Comparing Measures of Geographic Access to Care

Distance is commonly used in policy and research as a measure of geographic access to health care. Studies of health care strongly suggest a link between distance and health care utilization in rural settings, but there is evidence to suggest that the distance measure is an unreliable predictor of health care access in urban settings. Activity space-based measures of geographic access, used in geography and the travel sciences, represent access as a function of the fixedness of an individual's routine in space and time, and their ability to travel from one activity to the next. These measures may better predict access for urban individuals who are more frequently constrained by lack of vehicular transportation, or are limited by other employment, economic or social considerations.

The objective of this research is to evaluate distance and activity space-based measures as representations of the spatial dimensions of health care access in a poor, urban, diabetic population. Specific aims are: (1) to evaluate the relevancy of distance measures as a predictor of attendance to health care visits, (2) to validate distance measures against geographic measures based on the gold-standard activity-space, and (3) to evaluate the feasibility of global positioning system technology to facilitate data collection in this population. Dependent and independent variables will be obtained from electronic medical records (EMR) of diabetic patients that receive care in a large Cleveland health network, and from a cross-sectional survey of a subsample of those patients. A random sample of patients will also be asked to record information about their daily travel using global positioning system units. Measures of geographic access will be compared to evaluate how closely they correlate. Multivariate analysis will be used to determine the association between spatial access measures and attendance at scheduled health care visits.

The study will bring focus to a poor, urban Cleveland population whose patterns of geographic access may be very different from the rural or car-owning populations that are the focus of existing geographic access research. The results of this study will clarify the interpretation of studies that use distance as a measure of geographic access, and may additionally guide the selection of measures in future studies carried out in the urban context. The project also has potential policy impact: the government often relies on distances equivalent to half-hour travel time to evaluate regional access to care, as in the designation of Health Professional Shortage Areas. This research may provide initial insight to how well this method identifies areas of poorer geographic access in urban areas, and how it might be improved.