Location, Location, Location

In a provocative examination of vital statistics data reported in this issue, Christenfeld et al. (1) argue that there's something about New York City (NYC) that is associated with excess mortality from ischemic heart disease (IHD). Others (2) have reported elevations in rates of IHD for residents of NYC relative to other parts of the state. Christenfeld et al. (1) expand on these analyses by demonstrating that residents of NYC, and visitors to it, experience an elevated proportion of deaths due to IHD, whereas city residents visiting elsewhere have a decreased proportion of deaths due to IHD. Although the results tempt one to expand on the old cliché that New York is a "nice place to visit, but I wouldn't want to live there," they more importantly raise a number of methodological and conceptual issues.

IS IT A "REAL" EFFECT?

As is well illustrated in the epidemiologic literature on the health effects of occupational exposures, analyses that focus on variations in the proportion of deaths due to a specific cause (proportional or proportionate mortality analyses, or PMRs) are not without their problems. Rothman and Greenland (3) point out that a critical issue in the interpretation of such PMR analyses is whether the exposure is related to causes of death other than the one of primary interest. Thus, if being in or outside NYC is associated with other causes of death, either increasing or decreasing them, there will be problems in interpreting this apparent effect on coronary deaths. For example, if deaths from IHD in NYC are overrepresented, what causes of death are underrepresented? Furthermore, there is considerable heterogeneity within NYC, both with respect to place and people, and this heterogeneity is associated with substantial variations in mortality (4–6). Thus, an examination of this "NYC effect" with more detailed consideration of effects on other causes of death and variations by age, race, ethnicity, sex (relying less on the vagaries of standardized estimates), and location in NYC would add considerably to our understanding of the data presented by Christenfeld et al. (1).

WHAT'S THE EXPOSURE?

Let's suppose that this "NYC effect" on IHD is real. The authors quite plausibly point out that the influence is likely to be associated with increased likelihood of the triggering of acute events among those already vulnerable in case of visitors to NYC and decreased likelihood of such triggering in NYC residents who are visiting outside the city. It would be of interest to know about the proportion of sudden, out-of-hospital death in these groups. Of course, deaths to visitors and to NYC residents out of town account for less that 9% of the total deaths, so the bulk of the excess IHD mortality is found in residents who die in NYC, and the mechanisms here are most plausibly related to both chronic and acute effects.

What, then, is responsible for this increased proportion of IHD deaths? Again, having more information on how this effect is manifested with respect to age, race, ethnicity, gender, and location would help us in the search for exposures. It is useful to review the properties that such exposures would have to have. First, they would have to manifest both acute and chronic effects that were specific to IHD, with no influence on other disease processes, and they would have to be absent or less prevalent in the other major cities that the authors studied. Finally, they would have to be strong enough to increase the relative proportion of IHD deaths to NYC resident by 56%, with concurrent reductions in other causes. It will be no easy task to find such factors!

DOES PLACE MATTER?

It seems reasonable that characteristics of the places in which people live, or perhaps visit, should be related to their health status. Where there are large and pervasive exposures to environmental hazards, for example, it would not surprising to find worse health in the exposed population. However, there has been a recent surge of interest in the importance for health of socioenvironmental properties of communities and neighborhoods (7–10). Moving beyond the initial studies that indicated associations between aggregate community characteristics and the aggregate health of those who live in these communities, more recent studies have shown that social and economic properties of communities are independent predictors of the health of individuals who live in those communities. For example, we (11) demonstrated that residence in a federally designated poverty area was associated with an almost 50% increased risk of death over the next 9 years, even when there was adjustment for a wide

0033-3174/99/6106-0744

range of individual socioeconomic, demographic, behavioral, social, and psychological factors. The results of that study, including analyses of specific cause of death, have been replicated in a national sample (12), and new studies are showing similar contextual effects on a variety of health outcomes (13–17).

This increasing interest in the role of the community context is also seen in the human development literature, particularly with respect to studies of the role of neighborhood and school effects on development and learning. The current interest in neighborhood effects on children and youth has multiple origins, reflecting the confluence of the work of Wilson (18), with its emphasis on the nature of life in areas of concentrated poverty, and a revival of interest in social disorganization theory (19, 20). A recent two-volume publication provides considerable support for the impact of neighborhood factors on child and adolescent achievement, behavior, and mental health (10) but at the same time suggests that because of measurement problems, the strength of these effects may be underestimated.

Thus, there seems to be considerable accumulating evidence that where one lives does influence one's health. The challenge, as we see in the Christenfeld et al. article, is to develop conceptual models that point us in the right direction with respect to measurement. Presumably, such efforts will require the joint, interdisciplinary efforts of epidemiologists, psychologists, urban sociologists, geographers, economists, city planners, anthropologists, and others. With such an effort, it should be possible to develop a theory of place that will enable us to more fully understand its powerful effects on the health of individuals and populations.

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