Response to Invited Commentary

David et al. Respond to “The Socioeconomic Causes of Adverse Birth Outcomes”

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We appreciate the supportive reflection presented in the accompanying invited commentary by Drs. Messer and Kaufman (1) on our weathering study (2). We strongly agree with their statement that we have just begun to scratch the surface of this area of research. Data limitations and theoretical perspective have inhibited exploration of social causation in birth outcomes, especially when a long-term view—lifelong or beyond—is concerned. Similar limitations have been reviewed extensively in the Journal (3, 4).

Recent work has demonstrated the biologic plausibility of effects of the social environment being transmitted biologically across generations to impact birth outcomes (5). Whether future investigations of possible biologic pathways end up favoring the corticotrophin-releasing hormone trigger mechanism, altered modulation of inflammation impacting the timing of parturition, or some entirely different mechanism, there is growing evidence that the psychosocial context of pregnancy has a predictable impact on birth outcomes.

Demonstrating social stressors at the population level is not without difficulties. There are limitations to US population-wide birth outcome data (i.e., vital records) that limited this study and will pose a challenge to others who pursue this field of inquiry. First, there is no true social class designation on vital records in this country. Use of census linkage as in our study is limited to ecologic data on class and is fraught with technical problems (6). Education has been used as a proxy for socioeconomic status at the individual level, but that variable tells us little about younger women. If a 17-year-old mother has completed 10 years of school, she may or may not be a high school dropout. If a woman has completed the age-appropriate years of school at less than the graduate school level, we still know little about her social class. In the innovative work by Emanuel et al. (7) in which Washington State intergenerational birth records were linked to hospital discharge and financial data, additional individual-level socioeconomic status information was available. With maternal insurance status added to the US standard certificate of livebirth in 2003 (http://www.cdc.gov/nchs/data/dvs/birth11-03final-ACC.pdf), this piece of individual-level social class data should become available in a growing number of states. Unfortunately, this indicator is still limited to identifying the most disadvantaged women (those receiving public insurance). Investigations like the Whitehall studies of British civil servants make it clear that class disparities up and down the social ladder have health consequences (8). In the popular mythology of America, there are no classes, only races. Public data, sadly, reflect this outlook.

Limitations on the study of social causation are even more fundamentally associated with the theoretical framework that dominates the life sciences in this historical moment. Epidemiology has not been immune to the siren song of the human genome. One cannot deny the fact that all biology is at some level affected by the genetic substrate on which it is built. However, even when there are sudden shifts in prevalence in populations over less than a generation, such as in the rate of childhood obesity, epidemiologic analyses appear looking for genomic clues (9). This approach seems counterintuitive at best. We have argued that the search for a “prematurity gene” in African Americans is driven by social and political factors rather than a cogent reading of the existing evidence (10).

The limitations of available data and theoretical framework are, of course, interlocked. If one considers social factors to be less important—or less amenable to manipulation—than genetic factors, then the collection of detailed and extensive data sets with linked social and medical data is a waste of resources. On the other hand, one can only imagine what sorts of multigenerational social-medical data systems could be created with the sort of funding invested in the Human Genome Project. Perhaps data systems and research initiatives tailored to addressing the social determinants of health will grow in the coming years as new studies make these
determinants harder and harder to deny. A political tilt toward addressing the social inequities that impact health would make such a shift in research resources more likely.

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REFERENCES