

Advances in Measuring Disparities across the University of California Health

UC Health

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University of California Health (UCH) is the largest academic health system in the US and has a diverse patient population. Social determinants impact health outcomes yet it is difficult to obtain robust patient level indicators. We developed a system-wide approach to better estimate social determinants in our patient population using the Area Deprivation Index (ADI). The ADI estimates socioeconomic status based on income, education, employment, and housing quality at the neighborhood level with higher deciles reflecting poorer neighborhoods.

UCH built a secure central data warehouse holding data on ~ 6 million unique patients overseen by the system Center for Data-driven Insights & Innovation (CDI2). CDI2 used ESRI geocoding for addresses of the UCH primary care population and linked these data to the ADI and individual demographics such as race, ethnicity, gender and age. ADI was calculated for more than 600,000 attributable primary care patients. These patients populate all ten ADI deciles, ranging from 7.6% in the lowest quintile to 43% in the highest quintile. Among the 33,103 patients with diabetes, the range was 11% and 29% respectively. Linear regression shows the latest recorded hemoglobin A1c for these patients is independently associated with ADI, with higher A1c associated with higher ADI decile.

ADI scores for individual patients offer a new opportunity for population-based management of chronic conditions. The UCH Population Health program is a system-wide collaboration for improvement work using population-based data to evolve care delivery. We will use ADI to focus scarce resources, by allowing targeted screening for patients with high ADI scores for referral to more intensive case management and community services. We have also incorporated ADI into the system-wide risk score and will use the ADI to analyze interactions of disparities and outcomes for our populations and to inform local and system-wide interventions.