

# Conceptualizing Health Disparities: Panel Reflections

Overall, the excellent set of articles in this supplement to *Pediatrics*<sup>1-5</sup> defines the critical issues for exploring the life-course perspective on child health disparities and identifies many of the important relationships between social stratification, race/ethnicity, environment, biology, and “time,” that is, over the life course. The purpose of this commentary is to call attention to some of the outstanding challenges (to both science and policy) of adopting this life-course perspective that are raised by the authors. Specifically, we will focus briefly on (1) attributable risk, (2) the gradient effect, (3) biological processes, and (4) policy implications.

## ATTRIBUTABLE RISK

There is a consensus among these authors that the events of early life have a strong relationship to health across the life span. Whether the independent variable is race/racism, social class, immigrant status, or some other dimension of social inequality, there seems to be an impact of these social parameters on health disparities throughout the life course. The relationships that have been documented, however, are associations between risk factors and outcomes, that is, relative risks. For example, low birth weight, which is more common among poor and black infants, is a risk factor for cardiovascular disease 5 decades later.<sup>6</sup> The challenge for researchers in this field is to precisely calculate the magnitude of the contribution that early social inequalities make to adverse adult health outcomes. The principal measure of this quantitative contribution is the parameter that epidemiologists call “attributable risk percent (population).”<sup>7,8</sup> The analytical challenge, according to Wise,<sup>5</sup> is that genes and environment interact at all age stages, and such interactions are rarely uniform. Without fully capturing the interactions between early-life exposures and later life-course experiences, attributable risk can be either underestimated or overestimated. Nevertheless, this kind of quantitative estimate will make the life-course argument relevant to policy makers. It will tell them what fraction of the incidence of adult health conditions may be reduced by effectively addressing the early determinants.

## THE GRADIENT

Both Braveman and Barclay<sup>1</sup> and Francis<sup>4</sup> discuss the “striking” step-wise gradient in health according to socioeconomic status (SES); that is, people in each class have poorer health outcomes than those just above them and better outcomes than those below. This phenomenon suggests that a public health approach may be superior to approaches that only target the most disadvantaged group, because large disparities in health can affect not only those with low income but also those in the middle class. The challenges of the SES-gradients theory, however, include the need for further exploration of the biological mechanisms that explain the gradient effect on health. Also, the shape of the relationship between SES and health can actually be curvilinear, mean-

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## ABBREVIATION

SES—socioeconomic status

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ing decreasing returns to health at higher levels of SES,<sup>9</sup> which will affect both explanations of biological mechanism and policy implications.

### BIOLOGICAL PROCESSES

The Francis article<sup>4</sup> is an elegant discussion of the biological mechanisms—the epigenetic processes—that may underpin the population-level socially relevant relationships. Such elegant biological mechanisms that include discussions of the science of the stress response, hypothalamic/endocrine pathways, and brain receptor sites can be seductive to population scientists and policy researchers; these explanations seem to bring hard laboratory science to soft social science. However, the true challenge is to explain the complexities of these mechanisms. For example, how does the chronic stress response explain the social gradient?

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How does the organism know where it is on the social ladder so that its biological machinery can modulate the stress response? Where is the thermostat that calibrates the responses differently for the lowest social stratum, the middle strata, and the highest strata?

### POLICY IMPLICATIONS

Our one comment on policy implications comes from the discussion of the “gradient.” Investigators of the disparities and life-course agenda must decide whether the focus of policy attention should be on the lowest rung of the social ladder (poverty) or on the disparities that occur along the full range of social inequality. Focusing on the elimination or mitigation of the effects of poverty on children is not incompatible with attention to the needs of children through all the social stages (working poor, middle

class, etc). However, there are very different implications for the use of resources and for the development of a constituency for social change. The problem is not unrelated to that posed by Sir Geoffrey Rose in his classic article “Sick Individuals and Sick Populations.”<sup>10</sup>

### CONCLUSIONS

Science is a powerful tool for influencing societal thinking about the relationship between social inequalities and health disparities. The life-course perspective adds another dimension to research on disparities. As recognized by the authors, however, science is a necessary but not sufficient element of policy making. It is our responsibility as scientists and clinicians to bring the best thinking and information to the policy table. This panel successfully moves the argument forward.

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