

# How Early to Start?

## Heart disease risk may start before birth

We know that a mother's health affects her baby during pregnancy. We all know alcohol or drug intake can negatively impact a baby's health. But what about heart disease, the number one killer in the world? What does a mother's health have to do with heart attacks in her child? How does being born preterm affect the risk of heart disease?



### Abstract

- This scientific statement summarizes the available preclinical, epidemiological, and clinical trial evidence that supports the contributions of prepregnancy (and interpregnancy) cardiovascular health to risk of adverse pregnancy outcomes and cardiovascular disease in birthing individuals and offspring. Unfavorable cardiovascular health, as originally defined by the American Heart Association in 2010 and revised in 2022, is prevalent in reproductive-aged individuals. Significant disparities exist in ideal cardiovascular health by race and ethnicity, socioeconomic status, and geography. Because the biological processes leading to adverse pregnancy outcomes begin before conception, interventions focused only during pregnancy may have limited impact on both the pregnant individual and offspring. Therefore, focused attention on the prepregnancy period as a critical life period for optimization of cardiovascular health is needed. This scientific statement applies a life course and intergenerational framework to measure, modify, and monitor prepregnancy cardiovascular health. All clinicians who interact with pregnancy-capable individuals can emphasize optimization of cardiovascular health beginning early in childhood. Clinical trials are needed to investigate prepregnancy interventions to comprehensively target cardiovascular health. Beyond individual-level interventions, community-level interventions must include and engage key stakeholders (eg, community leaders, birthing individuals, families) and target a broad range of antecedent psychosocial and social determinants. In addition, policy-level changes are needed to dismantle structural racism and to improve equitable and high-quality health care delivery because many reproductive-aged individuals have inadequate, fragmented health care before and after pregnancy and between pregnancies (interpregnancy). Leveraging these opportunities to target cardiovascular health has the potential to improve health across the life course and for subsequent generations.

*I wanted to highlight this paper because it brings home the concept of cardiovascular disease being multifactorial and starting young, really young. I talk to my patients about studies done in the early 50s demonstrating that young men in their early 20s had early signs of cardiovascular disease which seems to be a young age to be developing heart disease. This statement from the American Heart Association demonstrates that the foundation for heart disease can be laid even earlier - during gestation! A mother's heart health is directly related to her children's health. The physical, environmental, and mental experiences earlier in her life are directly related to the health of her offspring. Unfavorable pre-pregnancy cardiovascular health is associated with preterm birth, gestational diabetes, high blood pressure, preeclampsia, or a baby who is small for gestational age. These conditions are also linked to a higher risk of cardiovascular disease in the baby. Babies born preterm have a 53% higher risk for heart disease by age 43. Babies born to mothers with type 2 diabetes before pregnancy have a 39% higher risk of cardiovascular disease by age 40. This is a huge increase in premature cardiovascular disease.*

*Cardiovascular disease is intergenerational and women who have increased cardiovascular risk factors including high blood pressure, type 2 diabetes, and are exposed to psychological stressors (poverty, violence) will have children who are predisposed to premature cardiovascular disease.*

*There are two lessons from this paper. First, it is never too early to address modifiable risk factors for heart disease. Secondly, as a society, if we want to move the needle on heart disease, we need to address risk factors for disease which start before and during gestation, including maternal health, nutrition, exercise, and psychological and life stressors such as poverty and violence. We need to avoid passing heart disease to the next generation.*

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, 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.