

### Long-Term Mortality Implications of Maternal Weight Change in Pregnancy

Stefanie Hinkle,<sup>1</sup> Sunni Mumford,<sup>1</sup> Katerine Grantz,<sup>2</sup> Pauline Mendola,<sup>3</sup> James Mills,<sup>2</sup> Edwina Yeung,<sup>2</sup> Anna Pollack<sup>4</sup> Sonia Grandi,<sup>5</sup> Yan Qiao,<sup>6</sup> Rajeshwari Sundaram,<sup>2</sup> Enrique Schisterman,<sup>1</sup> and Cuilin Zhang<sup>2</sup>

<sup>1</sup>University of Pennsylvania; <sup>2</sup>NICHD; <sup>3</sup>University of Buffalo; <sup>4</sup>George Mason University; <sup>5</sup>Sick Kids; and <sup>6</sup>Glotech

**Objectives:** High pregnancy weight gain is associated with greater postpartum weight retention; yet the long-term implications remain unknown. We examined associations of pregnancy weight change with mortality after ~50 years of follow-up.

**Methods:** The Collaborative Perinatal Project (CPP) Mortality Linkage Study linked maternal participants in the CPP, a prospective pregnancy cohort (1959–1965), to the National Death Index and Social Security Death Master File for vital status through 2016 (n = 46,042). Total gestational weight change (gain or loss) in the index pregnancy (last CPP singleton pregnancy) was the difference in recorded delivery weight and self-reported pre-pregnancy weight. All-cause and cause-specific mortality associations with quintiles of gestational weight change were estimated using Cox regression adjusting for index

pregnancy age, pre-pregnancy body mass index (BMI), race, parity, smoking, marital status, income, education, site, study year, prior chronic conditions, and gestational week at delivery.

**Results:** Majority of women (69%) had a healthy pre-pregnancy BMI and 46% were White and 45% were Black. Median (interquartile range) total gestational weight change was 9.5 kg (6.4–12.2), respectively; 2.5% lost weight in pregnancy. Over a median follow-up of 52 years (IQR 45–54), 38.9% of women died. Adjusted hazard ratios (HRs) and 95% confidence intervals (CI) for mortality across quintiles 1 to 5 were 1.07 (95% CI 1.01–1.12), 1.03 (0.98–1.09), 1.00 (Reference), 1.01 (0.96–1.07), and 1.09 (1.03–1.14), respectively. Compared to the middle quintile, HRs for the top four causes of death, cancer, cardiovascular disease, respiratory disease, and diabetes for the first quintile were 1.20 (0.99–1.46), 1.05 (0.96–1.15), 1.14 (0.96–1.37), and 0.92 (0.72–1.17), respectively; HRs for the fifth quintile were 1.19 (0.98–1.45), 1.14 (1.03–1.27), 0.95 (0.78–1.14), and 1.52 (1.20–1.92) respectively.

**Conclusions:** This study's novel findings extend the importance of healthy pregnancy weight gain beyond the pregnancy window to women's long mortality risk, particularly from cancer, cardiovascular disease, and diabetes.

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