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Response regarding “Good practices for observational studies of maternal weight and weight gain during pregnancy”

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We thank Dr. Klebanoff for drawing attention to this potential source of bias in pregnancy weight gain research.¹ We agree that exploring one’s data for systematic differences in weight measurement-to-delivery interval according to outcome status should be undertaken as part of good practices in weight gain studies, in addition to those proposed in our “expert opinion” article.²

In some cohorts, the last measured weight may be closer to delivery among women who deliver at term than preterm because of more frequent prenatal visits as gestation progresses. However, we speculate that the interval between last measured weight and delivery could potentially also be shorter in women who experience an adverse perinatal outcome compared with women who do not. This could occur because women at higher risk of adverse outcomes are monitored more closely and may have better documentation of clinical status, including weight, than lower risk women who go on to deliver at term. As a result, we recommend that investigators explore their data to understand the timing of the last measured weight relative to the outcome of interest.

Consideration of this issue at the data collection stage will enable the potential for bias to be better evaluated. For example, data abstraction and prospective data collection forms should collect information on the date of the last measured weight in addition to the value of the weight itself. Alternatively, limits can be imposed on the allowable interval between last measured weight and delivery, such as in the British Columbia Perinatal Data Registry, in which the variable for “delivery weight” is restricted to measurements taken within 7 days of delivery.³ When information on the date of last measured weight is unavailable, a validation sub-study abstracting this information in select cases and controls could be undertaken.

In a recent population-based study of pregnancy weight gain and stillbirth in 160 560 deliveries in Sweden, we found that the measurement-to-delivery interval is systematically shorter among deliveries at younger gestational ages (when adverse outcomes such as stillbirths are more likely to occur) than among term deliveries.⁴ Unpublished analyses from

our cohort from Magee-Women's Hospital in Pittsburgh, PA,⁵ suggests similar general trends, although the magnitude of the difference appears smaller.

If there is a differential, researchers should consider reducing the potential for bias through the study design or analytic plan. For example, in the Swedish cohort analysis, we altered the research plan to use a nested case-control design, where weight measurements for controls were drawn from the cohort of ongoing pregnancies at the time of each stillbirth and matched based on the interval between delivery and last measured weight of the stillbirth (which was then used in subsequent analyses).⁴

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