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National Academies of Sciences, Engineering, and Medicine

Clinical Preventive Services Guidelines & Barriers to Care for CVD and Pregnancy

Perspective from the American Heart Association

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Disclosures

I receive research funding from the AHA to study cardiovascular disease screening in pregnancy (22HERNPMI985238).

American Heart Association®

Go Red for women®

Pregnancy and Maternal Health

Connect to a Healthier You

Learn more about risks, prevention, healthy lifestyle, risk reduction and more.

- Know Your Risk ›
- Healthy Living ›
- Mind-Heart-Body ›

Connect with Your Community

Volunteer, attend an event, join a philanthropic group, or connect on social media.

- Get Involved Locally ›
- Circle of Red ›
- Woman of Impact ›

Connect to Support

Living with cardiovascular disease or caring for someone who does? Find support.

- Survivor Stories ›
- Support Network ›

Connect with Research

Participate in research and inspire the next generation of women leaders in STEM careers.

- Research Goes Red ›
- STEM Goes Red ›

Connect to Make an Impact

Help advance our mission and advocate for policies that support all women's health and well-being.

- Give ›
- Advocate ›
- Volunteer ›

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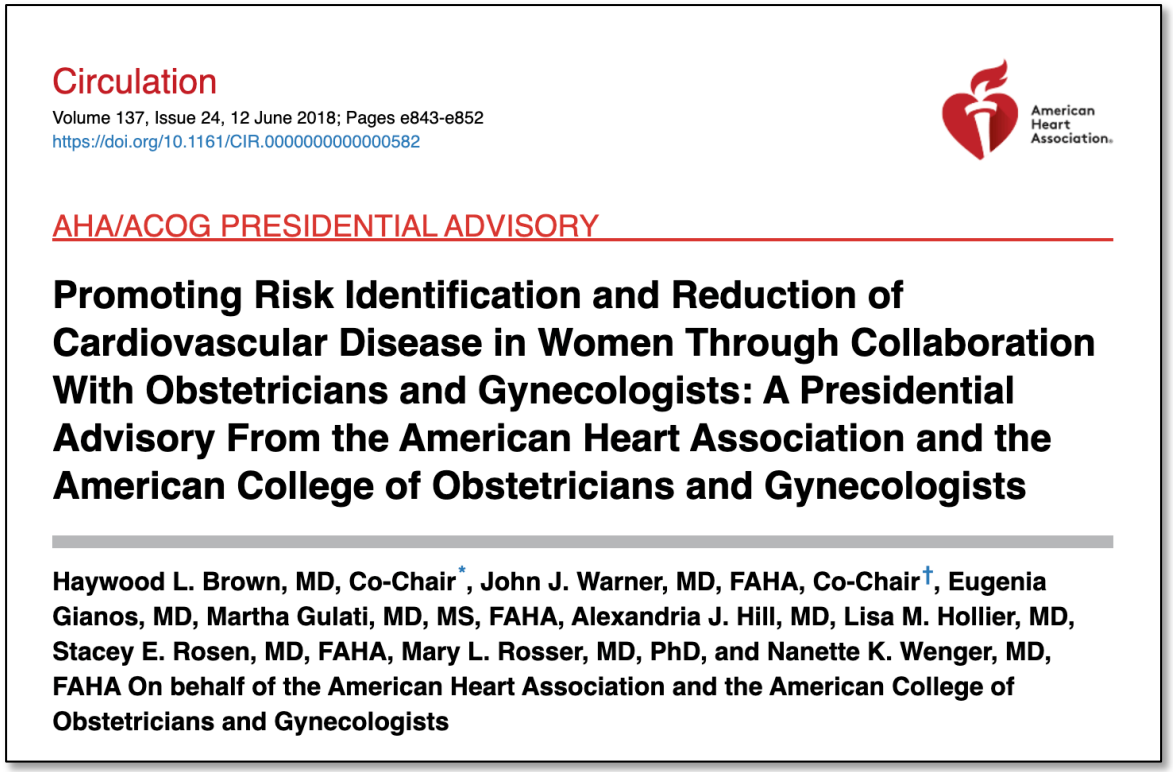
AHA/ACOG Presidential Advisory



Circulation
Volume 137, Issue 24, 12 June 2018; Pages e843-e852
https://doi.org/10.1161/CIR.0000000000000582

American Heart Association.

AHA/ACOG PRESIDENTIAL ADVISORY

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

Haywood L. Brown, MD, Co-Chair*, John J. Warner, MD, FAHA, Co-Chair†, Eugenia Gianos, MD, Martha Gulati, MD, MS, FAHA, Alexandria J. Hill, MD, Lisa M. Hollier, MD, Stacey E. Rosen, MD, FAHA, Mary L. Rosser, MD, PhD, and Nanette K. Wenger, MD, FAHA On behalf of the American Heart Association and the American College of Obstetricians and Gynecologists

- Call to action
- OB/GYNs provide preventive care to women across the life course
- Promote CV health at well-women visits
  - CV risk factor screening
  - Family history/genetic risk
  - Lifestyle counseling
  - Stress/ mental health
- Strategies
  - OB/Gyn and Cardiology collaboration
  - Pregnancy and menopause as opportunities for prevention
  - Technology for education and behavior change

Objective: Review relevant AHA publications to inform what preventive services are needed before, during, and after pregnancy to prevent maternal morbidity and mortality

- Review how AHA guidelines for CV disease prevention apply to reproductive-age women
- Discuss how prevention recommendations apply to pregnant/postpartum persons
- Highlight recent AHA scientific statements focused on maternal CV health

Scientific Statements represent a consensus of leading experts on topics related to cardiovascular disease and stroke, but do not serve as recommendations or guidelines

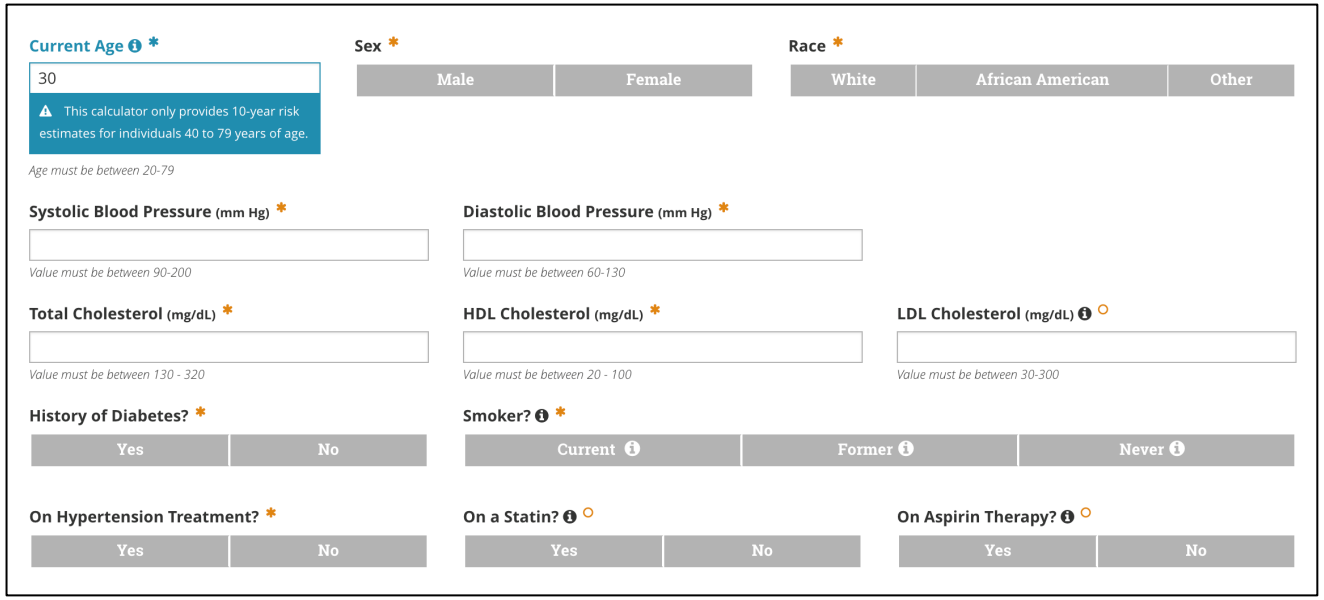
Guidelines for management of CV disease in pregnancy

- No independent pregnancy-specific guideline for the prevention and management of CV disease and stroke

- Sex-specific recommendations, including pregnancy, are published as part of guidelines for specific conditions in the ACC/AHA Joint Committee on Clinical Practice Guidelines
  - 2023 Guideline for the Management of Patients With Chronic Coronary Disease
  - 2022 Guideline for the Diagnosis and Management of Aortic Disease
  - 2020 Guideline for the Management of Patients With Valvular Heart Disease

Primary Prevention of CV Disease Guidelines (2019)

- ASCVD risk factor screening
  - Ages 20 to 39 years: Assess risk factors every 4-6 years (Class 2a)
  - Ages 40-75 years: Assess risk factors and 10-year risk of ASCVD routinely (Class 1)
- Pooled Cohort Equations estimates 10-year ASCVD risk in individuals ≥40 years
  - Threshold risk estimates guide intensity of risk factor treatment
    - Stage 1 hypertension
    - Statin treatment
- Risk enhancers revise risk estimate
  - Preeclampsia or preterm birth
  - Early menopause
  - Chronic inflammatory disease
- Age limits use of calculator for most reproductive-aged women



SOURCE: Arnett DK et al, Circulation 2019

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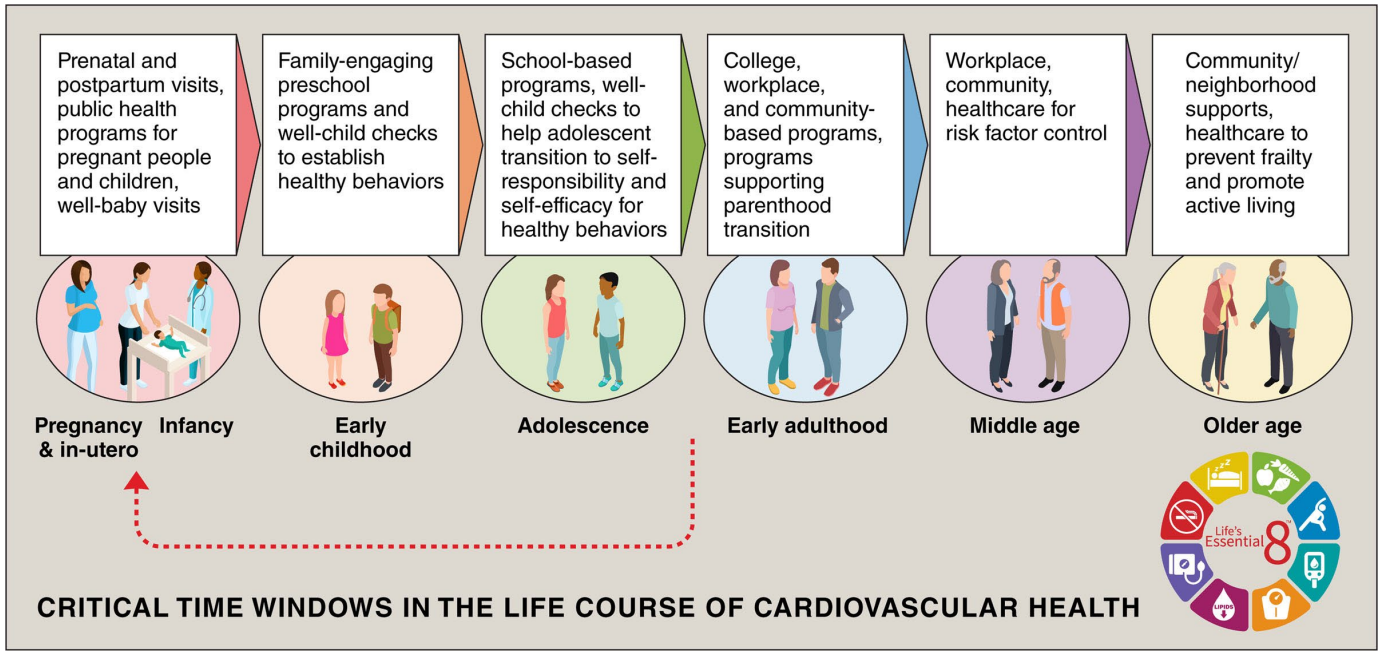
Cardiovascular health framework

Circulation
Volume 146, Issue 5, 2 August 2022; Pages e18-e43
https://doi.org/10.1161/CIR.0000000000001078

American Heart Association.

AHA PRESIDENTIAL ADVISORY

Life's Essential 8: Updating and Enhancing the American Heart Association's Construct of Cardiovascular Health: A Presidential Advisory From the American Heart Association



Primary Prevention of Stroke Guidelines (2024)

Stroke
Volume 55, Issue 12, December 2024; Pages e344-e424
https://doi.org/10.1161/STR.0000000000000475

American Heart Association.

AHA/ASA GUIDELINE

2024 Guideline for the Primary Prevention of Stroke: A Guideline From the American Heart Association/American Stroke Association

Cheryl Bushnell, MD, MHS, FAHA, Chair, Walter N. Kernan, MD, Co–Vice Chair, Anjail Z. Sharrief, MD, MPH, FAHA, Co–Vice Chair, Seemant Chaturvedi, MD, John W. Cole, MD, MS, William K. Cornwell III, MD, MSCS, FAHA, Christine Cosby-Gaither, EdD, Sarah Doyle, MD, Larry B. Goldstein, MD, FAHA, Olive Lennon, PhD, Deborah A. Levine, MD, MPH, Mary Love, PhD, RN, Eliza Miller, MD, MS, Mai Nguyen-Huynh, MD, MAS, FAHA, Jennifer Rasmussen-Winkler, MD, FAHA, Kathryn M. Rexrode, MD, MPH, FAHA, Nicole Rosendale, MD, Satyam Sarma, MD, Daichi Shimbo, MD, Alexis N. Simpkins, MD, PhD, MSCR, FAHA, Erica S. Spatz, MD, MHS, Lisa R. Sun, MD, Vin Tangpricha, MD, PhD, Dawn Turnage, Gabriela Velazquez, MD, and Paul K. Whelton, MB, MD, MSc

Reduce risk of peripartum stroke

- Treat severe hypertension
- BP goal < 140/90 in pregnancy

Reduce risk of lifelong stroke

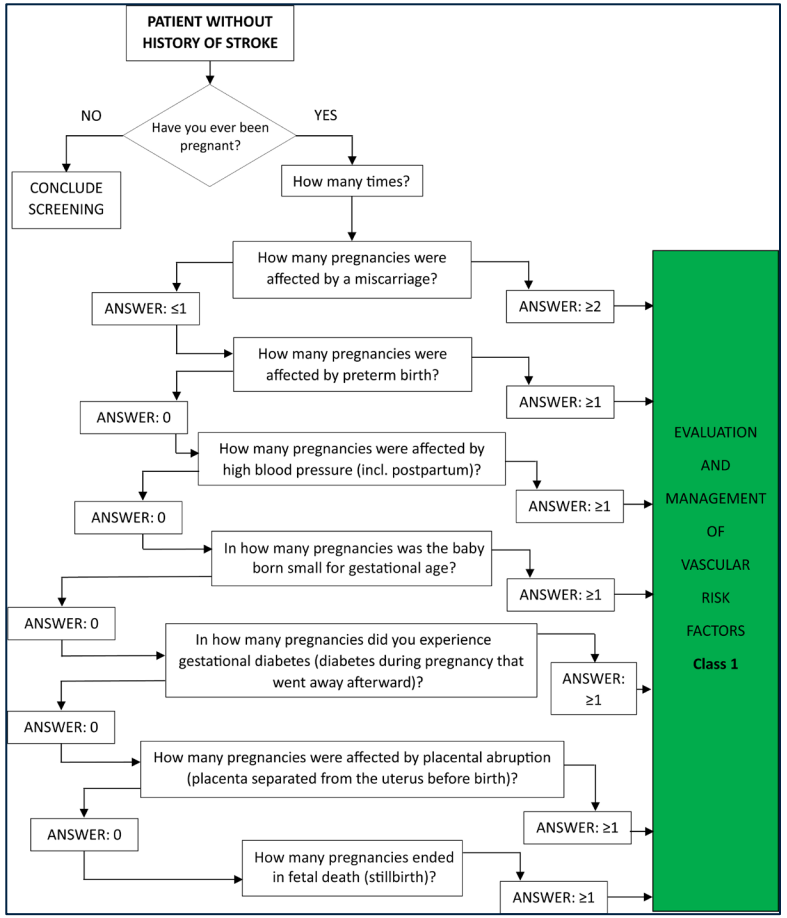
- Screen for and manage vascular risk factors in individuals with
  - Adverse pregnancy outcomes
  - Endometriosis
- Early evaluation and management of hypertension in those with APOs

Primary Prevention of Stroke Guidelines (2024)

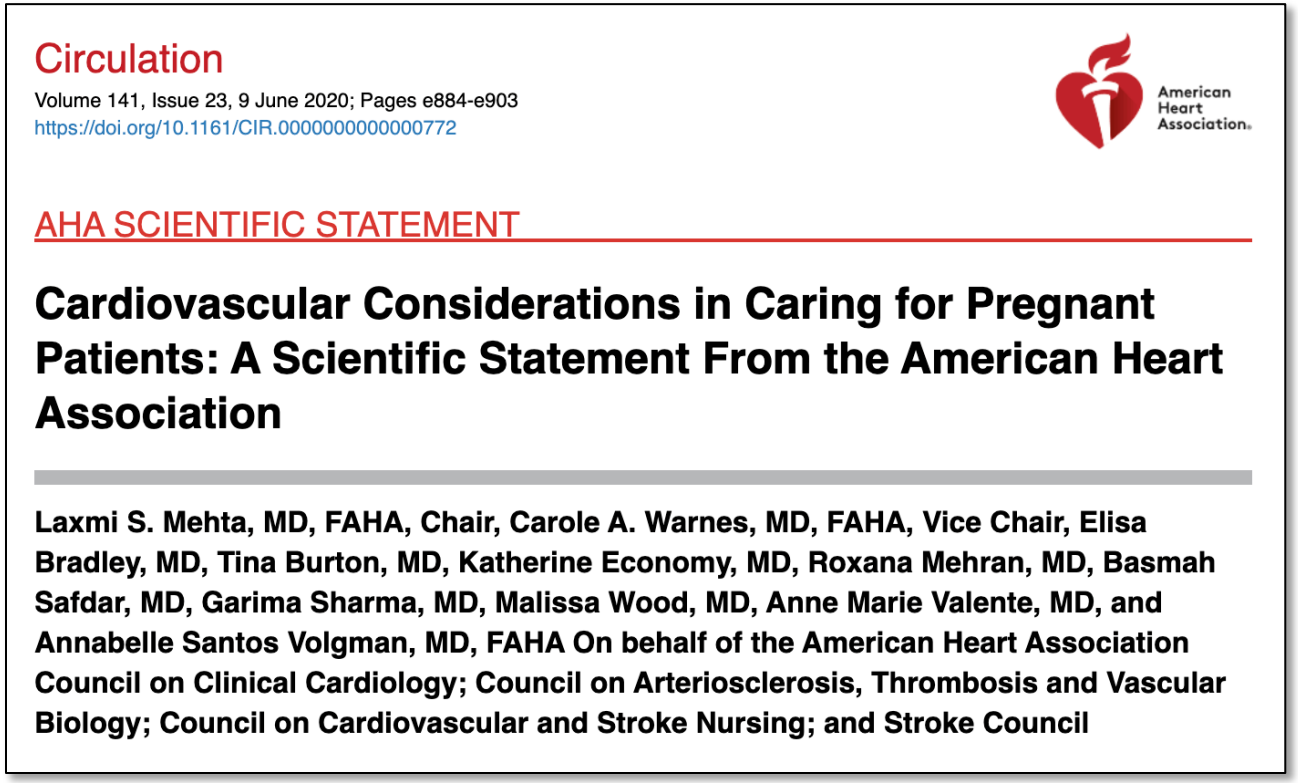
Supporting evidence for early BP screening and treatment among individuals with APOs

"No randomized trials have specifically evaluated BP reduction as a strategy to reduce long-term stroke risk in individuals who experience APOs. However, given the consistently observed associations between APOs and early-onset hypertension and the strong association between untreated hypertension and stroke risk, screening of BP and identification and treatment of hypertension are recommended for adults with a history of APOs, regardless of age, to reduce the risk of stroke in midlife and later."

Screening algorithm for APOs



AHA Scientific Statements



Circulation
Volume 141, Issue 23, 9 June 2020; Pages e884-e903
https://doi.org/10.1161/CIR.0000000000000772

American Heart Association.

AHA SCIENTIFIC STATEMENT

Cardiovascular Considerations in Caring for Pregnant Patients: A Scientific Statement From the American Heart Association

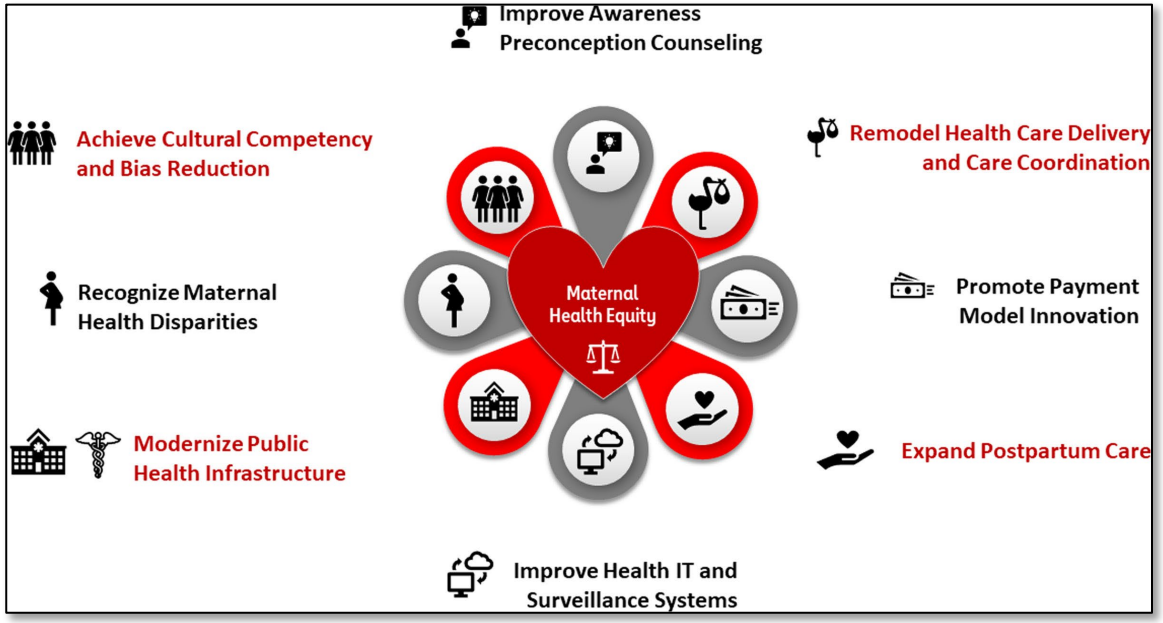
Laxmi S. Mehta, MD, FAHA, Chair, Carole A. Warnes, MD, FAHA, Vice Chair, Elisa Bradley, MD, Tina Burton, MD, Katherine Economy, MD, Roxana Mehran, MD, Basmah Safdar, MD, Garima Sharma, MD, Malissa Wood, MD, Anne Marie Valente, MD, and Annabelle Santos Volgman, MD, FAHA On behalf of the American Heart Association Council on Clinical Cardiology; Council on Arteriosclerosis, Thrombosis and Vascular Biology; Council on Cardiovascular and Stroke Nursing; and Stroke Council

- Pre-conception counseling with pregnancy and heart disease team
- CV risk stratification
- Management approaches to CV disease and CV risk factors during pregnancy
- Postpartum surveillance
  - Blood pressure control
  - Volume status
  - Aortic dimensions
  - Valve function
  - Medication titration
  - Contraception

AHA POLICY STATEMENT

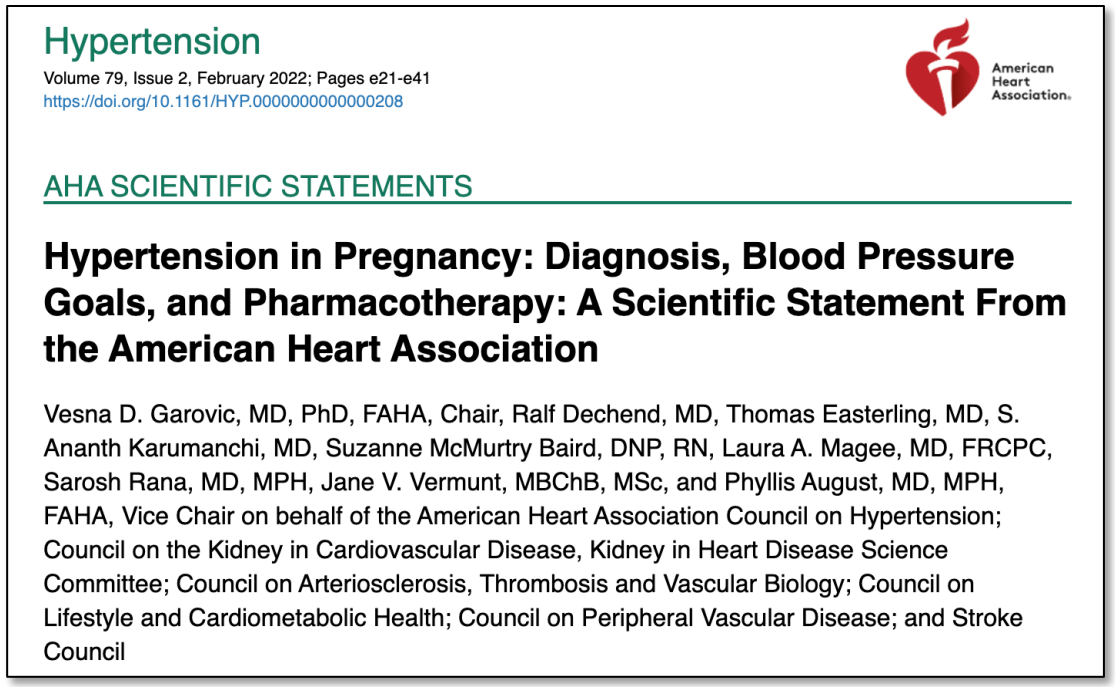
Call to Action: Maternal Health and Saving Mothers: A Policy Statement From the American Heart Association

Strategies to achieve maternal health equity

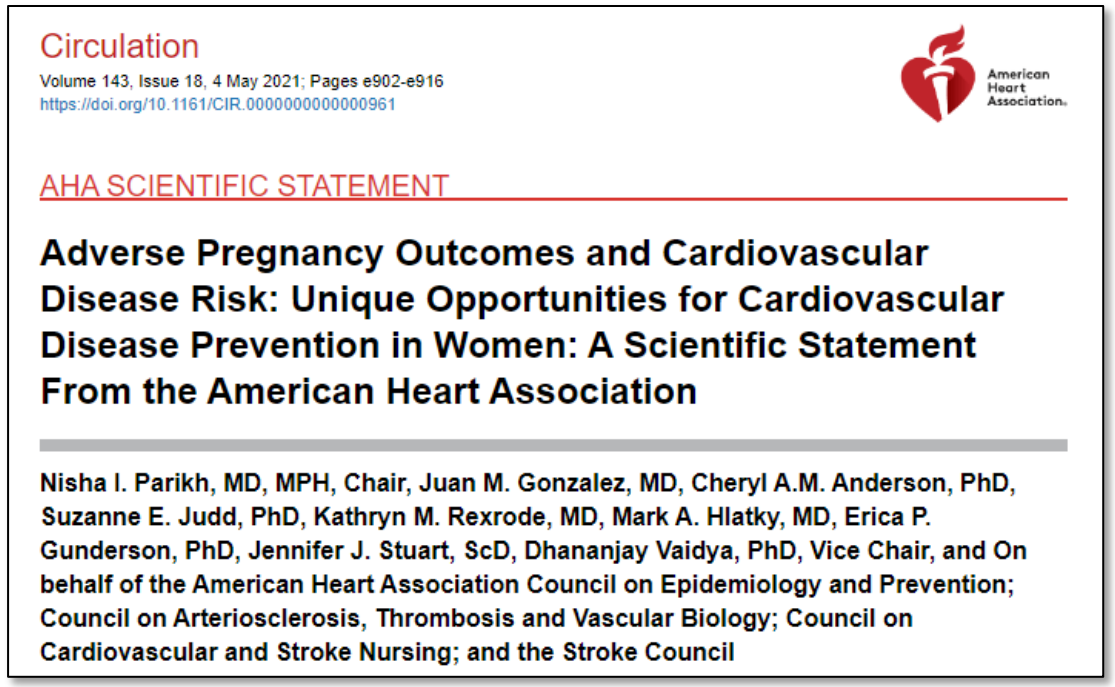


- Health care access
  - Health insurance gaps
  - Lack of access to pre-pregnancy preventive care
  - Quality of delivery hospital
- Geography
  - Neighborhood deprivation
  - Rural sites
- Structural racism
- Marginalized populations
  - Unhoused, incarcerated individuals
  - Substance abuse/mental health

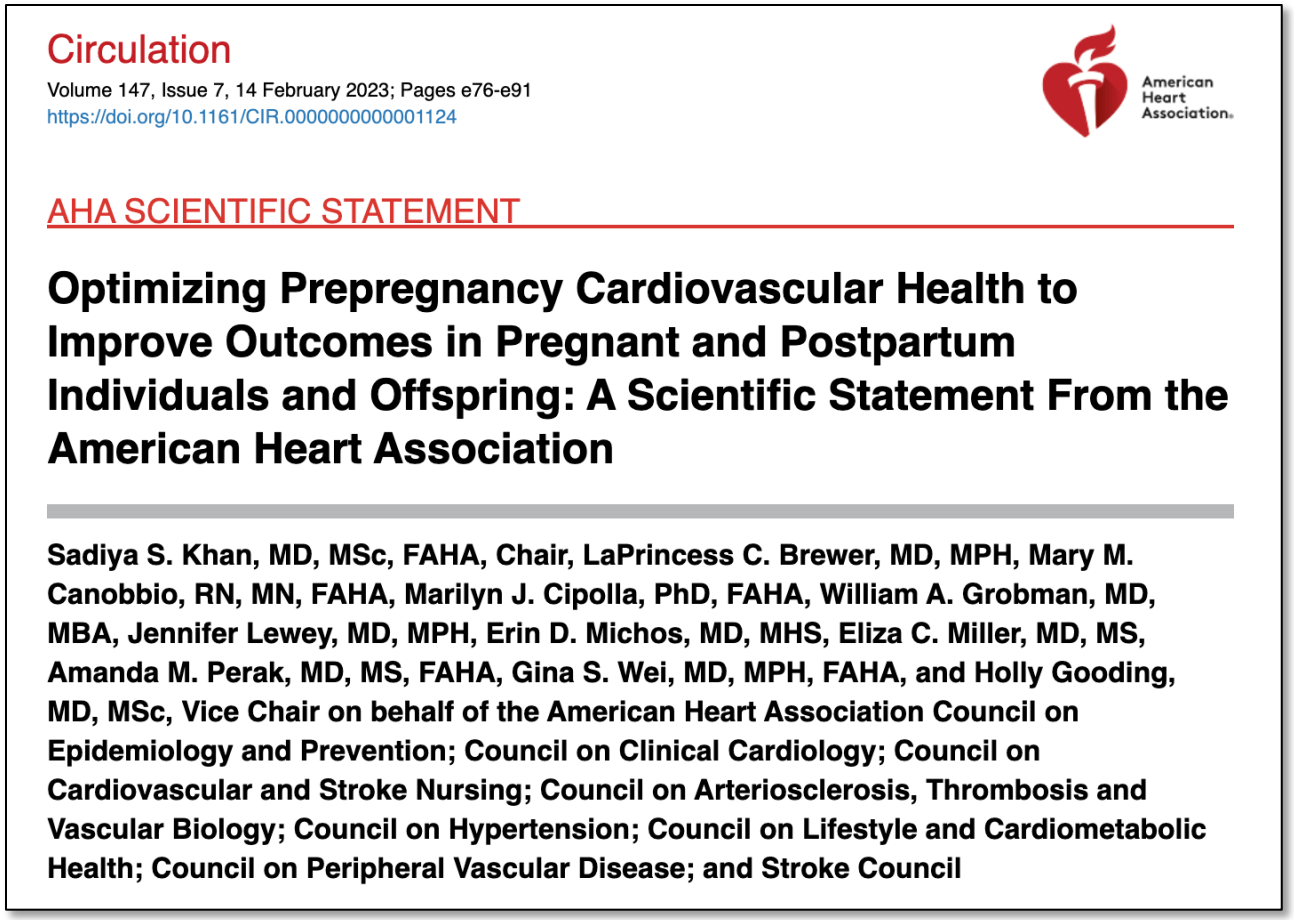
SOURCE: Mehta LS et al, Circulation 2021



- BP measurement in pregnancy
- White coat and masked hypertension
- Differences among international guidelines for BP management in pregnancy



- Addition of APOs do not improve CVD risk prediction tools
- Impact of breastfeeding on CV health
- Limited data investigating the association between APOs and CV disease in racially diverse populations



Circulation
Volume 147, Issue 7, 14 February 2023; Pages e76-e91
https://doi.org/10.1161/CIR.0000000000001124

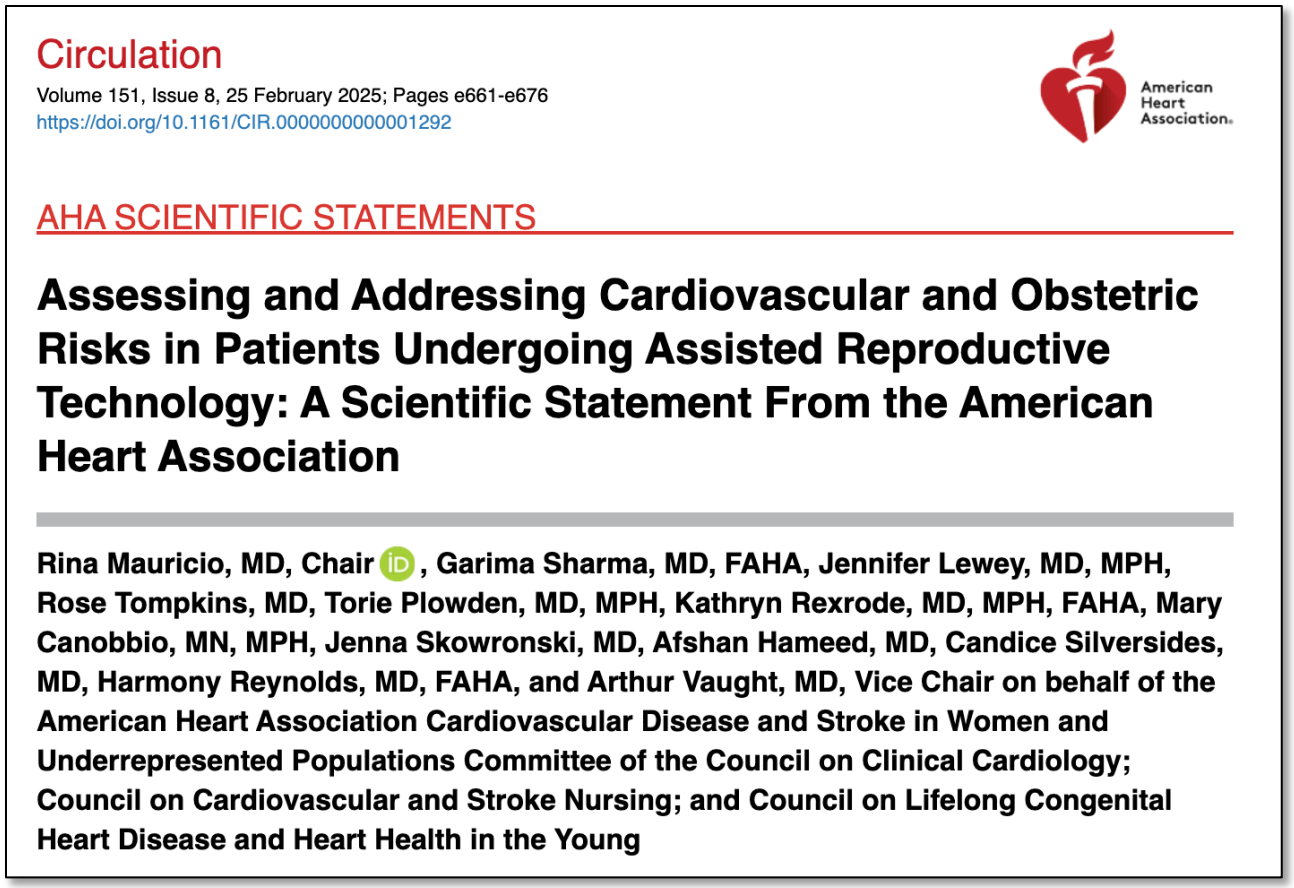
American Heart Association.

AHA SCIENTIFIC STATEMENT

Optimizing Prepregnancy Cardiovascular Health to Improve Outcomes in Pregnant and Postpartum Individuals and Offspring: A Scientific Statement From the American Heart Association

Sadiya S. Khan, MD, MSc, FAHA, Chair, LaPrincess C. Brewer, MD, MPH, Mary M. Canobbio, RN, MN, FAHA, Marilyn J. Cipolla, PhD, FAHA, William A. Grobman, MD, MBA, Jennifer Lewey, MD, MPH, Erin D. Michos, MD, MHS, Eliza C. Miller, MD, MS, Amanda M. Perak, MD, MS, FAHA, Gina S. Wei, MD, MPH, FAHA, and Holly Gooding, MD, MSc, Vice Chair on behalf of the American Heart Association Council on Epidemiology and Prevention; Council on Clinical Cardiology; Council on Cardiovascular and Stroke Nursing; Council on Arteriosclerosis, Thrombosis and Vascular Biology; Council on Hypertension; Council on Lifestyle and Cardiometabolic Health; Council on Peripheral Vascular Disease; and Stroke Council

- Pre-pregnancy CV health is associated with APOs and CV health of offspring
- Effective behavioral interventions can improve CV health metrics; have not been found to reduce risk of maternal morbidity
- Need for additional studies that target maternal outcomes, are inclusive of diverse populations, and address SDOH



Circulation
Volume 151, Issue 8, 25 February 2025; Pages e661-e676
https://doi.org/10.1161/CIR.0000000000001292

American Heart Association.

AHA SCIENTIFIC STATEMENTS

Assessing and Addressing Cardiovascular and Obstetric Risks in Patients Undergoing Assisted Reproductive Technology: A Scientific Statement From the American Heart Association

Rina Mauricio, MD, Chair, Garima Sharma, MD, FAHA, Jennifer Lewey, MD, MPH, Rose Tompkins, MD, Torie Plowden, MD, MPH, Kathryn Rexrode, MD, MPH, FAHA, Mary Canobbio, MN, MPH, Jenna Skowronski, MD, Afshan Hameed, MD, Candice Silversides, MD, Harmony Reynolds, MD, FAHA, and Arthur Vaught, MD, Vice Chair on behalf of the American Heart Association Cardiovascular Disease and Stroke in Women and Underrepresented Populations Committee of the Council on Clinical Cardiology; Council on Cardiovascular and Stroke Nursing; and Council on Lifelong Congenital Heart Disease and Heart Health in the Young

- Counseling prior to ART to reduce maternal morbidity and mortality
  - CV risk stratification to identify those at highest risk during pregnancy
  - Alternative family building options
  - CV risk factor screening and optimization
  - Potential complications of ART
- Frozen vs. fresh embryo transfer

Circulation
Volume 149, Issue 7, 13 February 2024; Pages e330-e346
https://doi.org/10.1161/CIR.0000000000001212

American Heart Association.

AHA SCIENTIFIC STATEMENTS

Opportunities in the Postpartum Period to Reduce Cardiovascular Disease Risk After Adverse Pregnancy Outcomes: A Scientific Statement From the American Heart Association

Jennifer Lewey, MD, MPH, Chair, Theresa M. Beckie, PhD, MN, RN, FAHA, Haywood L. Brown, MD, Susan D. Brown, PhD, Vesna D. Garovic, MD, PhD, Sadiya S. Khan, MD, MSc, FAHA, Eliza C. Miller, MD, MS, Garima Sharma, MD, FAHA, and Laxmi S. Mehta, MD, FAHA, Vice Chair on behalf of the American Heart Association Cardiovascular Disease and Stroke in Women and Underrepresented Populations Committee of the Council on Clinical Cardiology; Council on Cardiopulmonary, Critical Care, Perioperative and Resuscitation; and Council on Cardiovascular and Stroke Nursing

Life's Essential 8 framework for postpartum counseling and screening

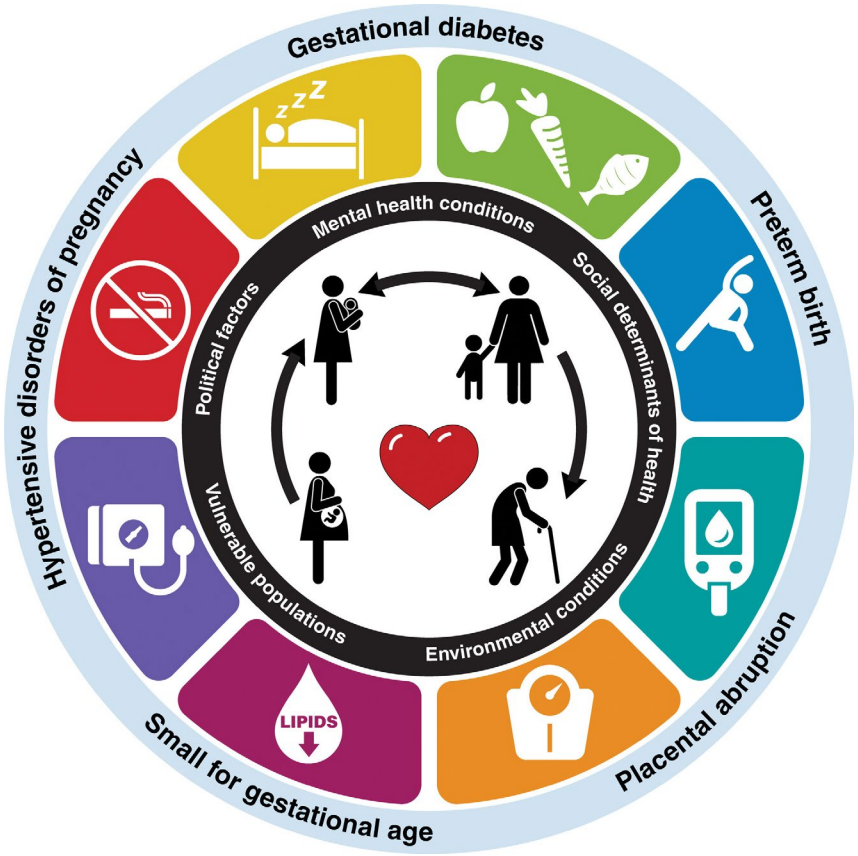
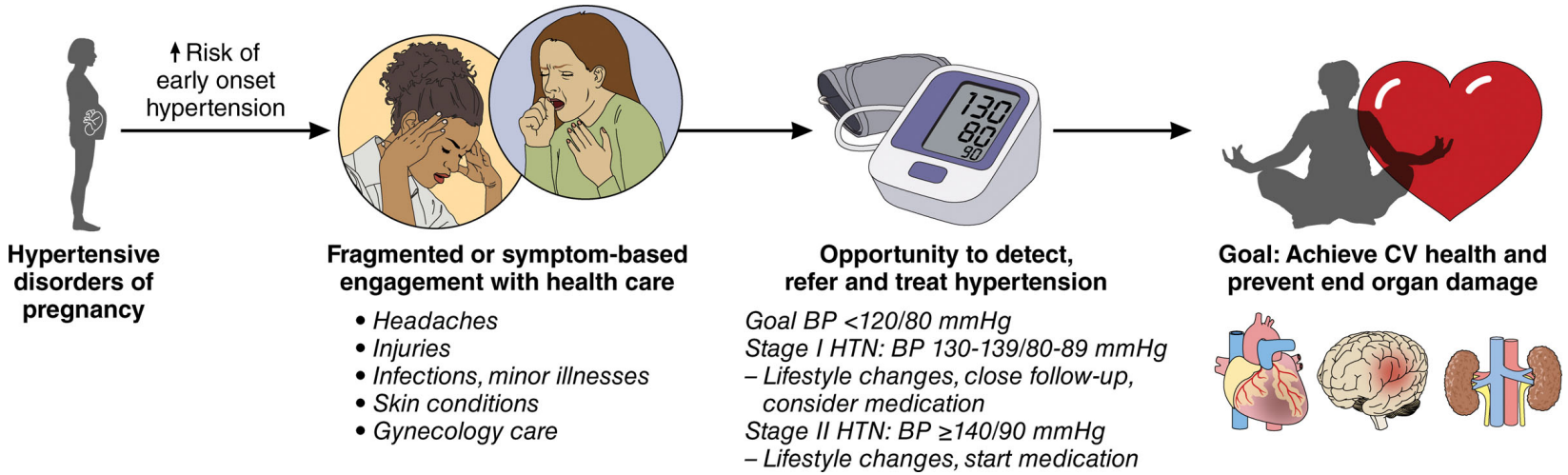


Table 1. Postpartum and Interpregnancy Counseling for Patients With Specific APOs

	Counseling	Management	Lactation considerations	Subsequent pregnancy	Contraception
HDP	BP returns to baseline levels by 12 wk postpartum, but hypertension can persist in some patients 2- to 4-fold increased risk of developing chronic hypertension 2-fold increased risk of developing subsequent CVD; risk is higher in patients with preeclampsia with early onset, severe features, or recurrence	Wean BP medication as appropriate Ideal BP <120/80 mm Hg with BP goal <130/80 mm Hg for patients with treated chronic hypertension Lifestyle changes for patients with stage I or stage II hypertension Glucose and lipid screening if not up to date Serum creatinine and proteinuria assessment if history of elevated creatinine, AKI, proteinuria, or prepregnancy kidney disease*	Breastfeeding may reduce future risk of chronic hypertension Avoid angiotensin receptor blockers and ACE inhibitors, except for enalapril and captopril, which are considered safe while breastfeeding Diuretics may affect milk supply if used in high doses	Patients with preeclampsia have risk of recurrence in future pregnancy. Discuss aspirin in future pregnancy to reduce recurrence risk. Good BP control before and during pregnancy can reduce preeclampsia risk	Avoid estrogen-containing contraception (eg, combined oral contraceptive pills or patch) if hypertensive or treated hypertension
Gestational diabetes	8-fold increased risk of developing T2D Increased risk of subsequent CVD	2-h oral GTT at 4–12 wk postpartum Lipid screening if not up to date Weight loss and exercise for diabetes prevention; consider metformin if prediabetic; refer to DPP	Breastfeeding may reduce future risk of T2D	Risk of recurrent gestational diabetes in future pregnancy High prepregnancy weight associated with increased recurrence risk	
Other APOs: placental abruption, SGA infant, preterm birth	Increased risk of subsequent CVD	Lipid and glucose screening if not up to date			

Opportunities to optimize postpartum blood pressure

- Short course of diuretics may help reduce severe hypertension risk
- Greater BP medication options (CCB > labetalol; enalapril)
- BP goals consistent with those recommended in non-pregnant adults
  - UK National Institute for Health and Care Excellence Guidelines for Hypertension in Pregnancy
- Home BP telemonitoring
- Monitoring for Stage 1 hypertension



Opportunities to optimize postpartum CV health

- Blood glucose
  - Goal: improve early detection of pre-diabetes or diabetes in those at high-risk
  - Hemoglobin A1c if oral glucose tolerance test (GTT) not completed
  - Oral GTT prior to discharge in those at high-risk of missing follow-up
- Blood lipids
  - Goal: identify familial lipid disorders and guide counseling in those without recent screening
  - Screening after 3 months postpartum is preferred
  - National Lipid Association Expert Consensus Statement is a helpful resource
- Weight management
  - Diabetes Prevention Program (DPP) promotes weight loss and prevents diabetes in those with GDM
  - Postpartum programs based on DPP promote weight loss among those with overweight or obesity
- Sleep
  - OSA risk increases in pregnancy and may take 6 months postpartum to resolve
  - Repeat sleep medicine evaluation postpartum

Summary

- CV Health is a helpful framework to reduce risk during and after pregnancy
- Cardiovascular risk stratification informs pregnancy counseling
- Access to high quality care before and after pregnancy is an important strategy to reduce inequities and improve CV outcomes
- Infertility care is another opportunity to optimize CV health
- Pregnancy and heart disease teams provide specialized care during pregnancy and should continue in the postpartum period
- Blood pressure screening and management improves maternal outcomes
- Opportunities to improve risk factor screening and treatment postpartum

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