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Journal discussion
Social epidemiology: how socioeconomic risk factors become health realities
by Ken Fox, MD

Lu N, Samuels ME, Wilson R. Socioeconomic differences in health: How much do health behaviors and health insurance coverage account for? *J Health Care Poor Underserved*. 2004;15:618-630.

Isaacs SL, Schroeder SA. Class—the ignored determinant of the nation's health. *N Engl J Med*. 2004;351:1137-1142.

Once when I was caught in the wretchedness of an intern's post-call haze, the attending physician posed a haunting question: "What does death tell us about how we live?" Like a tolling bell, his words brought our sleepy team to rapt attention. Looking back, I realize how much my moral compass as a doctor was shaped by that mentor in that moment. Though I didn't fully appreciate his stature at the time, my attending physician was the pre-eminent pediatrician Paul Wise, and this was my introduction to social epidemiology. Over many years and at many stages in my professional development, I came to appreciate the importance of his work, the power of the field it exists within and the vitality of practice it inspires.

The purpose of this essay is to comment on two journal articles that are very much in dialogue with the discipline of social epidemiology and address the relationship of poverty to health as both an intellectual problem and a challenge for public policy. The first is "Socioeconomic Differences in Health: How Much Do Health Behaviors and Health Insurance Coverage Account For?" [1] by Ning Lu, et al. The second is "Class—The Ignored Determinant of the Nation's Health" [2] by Stephen L. Isaacs and Steven A. Schroeder.

Health risks + behaviors = health outcomes
The aim of the study by Lu and colleagues was to quantify the degree to which health behaviors and health insurance (or lack thereof) contribute to differences in health status across socioeconomic groups. Investigators used cross-sectional data from the Kentucky Behavioral Risk Factor Surveillance System, a random-dial telephone survey.

Researchers assessed socioeconomic status using employment status, three levels of educational attainment and three levels of income (less than $15,000, $15,000-

34,999 and more than $35,000). Risk factors that were taken into account included smoking, physical inactivity, inadequate fruit and vegetable consumption and overweight. The health of respondents was self-assessed as either "good" or "poor," and their insurance status was documented. The demographic factors of age, gender, marital status and family size served as control variables in the analyses.

Investigators deployed a series of multivariate logistic regression models, controlling for employment status and the demographic variables to determine the contribution of risky health behaviors and lack of insurance to health status across SES. They found that lower levels of education and income were strongly related to higher prevalence of risky health behaviors, lower rates of insurance coverage and overall poorer health status. However, risk behaviors and lack of coverage accounted for only a small proportion (10-16 percent) of the large disparities in health status between higher and lower income groups.

The study's significant limitations were amply discussed by the authors. First, health status and behaviors were self-reported rather than directly measured. Second, the select health behaviors surveyed might not be those that matter most in shaping disparate risks. Third, because the data were cross-sectional rather than longitudinal, investigators could not comment on causality in the relationship between socioeconomic status (SES) and health status. They also pointed out that the degree to which SES and health status are associated may vary across populations. Since the subjects were all white adults older than 18 years with a mean age of 44.5 years, the findings may not be generalizable to different racial, ethnic or age groups.

Nevertheless, the main findings resonate with a large and important body of social epidemiology work on the determinants of health. This field has documented elevated rates of affliction, suffering and death among those of lower socioeconomic status compared to their more privileged peers. Excess health risk and poor health outcomes among those with low SES are rooted in what leading scholars Bruce Link and Jo Phelan call "fundamental social causes of disease," namely lesser and inadequate access to resources like "knowledge, money, power, prestige and beneficial social connections" [3].

These fundamental relationships are extraordinarily robust and have been demonstrated many times in many places. One may turn, for example, to historic figures like early germ theorist Rudolf Virchow who wrote in 1848 that "Medicine is a social science, and politics nothing but medicine on a grand scale," or to the famous work of Thomas McKeown who argued in *The Role of Medicine: Dream, Mirage or Nemesis?* that profound population growth, declines in infectious disease and improvements in health over the past two centuries are the consequence of improvements in nutrition and social and economic conditions rather than medical care. One may find documented evidence of these relationships in U.S. studies of socioeconomic gradients in health [4] or in international data [5]. No matter which source one turns to, the bottom line is that poverty matters greatly to health risk, status and care.

Important new foci within social epidemiology explore connections between overall income or wealth inequalities in a society and health outcomes [6, 7]. A relative deficit of resources compared to others in the society—rather than any absolute standard of living—may be an important source of health disparities and poorer health outcomes overall. For example, people in nations characterized by greater income equality have longer life expectancies than people in nations characterized by a broader spectrum of income and, hence, less income equality [6]. Similarly, within the U.S., states with greater income inequality are also notable for higher total age-adjusted mortality rates [8]. Finally, a sort of "dose effect" seems evident: each degree of increase in income inequality is associated with an increase in mortality rates [8].

At the cutting edge of social epidemiology are studies that explore the mechanisms by which social forces become material realities. How, for example, do racial and income inequalities become incorporated biologically? How do ideas find their way beneath the skin? "Embodiment theory," [9] articulated by scholars like Nancy Krieger, is emerging as an important current within social epidemiology. The theory posits that early experiences influence the expression of genes that, in turn, affect how people respond to stress throughout their lives.

Never trust the bleary-eyed intern who thinks his medical skills can cure all who seek his care. He is noble but cursed. Any way you cut it, the clear-eyed gaze of social epidemiology reveals that medical care makes a relatively small contribution to overall health status on the population level. Scholars assess that only 10-15 percent of premature deaths in the U.S. could be averted by greater availability or higher quality of health care [10]. They cite a Department of Health and Human Services report from 1994 that estimates that only five of the 30 years of U.S. life expectancy gained during the twentieth century are attributable to medical care [11]. Moreover, argue Bunker et al., only 3 of 7 years gained since 1950 are due to medical care [12]. Therefore, access to traditional forms of medical care that insurance grants would not be expected to make much of a difference for the overall health status of adults—particularly in the context of vast social inequities. Thus, the findings of Lu et al. come as no real surprise.

The authors are left, then, to speculate on mechanisms key to the social production of health since their study fails to specify what matters most. In perhaps the most provocative sentence of the piece, the authors wonder about determinants of health they do not directly explore:

> The construction, distribution, and institutionalization of economic resources, social relations, and cultural and psychological forces through social policy and political structure may account for more of the SES-related differences in health than health behaviors and health insurance coverage do [13].

But, as the saying goes, *I tell you what*: at the end of the day, the Kentucky state song—brimming with Southern melancholy and the sting of memory—seems to get it just right, even if Lu et al. do not: "By'n by hard times comes a-knockin at the door…in my Old Kentucky home" [14]. Hard times, indeed, for some more than others.

The role of class

Isaacs and Schroeder are masters of the American health policy universe and their thought piece, "Class—The Ignored Determinant of the Nation's Health," is a useful commentary, both pragmatic and revealing. Isaacs is an attorney and an accomplished consultant to the Robert Wood Johnson Foundation, which gives away nearly $400 million per year, making it the nation's largest philanthropic organization committed to U.S. health and health care. Schroeder is the foundation's former president. These wise playmakers are well placed to profess a particular reading of social epidemiology and to urge a rethinking of policy priorities.

Isaacs and Schroeder offer a concise review of a superb bibliography on socioeconomic gradients in health. The work they cite ought to be on the tip of the tongue of every serious health scholar, teacher and clinician. Their thesis is that greater attention should be paid to "the reality of class and its effects on the nation's health."

But Isaacs and Schroeder fascinate most when they speculate on why *class* can't get "the props" it deserves in American public policy discourses. Here they offer a menu to suit a range of political palates: They note Americans' beliefs in fairness and upward social mobility, our alleged discomforts with the concept of class ("which smacks of Marxism") and our collective fear of "economic warfare" [15]. Or perhaps our preoccupation with race is to blame—"Concentrating mainly on race as a way of eliminating health disparities downplays the importance of socioeconomic status on health." Maybe, as they claim, it's the inherent difficulty in defining the word "class," though it is measured typically in epidemiology according to education, occupation and income.

Despite the difficulties, much is at stake in the details of definitions. And this is where Isaacs and Schroeder leave me wanting more. Like Lu et al., these authors round up all the usual suspects to explain the social gradient: health behaviors and lifestyles of the poor, unemployment or low wages, lack of health insurance, poorer education. Laudably, they go beyond Lu and colleagues to note that the poor live in "worse neighborhoods and are exposed to more environmental hazards." Yet a great puzzle remains for Isaacs and Schroeder even as they note the society's widening economic inequities: "Beyond that, however, there is *something* about lower socioeconomic status itself that increases the risk of premature death" [15]. *Something*, indeed.

The most incisive commentators on the problem of class and health define class as "social groups arising from interdependent economic relationships among people"

forged by a society's fundamental "forms of property, ownership and labor and their connections through production, distribution and consumption of goods, services and information" [16]. The key here is *interdependence* among the groups. From these relationships—signified by ownership, control or possession of capital, skills or credential assets [16]—profits and privileges arise. In short, one group is defined by its relationship to others.

And, according to an increasingly visible cadre of scholars in social epidemiology and medicine [9, 17], just as profits and privileges arise through these relationships, so, too, do burdens. In the tradition of Virchow and all who follow, they assert that sickness, suffering and death loom large among those burdens. Moreover, these insights are often rendered visible by "studying up"— by fixing the disciplinary gaze on corridors of power and the privileged who walk them—as well as through fine-grained analyses of "social suffering" among the poor gained by "a view from below" [18] of the people and policies that oppress and immiserate them.

Just as privileges and burdens arise from these relations of power, so, too, must claims of social justice [19]. But the phrase "social justice" is impossible to find in the piece by Isaacs and Schroeder, even when their reasoning marches intrepidly toward it. Instead, their prescription for the predicament of health disparities lies in "enabling" the poor "to adopt more healthy behavior" and "attending to those social and economic factors that encourage healthy behavior." In short, they call most explicitly for greater "attention"—more and better *data*—rather than more and better *justice*.

Which brings me back to my mentor, his question about death and the approach to doctoring they inspire. The wisest make no bones about it: "Bodies tell stories about the social conditions of our existence" [9]. Those conditions, more and more, are marked and driven by social inequities. And the most powerful strategies to address health disparities forged in this crucible recognize that "the pursuits of efficacy and justice are inextricably linked" [20].

In my final hour let it be said: He was a witness to stories and a partner for social justice in health.

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