Methods to Quantify the Genetic Architecture of Cervical Length

Hope M. Wolf[1,]

@hopemwolf

wolfhm@vcu.edu

Roberto Romero[2] Jerome F. Strauss, III[1, 3] Sonia S. Hassan[4, 5] Shawn J. Latendresse[6] Bradley T. Webb[7] Aaron R. Wolen[8] Adi L. Tarca[2, 5] Chaur-Dong Hsu[2, 5] Timothy P. York, PhD[1, 3]

[1] *Dept. of Human and Molecular Genetics, Virginia Commonwealth University*
[2] *Perinatology Research Branch, Division of Obstetrics and Maternal-Fetal Medicine, Division of Intramural Research, Eunice Kennedy Shriver National Institute of Child Health and Human Development, National Institutes of Health, U.S. Deptartment of Health & Human Services*
[3] *Dept. of Obstetrics and Gynecology, Virginia Commonwealth University*
[4] *Office of Women's Health, Wayne State University*
[5] *Deptartment of Obstetrics and Gynecology, Wayne State University*
[6] *Deptartment of Psychology and Neuroscience, Baylor Univeristy*
[7] *Deptartment of Psychiatry, Virginia Commonwealth University*
[8] *Deptartment of Surgery, University of Tennessee Health Science Center*

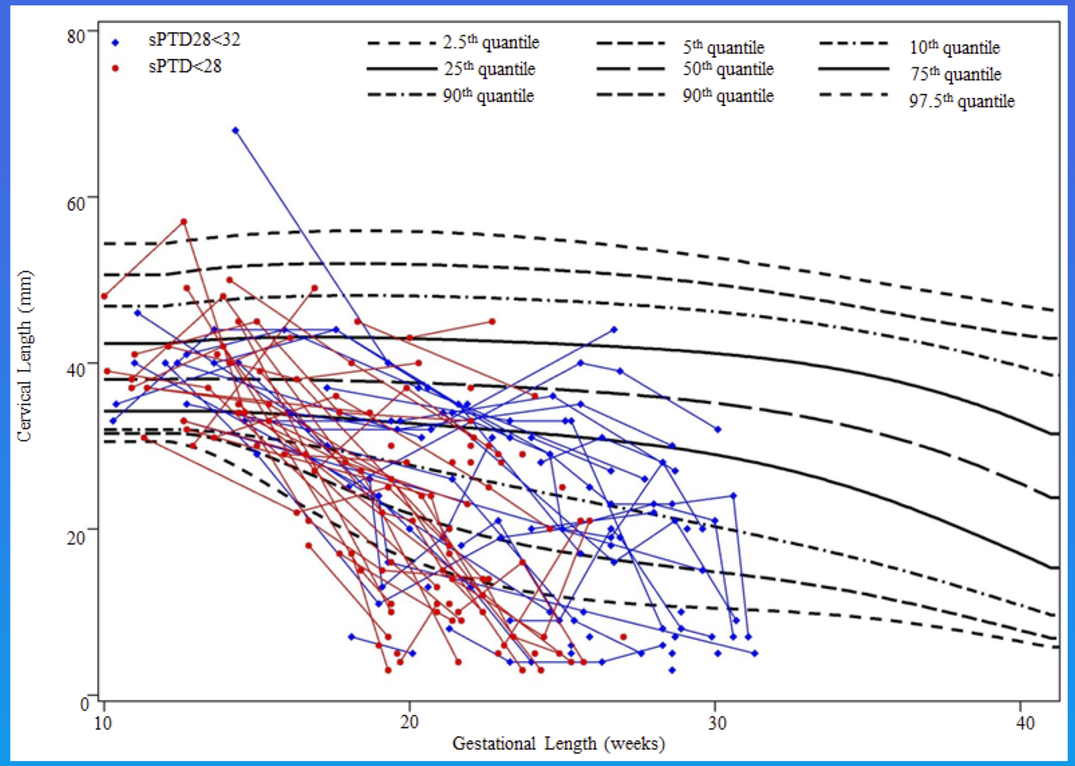
Background

- A **short cervix** in the midtrimester is a **powerful predictor** of spontaneous preterm delivery.
- The **rate of change** in cervical length is also associated with increased risk for sPTD, **independent** of the baseline measurement.
- How much of the **variation** in cervical length and cervical shortening is attributable to **genetic factors**?
- Do the **same genes** influence **cervical change** and **gestational age** at delivery?

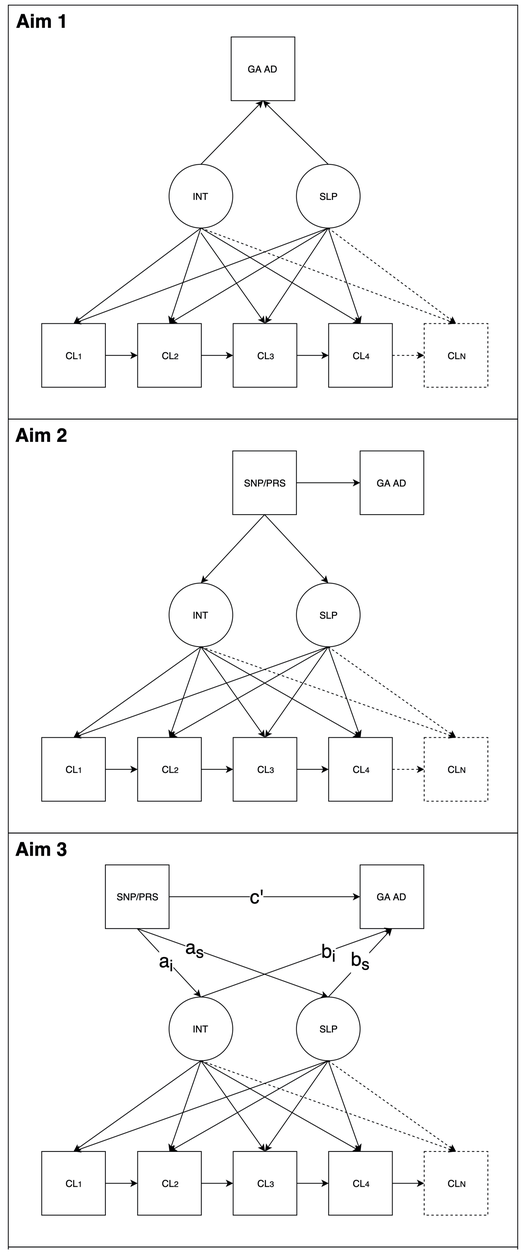
Methods

- Cervical change across pregnancy modeled as a **latent growth curve** in MPlus.
- Longitudinal cervical length data from **>5,000** women with a singleton pregnancy
- Cervical length measured via TVU and gestational age at delivery measured from LMP and confirmed by ultrasound

What is the **genetic relationship** between **cervical length** and **gestational age** at delivery?



Conceptual Model



Discussion

- Estimate the **genetic contribution** to cervical change and its role **mediating** timing of birth
- Understand the **pathophysiology** of a **short cervix** and its association with sPTB