Disadvantage Indices: A Tool for Understanding and Addressing Unmet Social Needs

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With growing interest in using health care settings to identify unmet social needs and connecting families to resources, there is a necessary discussion to be had about how to identify families in need, and whether to do so at the individual or population level. PolicyLab experts have been thought leaders on the implications and considerations in screening for social needs in pediatrics and how to make it family-centered and effective, and this work has included recommendations for how to leverage population-level indices in allocation of support and connection to community resources.

As a student at the University of Pennsylvania, I've had the opportunity to work with Dr. Harald Schmidt from Penn's Department of Medical Ethics & Health Policy on researching how community- level data can be used to target more equitable distribution of resources. During the COVID-19 pandemic, we conducted a study to determine how states planned to identify communities in need of COVID-19 vaccines in a time of vaccine scarcity. The majority of states integrated what are known as disadvantage indices, or DIs, in their COVID-19 response plans in an effort to address social and racial disparities.

For example, Philadelphia's health department utilized a disadvantage index to identify priority populations for vaccine allocation, plan locations for dispensing sites, and target outreach and communication. It is important to note that the implementation of disadvantage indices in state planning did not ensure equitable vaccine roll-out and, ultimately, there were still significant inequities in vaccine distribution and receipt. Yet, the novel use of disadvantage indices during the COVID-19 pandemic suggests broader potential for its utility in health care settings, including alongside social needs screening.

What are disadvantage indices?

Disadvantage indices are public health tools that measure how vulnerable a population is and can aid policymakers in mitigating the inequities that disadvantaged communities face. In 2011, the Centers for Disease and Control and Prevention created their own disadvantage index, named the Social Vulnerability Index (SVI). The SVI applies 15 census variables to a unit of geographic area to estimate a value of relative vulnerability ranging from 0 to 1, with higher values indicating greater vulnerability. The equally weighted census variables include factors that can negatively impact social determinants of health to provide a sub score under four main domains: socioeconomic status, household composition and disability, minority status and language, and housing type and transportation.

Initially, the intended purpose of the SVI was to help public health officials quickly identify vulnerable communities that needed assistance and resources during natural disasters. However, the SVI took on a new role during the COVID-19 pandemic.

The majority of state health departments leaned into the SVI as a resource for drafting COVID-19 vaccine allocation plans. The National Academies of Sciences, Engineering, and Medicine (NASEM) recommended that the supply of COVID-19 vaccines be allocated through a phased approach, consisting of four phases that prioritized high-risk populations. Policymakers planned to target their outreach and prioritize allocation to the communities deemed most vulnerable by the index. COVID-19 has disproportionately affected certain populations due to disadvantages promoted by structural racism, essential work settings, congregate living situations and more. SVI data allowed public health officials to acknowledge inherent health disparities and focus their efforts into helping those who were hardest hit by the pandemic in a period of vaccine scarcity.

The Child Opportunity Index (COI) is a similar disadvantage index based on 29 neighborhood indicators selected specifically to be relevant to child health and well-being and may be particularly relevant to the pediatric population. Like the SVI, the COI has been used for community needs assessments, strategic planning, resource allocation and to inform place-based interventions.

Disadvantage Indices and Social Needs Screening

Current pediatric social needs screening methods primarily utilize short questionnaires that ask parents or guardians about different domains, including housing, food, transportation, utilities, personal safety and assistance. Screening aims to assess a family's social needs on an individual basis, but current strategies for individual or family-level social needs screening have limitations.

Physicians may feel uncomfortable inquiring about a patient's personal circumstances, especially without adequate training on how to react to responses. Moreover, patients may not answer accurately out of fear of judgment from their practitioners, biases in health care delivery, and in the case of pediatrics specifically, potential involvement of child protective services. Current screening methods may fail to account for the historical mistrust in health care systems that may hinder disadvantaged patients from answering questionnaires truthfully. In addition, merely identifying social needs may raise false expectations that there is a meaningful solution available and increase frustration among families in need.

The research that I've been involved with suggests that disadvantage indices could serve as a helpful adjunct to individual-level screening and support allocation of scarce community resources to address unmet social needs. Disadvantage indices, like the SVI, consider different forms of disadvantage and can supplement current social needs screening methods with population health metrics. These tools provide a nuanced understanding of social needs from a neighborhood level and can serve as a valuable resource to reduce health disparities.

While disadvantage indices may not be able to reliably predict an individual or family's social needs, they could help situate a patient's personal experiences in the broader context of their community. In this way, disadvantage indices provide context on systemic challenges that a patient's community faces, whereas family-centered questionnaires aim to address personal concerns and priorities. Disadvantage indices could also be used in conjunction with existing community health needs assessments to inform health systems' community benefit spending and advocacy focused on improving resources available to address social needs at the population level.

It is very important to be able to understand families' unmet social needs and the health care setting provides a unique venue to connect families to community resources and programs. While the evidence for the most effective ways to screen families and offer them support continues to develop, including through PolicyLab research, a strategy that incorporates both individual-level and population-level data may help deliver resources to families in need.

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