Introduction:

Approximately 50% of all US women are age 40 or older, likely to be in perimenopause with menopause occurring at 51 years of age on average. Although this affects almost half of a woman’s life, this normal transition is poorly understood by both clinicians and women and individuals likely experience different journeys.  If we can identify/stratify this normal developmental transition, it can help a woman better understand her journey and what is normal vs abnormal as well as contribute to individualized risk for post-menopausal disease, e.g. cardiovascular disease, breast cancer, osteoporosis, etc

Objective:

This project provides the basis for identifying, quantifying, and enabling a better understanding of how menopause progresses using evidence-based methods. Understanding what may be common transition trajectories vs non-typical presentations should benefit both the individual and their clinician to provide better support and guidance.

Whereas it is common to identify symptoms, e.g. hot flashes, our study focuses on when did these occur, in what order did they occur and what occurred simultaneously. In addition, we are incorporating early development, e.g. menarche, as well as detailed profiles of pregnancy(ies) to identify how early patterns may be detected with the goal towards better management of lifestyle, risk and outcome.

Methods:,

We are using two complementary approaches: a new, comprehensive internet-based survey involving women in the US, Canada and Australia and a parallel analysis of several international women’s health studies.

1. The initial survey includes underserved populations in collaboration with Pretty Moody Foundation (Delaware) and Morehouse School of Medicine. This study is intended to serve as a pilot that will lead to a broader public health study where more detailed personal health data will be collected. The survey will collect data on severity, timing, and treatment of symptoms; both detailed menstrual and reproductive history; and history of chronic disease and development, starting with menarche and extending through pregnancy(ies) to peri-menopause.
2. In parallel, we have initiated analyses using the All of Us dataset that aims to investigate the relationship between pregnancy histories, e.g. multiple pregnancies and intervals, gestational age at delivery, etc., potential effects on perimenopause and menopause, and the incidence of post-menopausal health conditions. The research explores whether variations in the length of gestation have a significant impact on a mother's risk for developing conditions such as cardiovascular disease, breast cancer, and others noted in the dataset during this transition. Additional analysis will include and compare results with the UK Biobank, Nurses Health Study, Australian Women’s Longitudinal Study and several Scandinavian databases.

Both studies utilize novel methods we have developed for redefining “next generation phenotyping” that recognizes that both disease and development are processes that evolve over time and involve a complex series of interactions.