Mapping Food Insecurity in Philadelphia: Helping Individual Families While Gathering Evidence for Policy

Health Equity

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Pediatric providers have been increasingly discussing the need to examine the social determinants of children's health in primary care. As a particularly strong predictor of poor health outcomes for children, food insecurity can lead to conditions such as anemia, and psychosocial and behavioral problems. While we know that screening for food insecurity in primary care is appreciated by patients' families and can fit easily into physician workflows, helping families who need food requires a variety of approaches. These include innovative interventions in primary care that directly provide families with food in the clinic, help them sign up for federal food assistance or provide them with a list of local food pantries.

Our health behaviors, however, can be greatly affected by the neighborhood in which we live, sometimes in ways that we may not be aware of. Therefore, after physicians learn that a family is food insecure, helping them access food and be their healthiest selves means learning about their community. Each community has different resources. Not every family has easy access to local food resources; they may simply live too far from any food pantries or their neighborhood may not have a grocery store. Until we take these challenges into account, the information we provide to families on where to access food may fall short. With this in mind, we wanted to find a way to illustrate what local food access looks like for all of our food-insecure patients so that we can do more to connect them with food resources that work for them.

Painting a picture of food insecurity in Philadelphia and the suburbs

In order to create this illustration, we used information from a multi-year effort by physicians at Children's Hospital of Philadelphia (CHOP) primary care clinics to screen more than 22,000 patients and their parents for food insecurity in Philadelphia and the surrounding four counties. Through these screenings, not only did we learn that eight percent of families screened positive for food insecurity—we gained a deeper understanding of the neighborhood-level context of food insecurity in Philadelphia and its suburbs. We mapped where patients live and calculated how far away their homes are from the nearest large grocery store and food pantry. We also looked at the characteristics of neighborhoods where food-insecure families live to better understand what might affect their ability to access food.

Our results underscore just how important it is to consider how neighborhoods may contribute to families' food insecurity. We found that more than 40 percent of food-insecure families lived more than half a mile from the nearest food pantry, many of them without cars to get there.

We also found that the challenges of addressing food insecurity are substantially different depending on whether families lived in Philadelphia or the suburbs. Food insecurity was much more prevalent among children living in the city: 10 percent of the children we screened in Philadelphia were food insecure, compared to 4 percent in the surrounding counties. However, our maps also highlighted the differences within suburbs that have high and low levels of poverty. In the city, food-insecure families tended to live near one another; in the suburbs, food-insecure families were spread out over a much larger area. Furthermore, we found that 60 percent of food-insecure suburban families lived in a neighborhood with poor access to a large grocery store, compared to 25 percent of food-insecure families in Philadelphia.

Using local food insecurity information for larger policy change

By mapping out food insecurity for the families we care for, we learned more about what our patients experience every day in their neighborhoods. This can help us refine our efforts to address food insecurity in primary care to make sure they meet patients' needs. At an individual level, we can see, for example, whether patients have a food pantry near their home or whether they live in a suburban setting with fewer big grocery stores. With this knowledge we can make sure that the resources and information we provide to them is appropriate for their specific needs.

We can also harness this information to more deeply understand the problem on a larger scale. Food insecurity prevalence data has typically been available at the county or zip code level, but by using the screening data from across the CHOP health system, we were able to examine food insecurity with much greater geographic specificity. In doing so, we identified neighborhoods where food-insecure families have a critical lack of access to food resources. This kind of population-level information can provide policymakers, advocates and population health interventions with targeted data that allows them make the biggest impact on reducing hunger.

Our study focused on our own patients, but the model we used can be applied in just about any other community. Using basic mapping tools, we combined clinical screening data with free, publicly accessible information to understand food insecurity on a local level. Other health systems can easily use this model to learn vital information about their patients' access to local food resources. As an increasing number of clinics and health systems begin to screen for food insecurity and other social determinants of health, this data can provide a more granular understanding of how social risk factors change over time in a community.

The true challenge of addressing food insecurity is that it is a symptom of larger issues of poverty, racism and systemic inequality. Addressing those issues will remain priorities for the public health community for the foreseeable future, but will require time and political will to meaningfully change. In the meantime, health systems that screen for social determinants of health are in a unique position to inform these larger efforts by illustrating the ill effects of poverty—including food insecurity—at the population level. The most important lesson from our study was seeing just how rich social determinants of health screening data can be when we find the right ways to harness it.

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