Leveraging Community Information to Improve Health Equity

In this issue of Mayo Clinic Proceedings, Chamberlain et al report that a composite measure of neighborhood socioeconomic disadvantage is positively correlated with increased risk of most chronic conditions, with more pronounced associations in younger adults. This exploration of associations between community-level socioeconomic disadvantages and chronic condition prevalence by age, race, ethnicity, and sex is an important step in understanding and eradicating lingering racial and ethnic disparities among Americans’ health and life chances. Whereas disparities in morbidity, in life expectancy, and in the underlying circumstances that affect health (eg, wealth, education, stable housing, safe neighborhoods, access to healthy food, transportation) have long been documented, only recently has the importance of local community context for health and for possible solutions to inequities been highlighted. The social-ecological theory employed by the authors has proven to be a useful framework for the analysis of a number of consequences of neighborhood characteristics, including adverse childhood experiences.

The paper builds on a uniquely granular data set that captures individual health conditions from linked electronic health records covering 94% of the population in 7 counties in southern Minnesota and western Wisconsin from the Rochester Epidemiology Project and uses census block data on the widely used area deprivation index (ADI) to test for associations between census block socioeconomic challenges (ADI) and a range of chronic conditions. Whereas the longitudinal nature of the Rochester Epidemiology Project resource is unique as its spans more than a century in health informatics efforts at Mayo Clinic dating back to Plummer in 1907, Berkson in 1935, and Kurland in 1966, efforts to develop this type of data set covering other geographies across the United States, perhaps using health information exchange data, should be a high priority for these and other researchers interested in improving health equity and ameliorating disadvantages emanating from social determinants of health.

The basic result that higher quintiles of ADI are associated with higher prevalence of all but 1 (cancer) of the 19 conditions studied adds to and supports the growing body of work establishing linkages between neighborhood conditions and individual health status. But the major contribution of the paper is in testing for nuance in this relationship by stratifying association by age, sex, race, and ethnicity.

The authors found that the impact of ADI on the prevalence of specific chronic conditions was often larger for younger adults than among those at least 70 years of age and was somewhat larger for women in half of the conditions studied. However, tests of differential effects of ADI by race and ethnicity were mostly inconclusive, hampered by a small sample of Black and Hispanic patients in the counties in the data set. Importantly, the paper controlled for individual education levels in all statistical tests, with the preponderance of results supporting the inference that ADI has an impact on chronic disease prevalence beyond the impacts of individual socioeconomic status. This demonstrates that community influences matter in addition to individual characteristics.

Whereas physicians and social workers have understood the connections between social conditions and health made by Virchow and others since the mid-19th century, including the Black Report of the United Kingdom, the Affordable Care Act intensified health care’s focus on these linkages by extending Medicaid coverage to the
homeless (in expansion states) and by emphasizing value-based payment models over fee-for-service payments. That focus on the Affordable Care Act plus regulatory changes that permit health plans to use Medicare and Medicaid program funds to pay for certain health-related social services like food and transportation led to a situation in which many plans and hospitals have population health and social determinant of health (SDOH)—focused executives and operational units. The question few can answer at the moment centers on, What SDOH-related activities should we pursue and for which subsets of patients?

The research data set and methods employed in this paper point toward increasingly valuable answers to this question by establishing differential impacts of community conditions on chronic condition prevalence by age and sex. A recent Surgeon General’s report expounds on the importance of focusing on community conditions to improve the health and the economy of our nation. A growing body of research points to successful SDOH interventions for some subpopulations (see the curated bibliography at the University of California, San Francisco’s SIREN project; https://sirenetwork.ucsf.edu/tools/evidence-library), but few efforts to date have selected patients using clinical and comorbidity characteristics. Rather, initiatives typically target groups selected for being high users. Recent innovations in collaborative financing permit a broadening of shared SDOH objectives to address health status and equity more directly and sustainably. In Cleveland, for example, a consortium of 5 health insurers, 3 hospital systems, 2 philanthropies, and 1 area agency on aging, organized and led by the United Way, is jointly financing the provision of medically tailored meals to food-insecure and socially isolated older adults with 1 of 4 specific chronic conditions (see https://sirenetwork.ucsf.edu/tools/evidence-library for ongoing applications and more examples).

Ideally, adding clinical comorbidity considerations to community-level SDOH interventions should lead to emphasizing chronic morbidity prevention strategies targeted at specific subgroups, strategies that must include improving ADI and other community-wide metrics of opportunity. The multiple inequitable impacts of the COVID-19 pandemic (health and economic) coupled with the increasingly clear legacies of racism across the United States have driven home the sense of urgency that motivates many health professionals and social policy makers today. We can and should improve equity on a host of fronts if we act on the lessons of the emerging research exemplified by this paper: community and individual factors matter for health outcomes in different ways for different people.

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