COMMENTS AND RESPONSES

Response to Comment on: Bardenheier et al. Variation in Prevalence of Gestational Diabetes Mellitus Among Hospital Discharges for Obstetric Delivery Across 23 States in the United States. Diabetes Care 2013;36:1209–1214

We thank Dr. Grant (1) for his interest in our study (2). Dr. Grant pointed out that our analysis overlooked any discussion of the role of vitamin D in the variability of gestational diabetes mellitus (GDM) prevalence across states. Although we might have speculated about a possible role for vitamin D in the regional variability of GDM prevalence, we chose not to for several reasons. First, state-level data available from the Healthcare Cost and Utilization Project (HCUP) are insufficient to fully assess potential sunlight exposure before or during pregnancy for the deliveries examined. Second, the HCUP dataset lacks information likely to affect vitamin D levels, such as use of vitamin D supplements, dietary intake of vitamin D, and the calendar season in which a blood sample was obtained. Third, we have no certain information about the relevant time window in which to measure the mother's vitamin D status. The hypothesized influence of vitamin D on GDM outcome might occur at any gestational week, in the immediate preconceptional period, or perhaps many years earlier when the mother was herself in utero and dependent on the grandmother's circulating vitamin D, and we had no information on potential exposures during any of such periods. Fourth, in the absence of a single standardized laboratory for making such measures across the states, any data describing variation in levels of vitamin D might be subject to methodological biases.

Our article acknowledged that demographic, administrative, and state-level data could not explain 14% of the variability in GDM among states. This unexplained variability in GDM prevalence might be partially explained by variations in vitamin D levels. However, although HCUP provides no information on where the mother lived during the pregnancy, we could identify deliveries in 13 states well above 37th parallel (3,4), 2 states well below the 37th parallel, and 8 states along this border latitude (2). We examined the crude GDM prevalence in these three latitudinal zones and found no dose-response relationship: GDM prevalence was 5.09 per 100 births in the northern states, 5.65 per 100 in the borderline, and states 5.08 per 100 births in the southern states. Because the measurement of vitamin D levels is so limited, further work including more detailed information on local variations in solar irradiance, mother's use of sunscreen, time spent outdoors, seasonality of hypothesized exposures, and oral intakes of vitamin D would be needed to evaluate Dr. Grant's hypothesis.

BARBARA BARDENHEIER, PHD, MPH, MA[1]
ADOLFO CORREA, MD, PHD[2]
HENRY S. KAHN, MD[1]
KAREN KIRTLAND, PHD[1]
LINDA GEISS, MA[1]

From the [1]Division of Diabetes Translation, National Center for Chronic Disease Prevention and Health Promotion, Centers for Disease Control and Prevention, Atlanta, Georgia; and the [2]Department of Medicine, University of Mississippi Medical Center, Jackson, Mississippi.

Corresponding author: Barbara Bardenheier, bfb7@cdc.gov.

DOI: 10.2337/dc13-0138

Acknowledgments—No potential conflicts of interest relevant to this article were reported.

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