Hg)

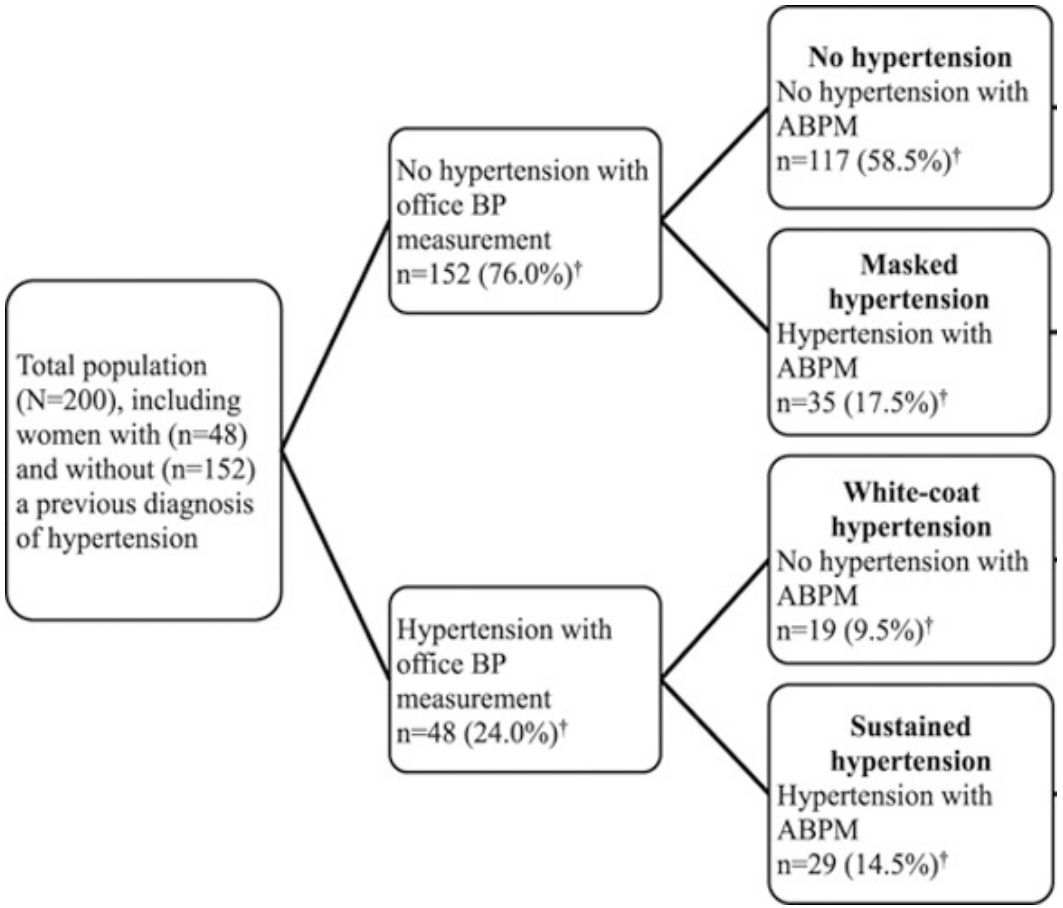
Kitt J, Fox R, Frost A, et al. Long-term blood pressure control after hypertensive pregnancy following physician-optimized self-management: the POP-HT randomized clinical trial. *JAMA*. Published November 11, 2023. doi:10.1001/jama.2023.21523

Those patients in the intervention arm had lower blood pressures at 9 months, even though the majority were off medications at that time.

Median treatment time in intervention group was 39 days.

Only 12% of patients were on treatment at 4th visit (6-9 months postpartum)

Risk of chronic hypertension after severe preeclampsia



1 year postpartum after severe preeclampsia

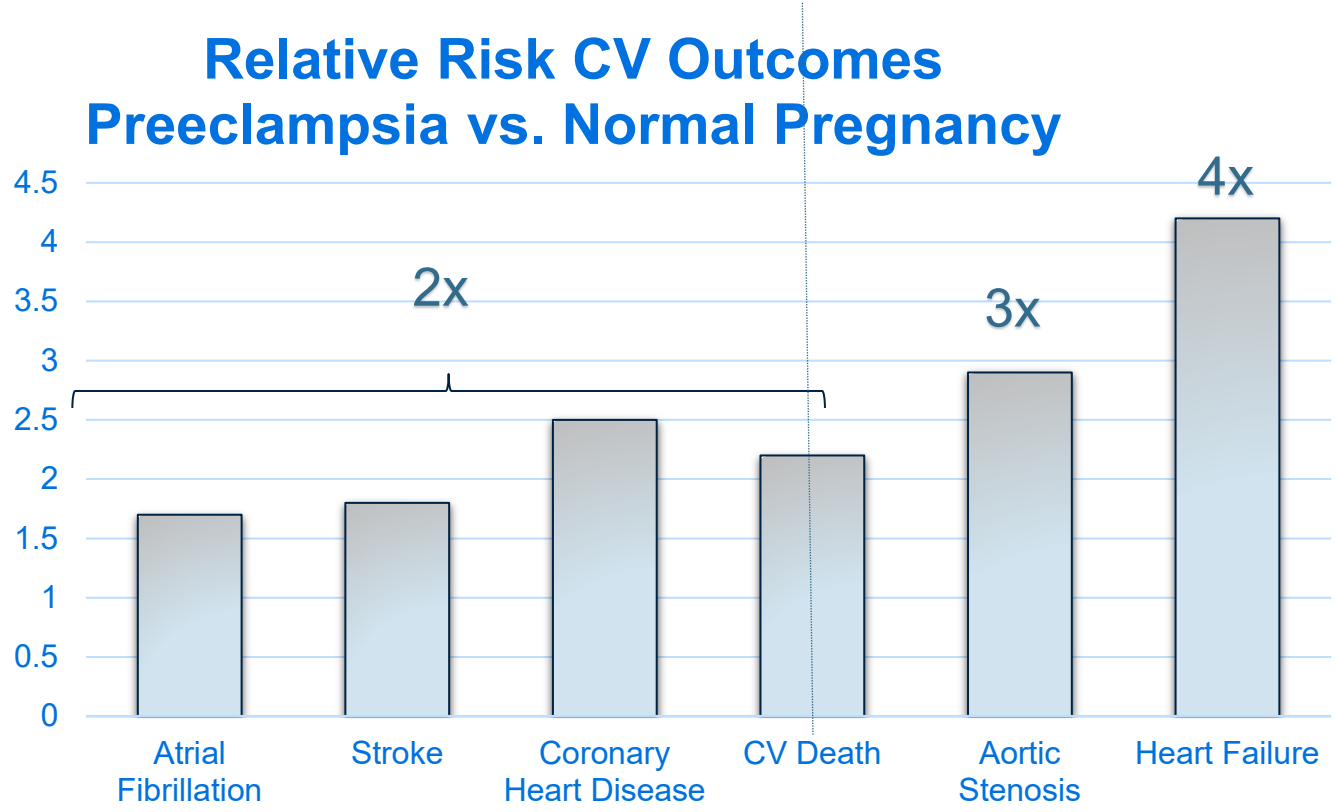
41% of women had HTN
- 17% masked
- 14.5% sustained
- 9.5% white coat

Only 24% had elevated BP in the office

Future Risk

Benschop et al. Hypertension. 2018

Preeclampsia/HDP associated with Adverse CV Outcomes

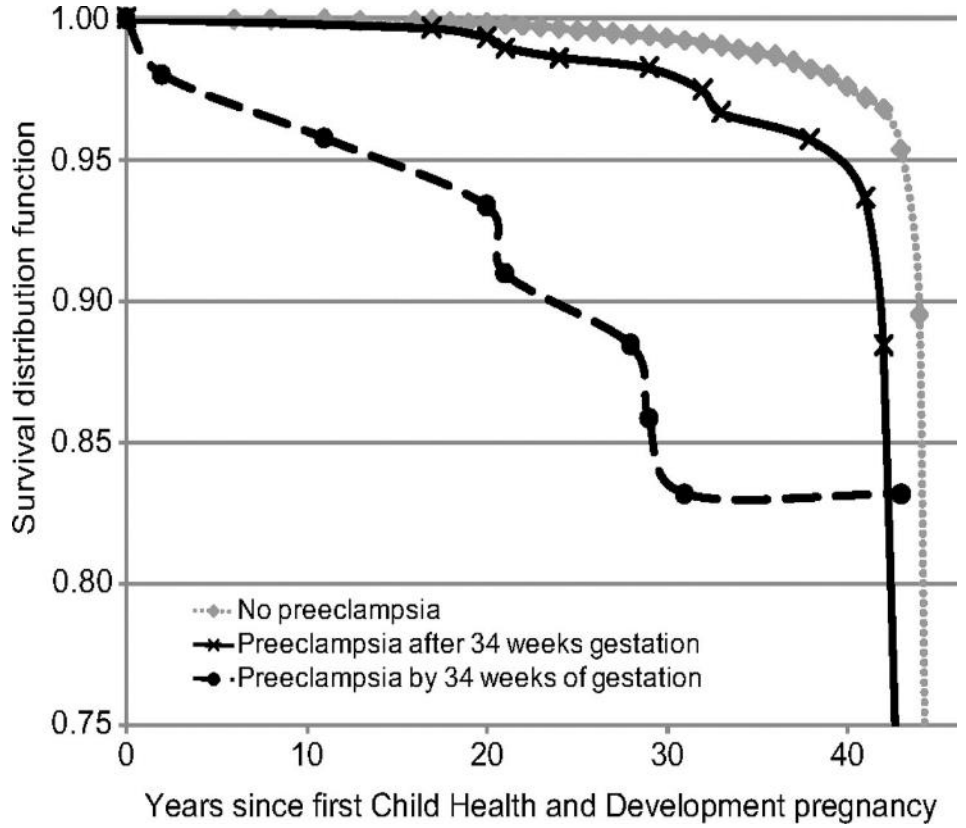


*Future risk is highest during first 10 years after pregnancy compared with that beyond 10 years

Wu et al. Circ Cardiovasc Qual Outcomes. 2017
Honigberg et all. JACC. 2019
Garovic et al. Hypertension. 2022
Hansen. JAMA New Open. 2021

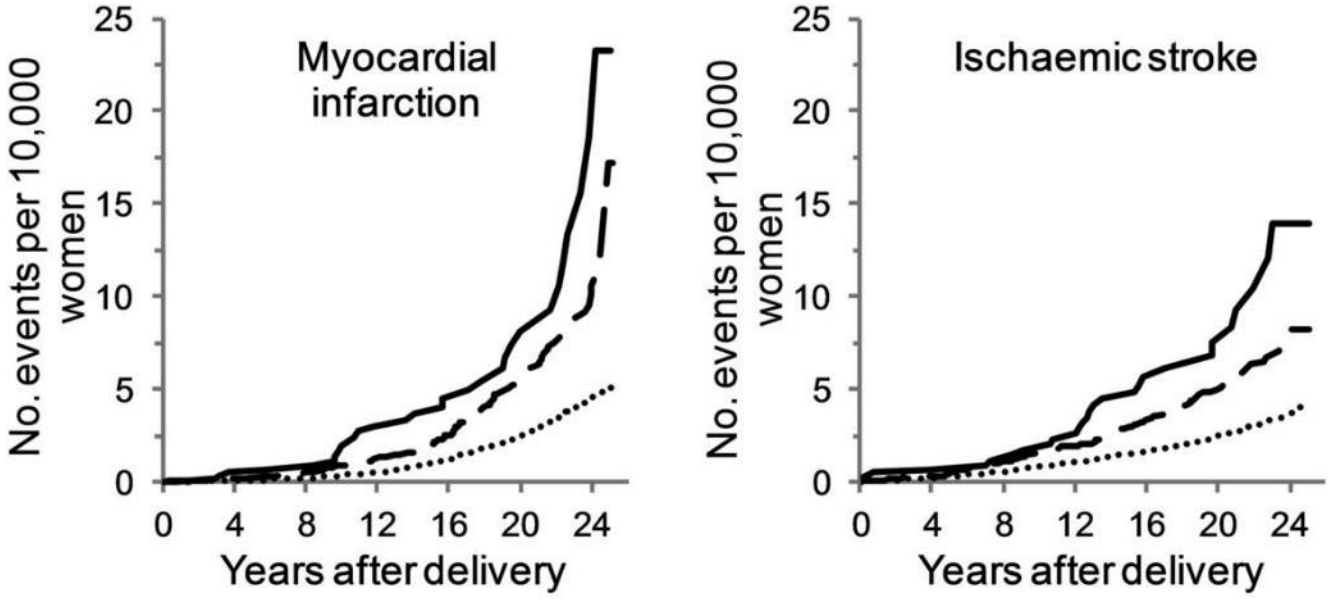
Adverse CV Outcomes worse with recurrent & preterm preeclampsia

Preterm preeclampsia (<34 weeks increases risk of CV death)



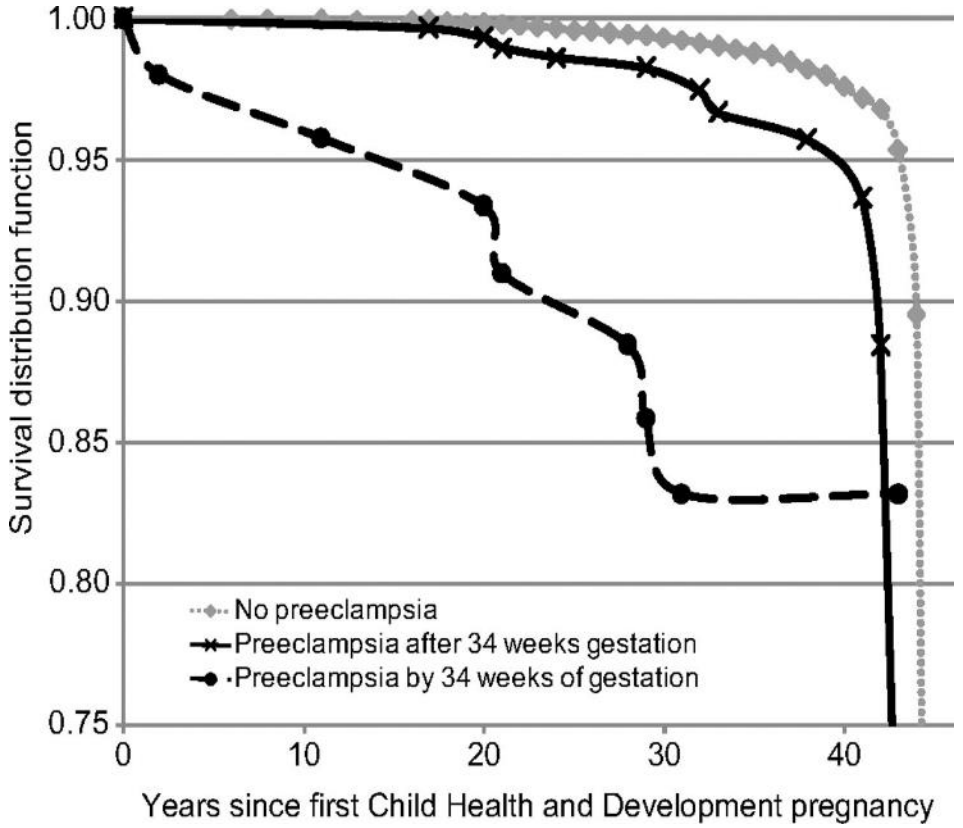
Mongraw-Chaffin et al. Hypertension. 2010

Adverse CV Outcomes worse with recurrent & preterm preeclampsia



Increased CV Risk with Recurrent Preeclampsia

Preterm preeclampsia (<34 weeks increases risk of CV death)

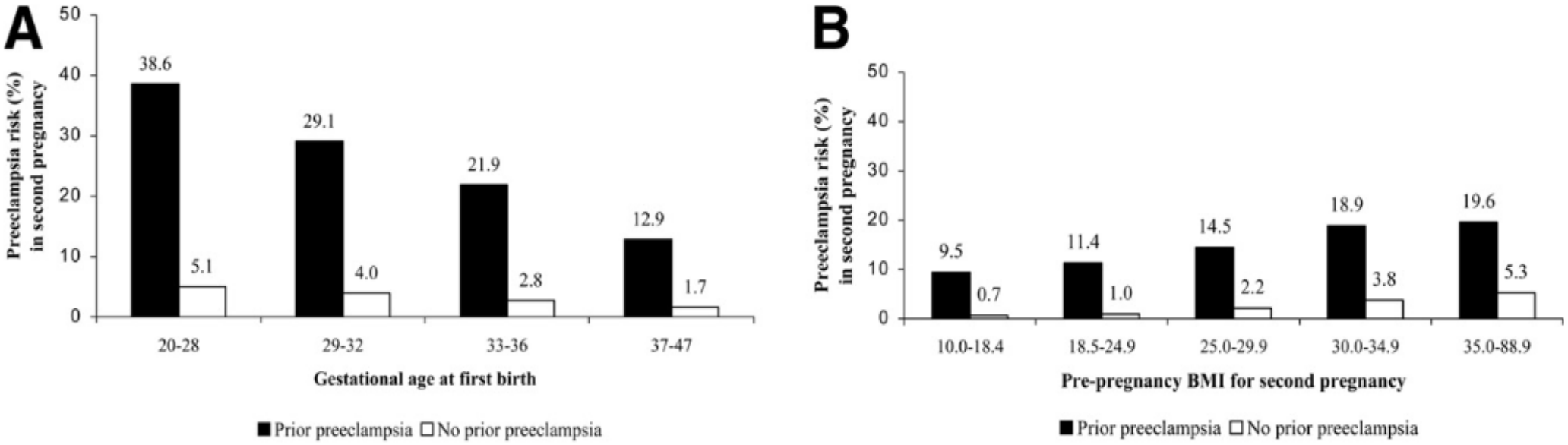


Mongraw-Chaffin et al. Hypertension. 2010

Risk of recurrent preeclampsia

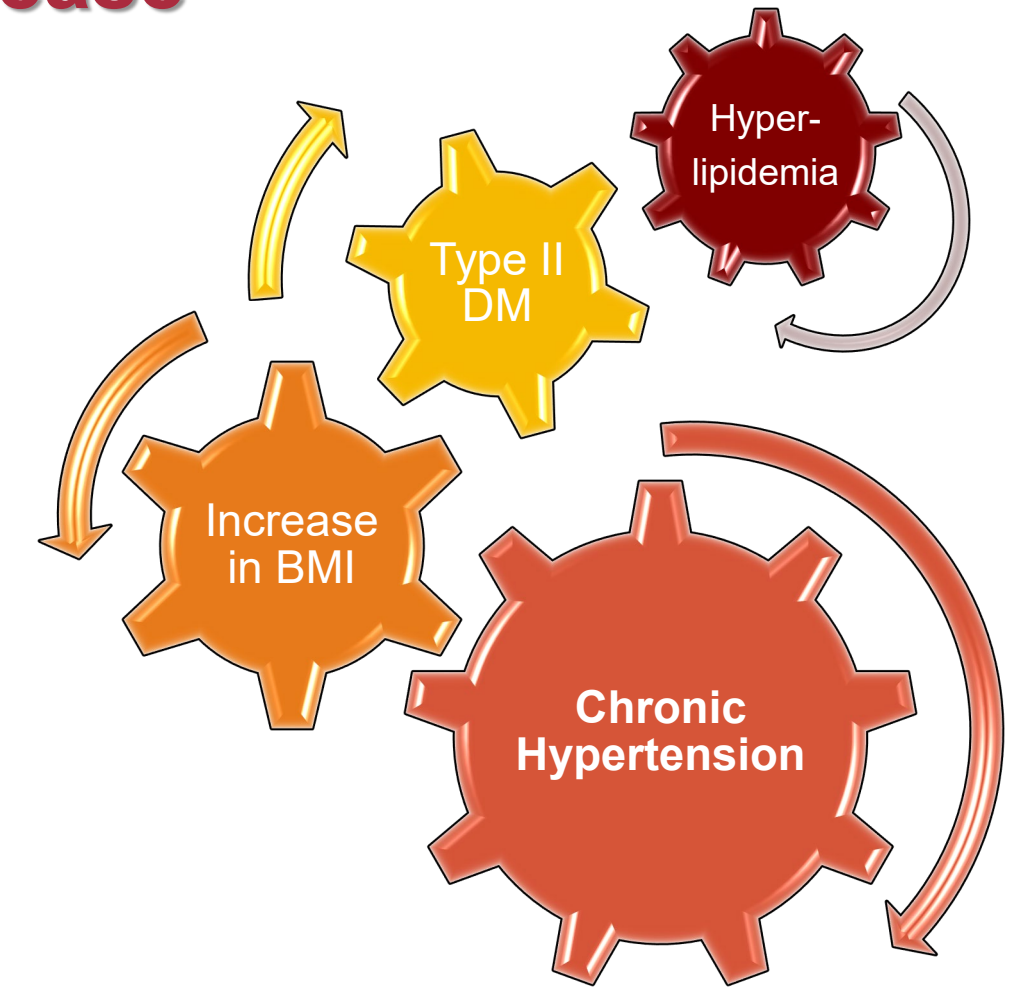
FIGURE 1

Preeclampsia risk in second pregnancy by gestational age at first birth, prepregnancy BMI, paternity, birth interval, and prior preeclampsia status



Mostello et al. Obstetrics. 2008

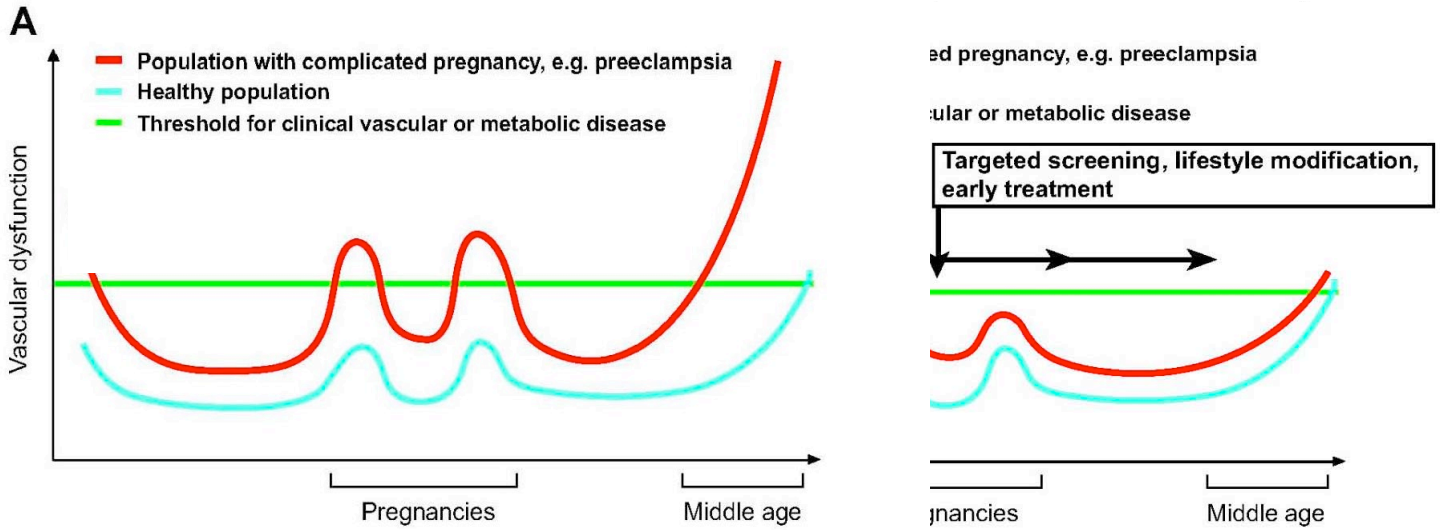
Traditional Risk Factors in the causal pathway for Incident CV Disease



Traditional Risk Factors mediate **64%** of future risk

Stuart et al. JACC. 2022

Identification of “at risk” population allows for primordial and primary prevention.



Rich-Edwards J et al. Pregnancy History and Cardiovascular Disease in Women. Hypertension. 2013; 62: 3-7

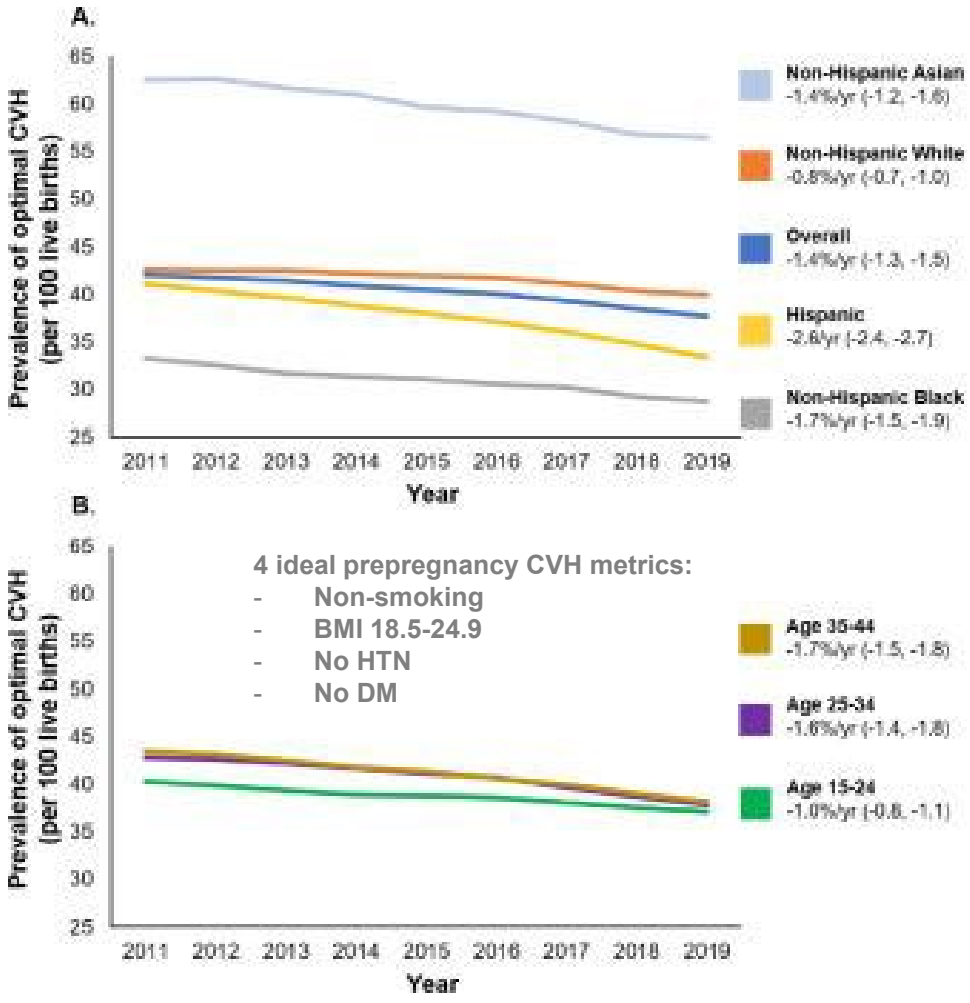
Patient MJ

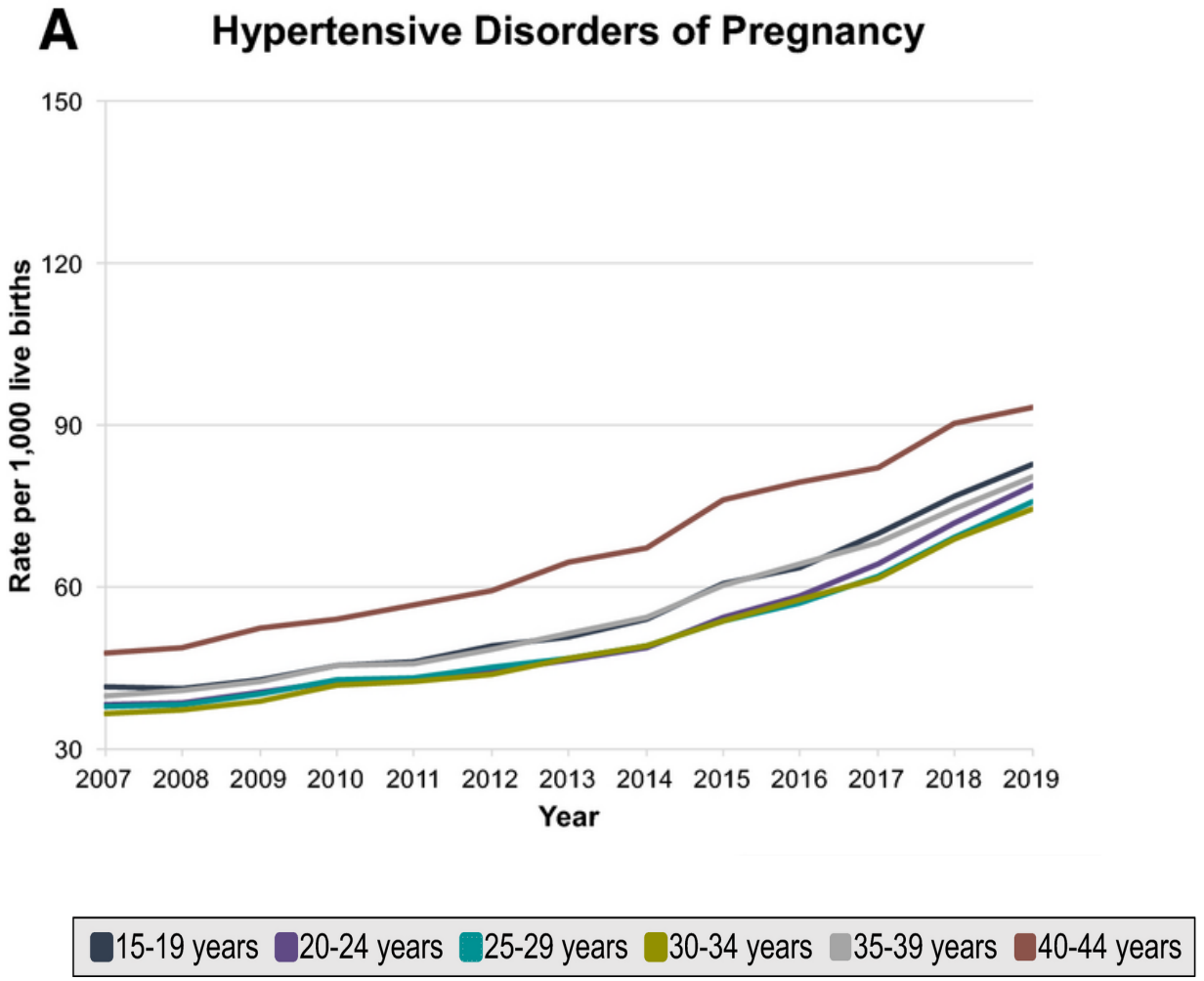
- 31 year old female G1P1 with no prior medical history recently delivered her baby at 34 weeks due to high blood pressure.
  - She has no prior history and wants to understand why this happened and why did she have to be delivered early?
  - She wants to know when her blood pressure is going to normalize
  - She wants to grow her family and is scared about the implications for future pregnancies and heart health.

Patient JT

- 27 year old female G2P0 at 12 weeks gestation with history of hypertension presents to clinic to discuss hypertension management in pregnancy.
  - What are the implications of hypertension prior to pregnancy?
  - What should her blood pressure be during pregnancy?
  - Are there blood pressure medications to avoid?

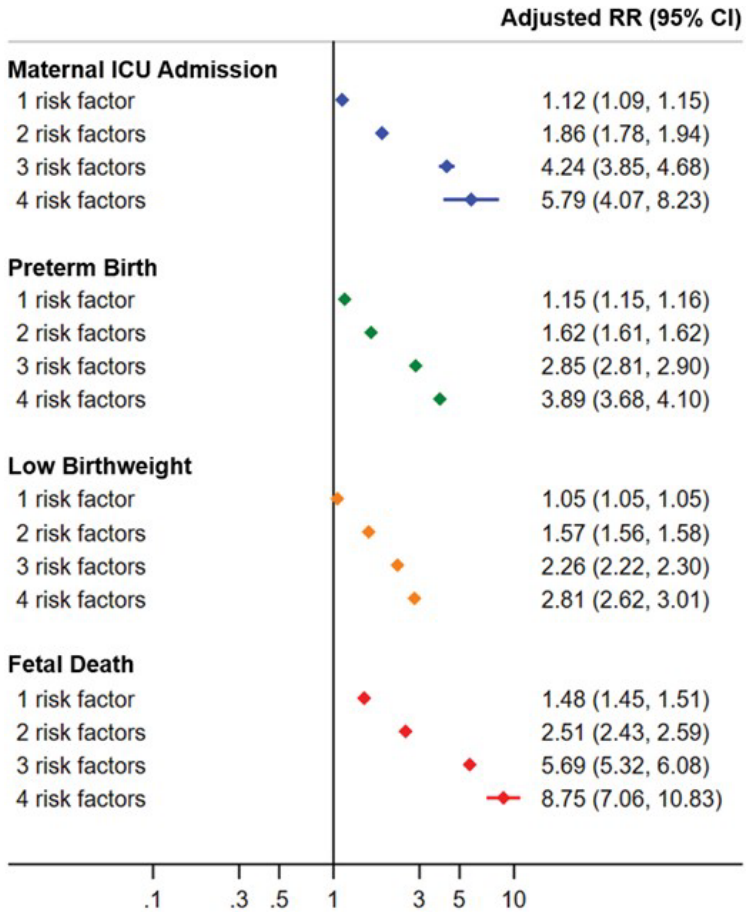
Decline in optimal CVH & Increasing HTN in pregnancy





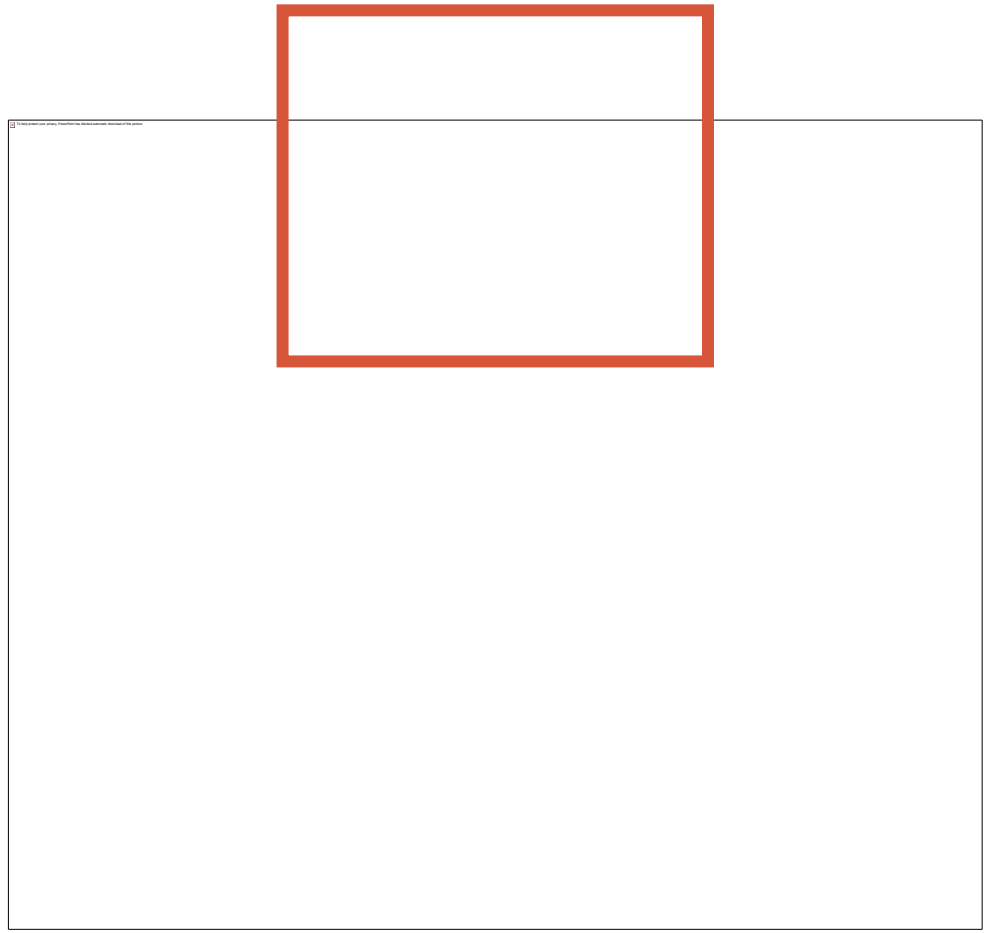
Wang et al, Am J Prev Cardiol. 2021
Greaney et al. JAHA. 2022

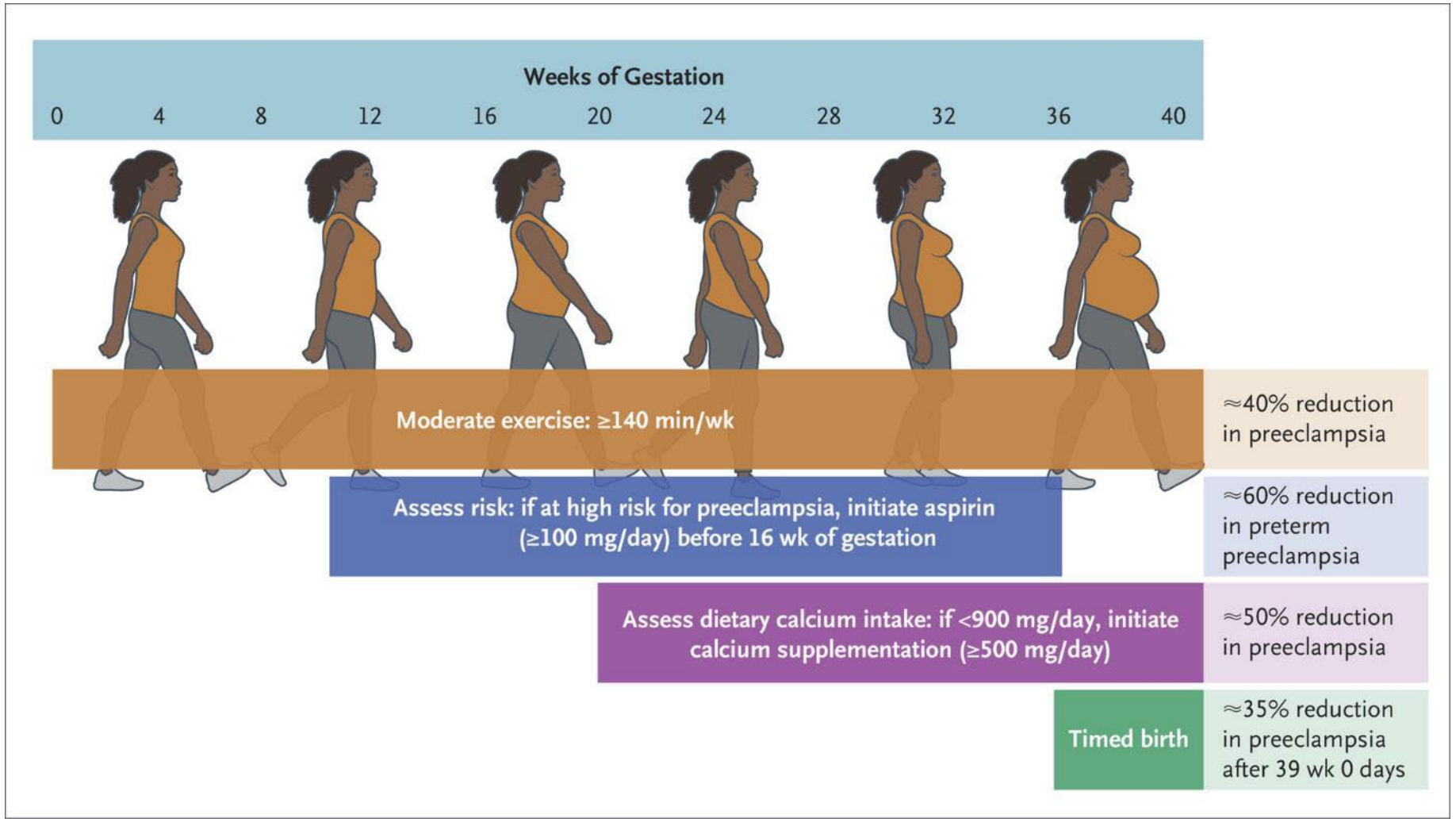
Higher number of suboptimal CVH metrics associated with adverse outcomes in pregnancy



Wang et al, Eur J Prev Cardiol. 2022

Pregnancy is a time when women enter the health care system care and it is a time we can improve maternal CV health




Weeks of Gestation
0
4
8
12
16
20
24
28
32
36
40
Moderate exercise: ≥140 min/wk
≈40% reduction in preeclampsia
Assess risk: if at high risk for preeclampsia, initiate aspirin (≥100 mg/day) before 16 wk of gestation
≈60% reduction in preterm preeclampsia
Assess dietary calcium intake: if <900 mg/day, initiate calcium supplementation (≥500 mg/day)
≈50% reduction in preeclampsia
Timed birth
≈35% reduction in preeclampsia after 39 wk 0 days

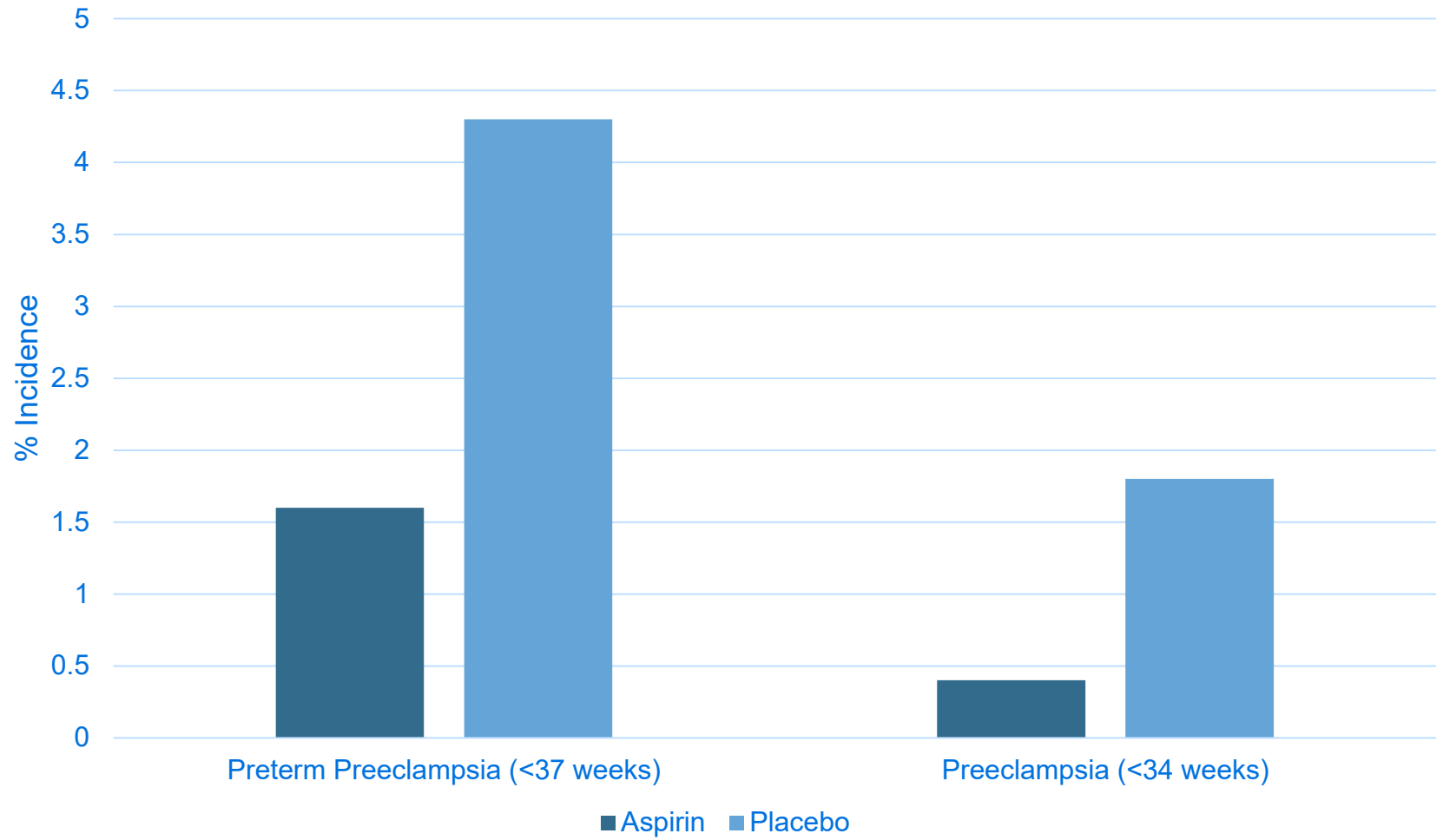
NEJM. 2022

USPTF recommendation for aspirin in pregnancy

Table. Clinical Risk Assessment for Preeclampsia*

Risk Level	Risk Factors	Recommendation
High†	History of preeclampsia, especially when accompanied by an adverse outcome Multifetal gestation Chronic hypertension Type 1 or 2 diabetes Renal disease Autoimmune disease (systemic lupus erythematous, antiphospholipid syndrome)	Recommend low-dose aspirin if the patient has ≥1 of these high-risk factors
Moderate‡	Nulliparity Obesity (body mass index >30 kg/m²) Family history of preeclampsia (mother or sister) Sociodemographic characteristics (African American race, low socioeconomic status) Age ≥35 years Personal history factors (e.g., low birthweight or small for gestational age, previous adverse pregnancy outcome, >10-year pregnancy interval)	Consider low-dose aspirin if the patient has several of these moderate-risk factors§
Low	Previous uncomplicated full-term delivery	Do not recommend low-dose aspirin

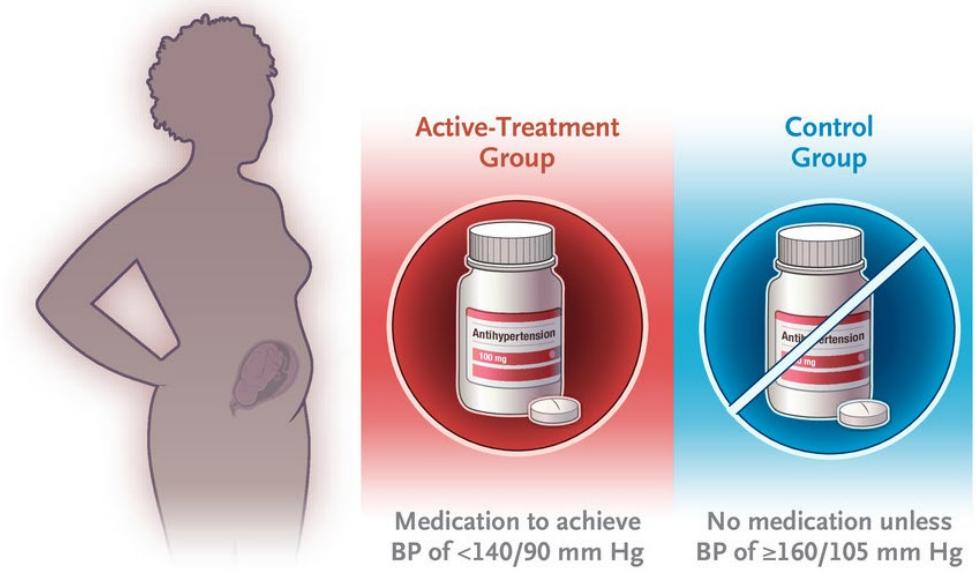
Risk of Preeclampsia in Women Receiving Aspirin 150mg

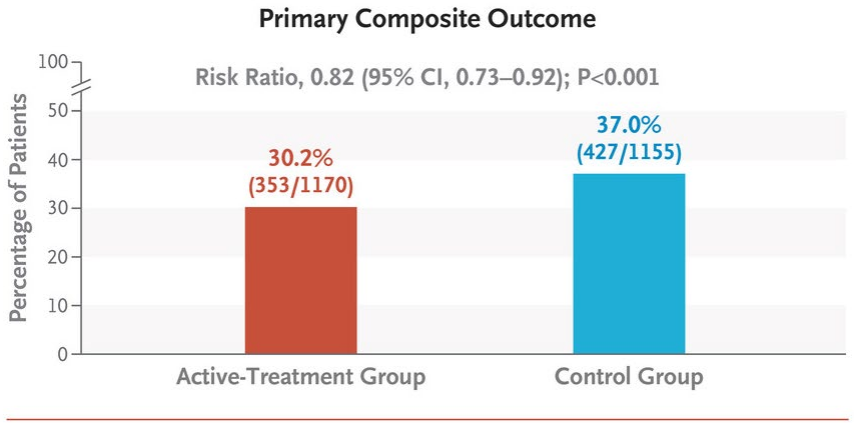


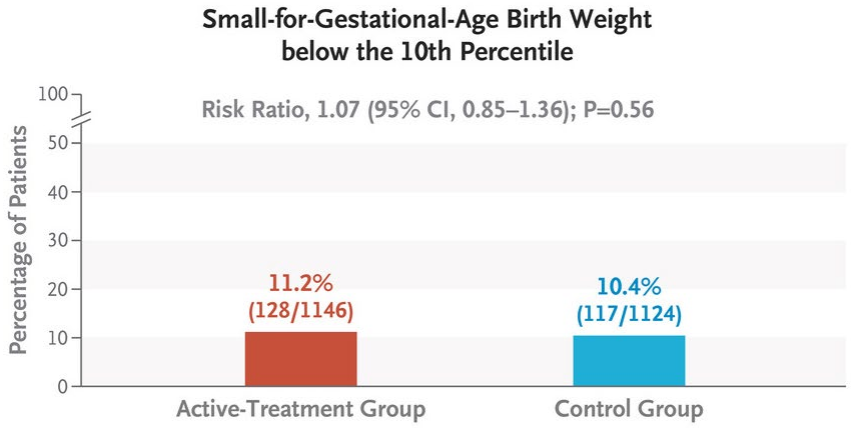
Rolnik. NEJM 2017

CHAP Trial (Goal BP <140/90)

- RCT of 2408 women with mild chronic HTN
- Primary outcome
  - Composite of preeclampsia with severe features, medically indicated preterm birth <35 weeks gestation, placental abruption or fetal death







CONCLUSIONS

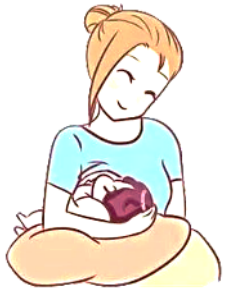
Treating mild chronic hypertension in pregnancy reduced adverse pregnancy outcomes without impairing fetal growth.

Tita et al. NEJM. 2022

Medication Recommendations in Pregnancy and Lactation

- RAAS inhibitors
- Statins, absorbed anti-lipid agents
- Amiodarone
- Atenolol
- DOACs

- Nifedipine, labetalol, methyldopa
- Bile acid sequestrants



- Spironolactone/Eplerenone
- Statins
- Amiodarone
- DOACs

- Warfarin and heparin
- Nifedipine, hydrochlorothiazide, hydralazine
- Benazepril, captopril, enalapril (**Acronym: baby can endure)**

Patient JT

- 27 year old female G2P0 at 12 weeks gestation with history of hypertension presents to clinic to discuss hypertension management in pregnancy.
  - What are the implications of hypertension prior to pregnancy?
  - What should her blood pressure be during pregnancy?
  - Are there blood pressure medications to avoid?

Timeline of Risk with Preeclampsia

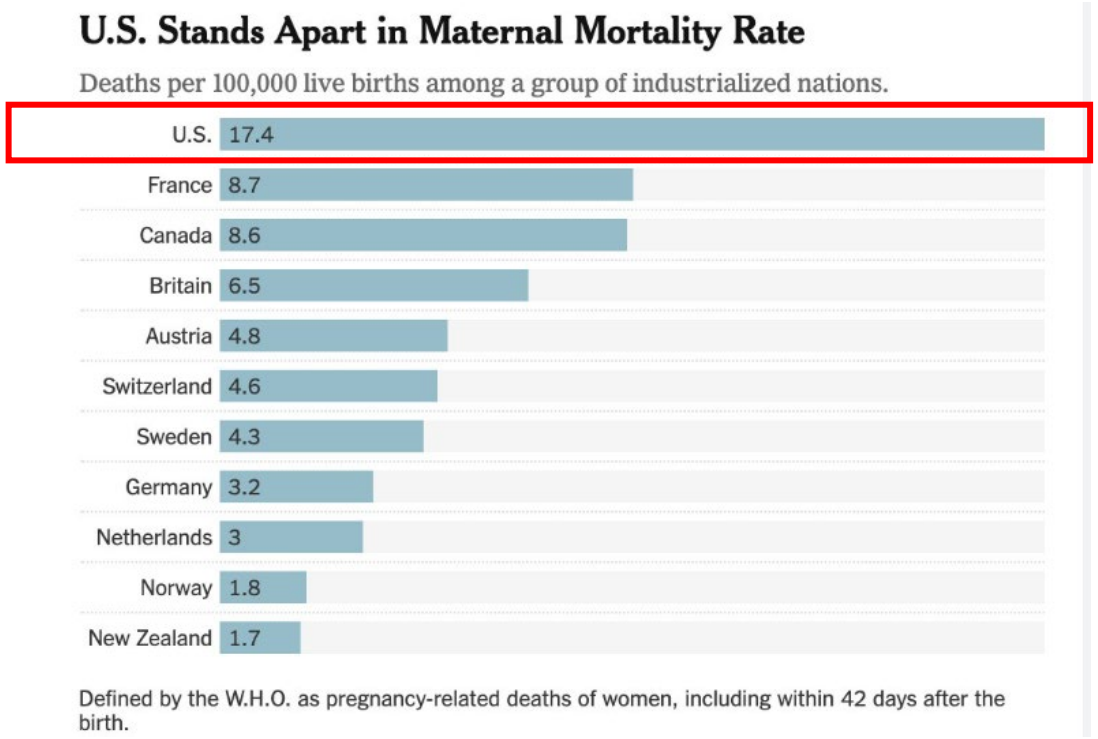
- Fetal growth restriction
- Abruption
- Elevated blood pressure
- Headaches
- Eclampsia

- Stroke
- Heart Failure
- Peripartum Cardiomyopathy
- Acute Kidney Injury
- Severe hypertension

- CV Disease
  - Heart Failure
  - CAD
  - Stroke
- Recurrent Preeclampsia
- Chronic Hypertension

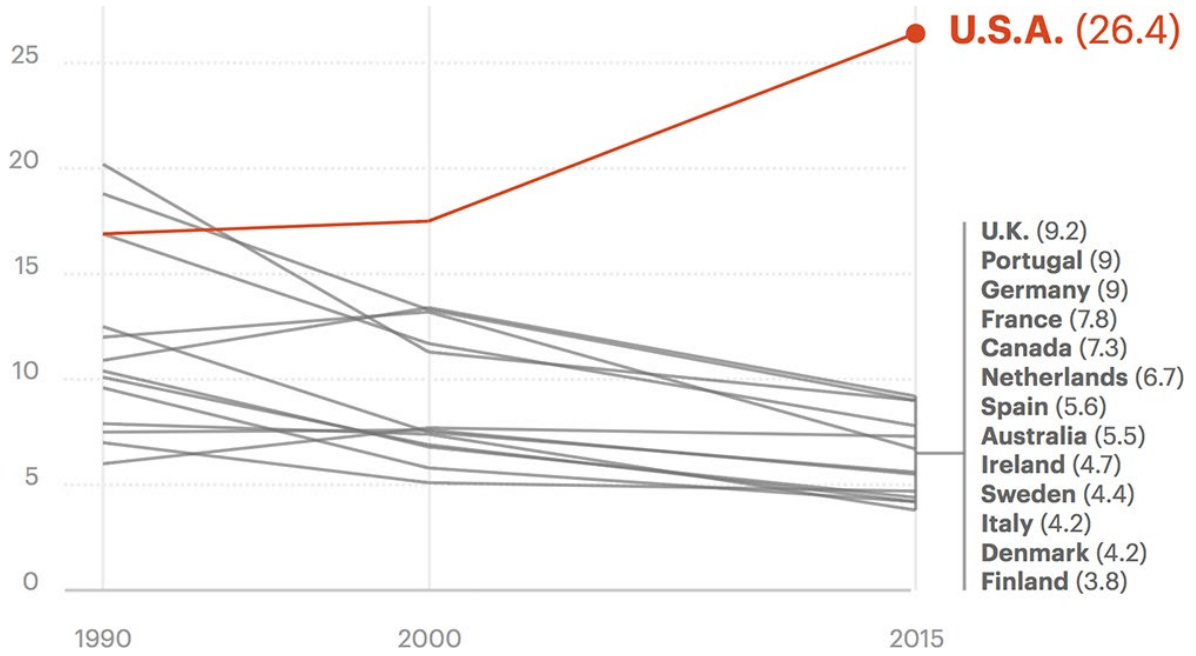
Perdigao et al. Pregnancy Hypertension. 2020

The Maternal Health Crises



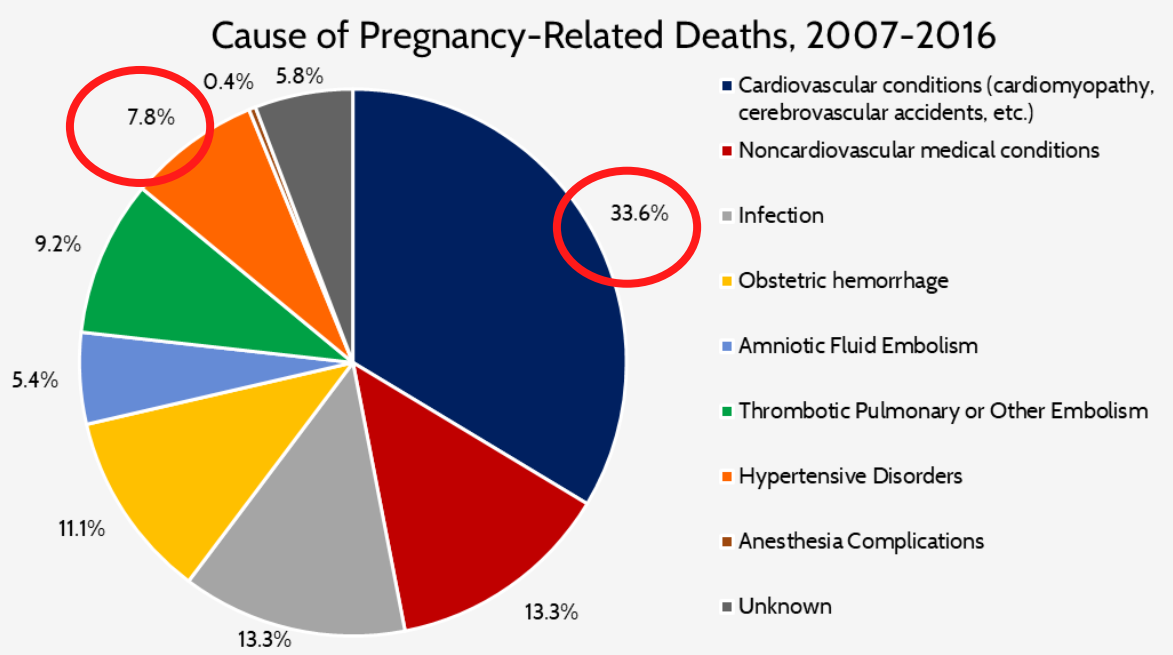
Worst Maternal Death Rates

Maternal Death Rate Increasing



The Maternal Health Crises

Cardiovascular Disease Major Cause of Death



~70% of Deaths Happen After Delivery
~50% happen a week to a year later

4th Trimester Care
Honoring Mothers

Pregnancy can no longer be an island on its own.

We need to build bridges connecting it to all other parts of the health system and understand it’s implications for future health, so we can all do our part in optimizing maternal health care.

Take Home Points

- Pregnancy is associated with significant hemodynamic and cardiometabolic changes and is a stress test for women.
- Consider each visit with young women an opportunity for risk assessment and risk factor modification which can improve maternal health
- Hypertension management in pregnancy requires special consideration regarding goals & management.
- Women with hypertensive disorders of pregnancy are at risk for:
  - Adverse pregnancy outcomes during pregnancy
  - Hypertension postpartum
  - Cardiovascular risk
- Pregnancy can no longer be an island on its own.

Questions?

GaPQC

GEORGIA PERINATAL QUALITY COLLABORATIVE

Questions?

gapqc@dph.ga.gov