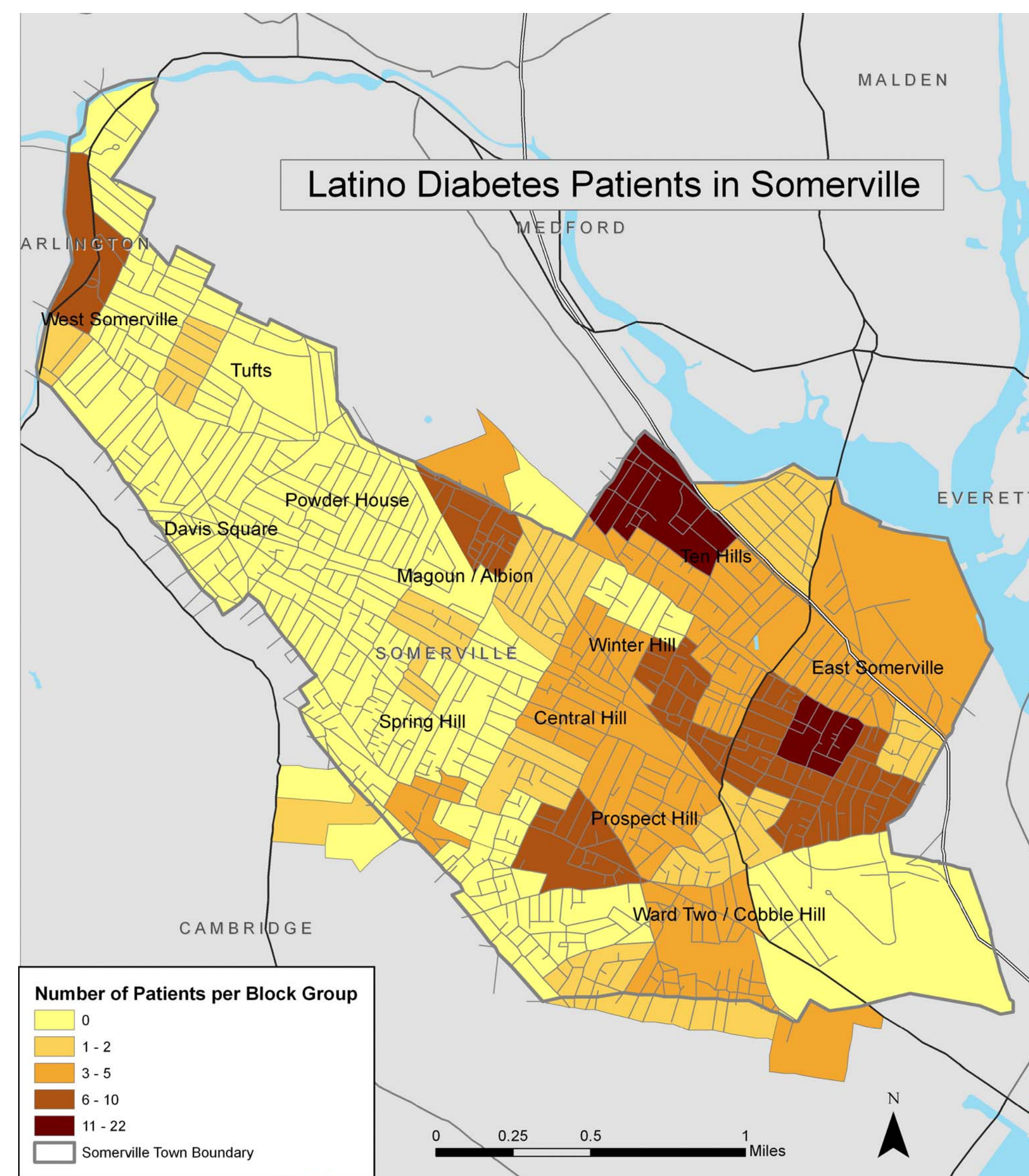


Resources and Barriers to Care for Latino Diabetes Patients in Somerville

Context and Goals

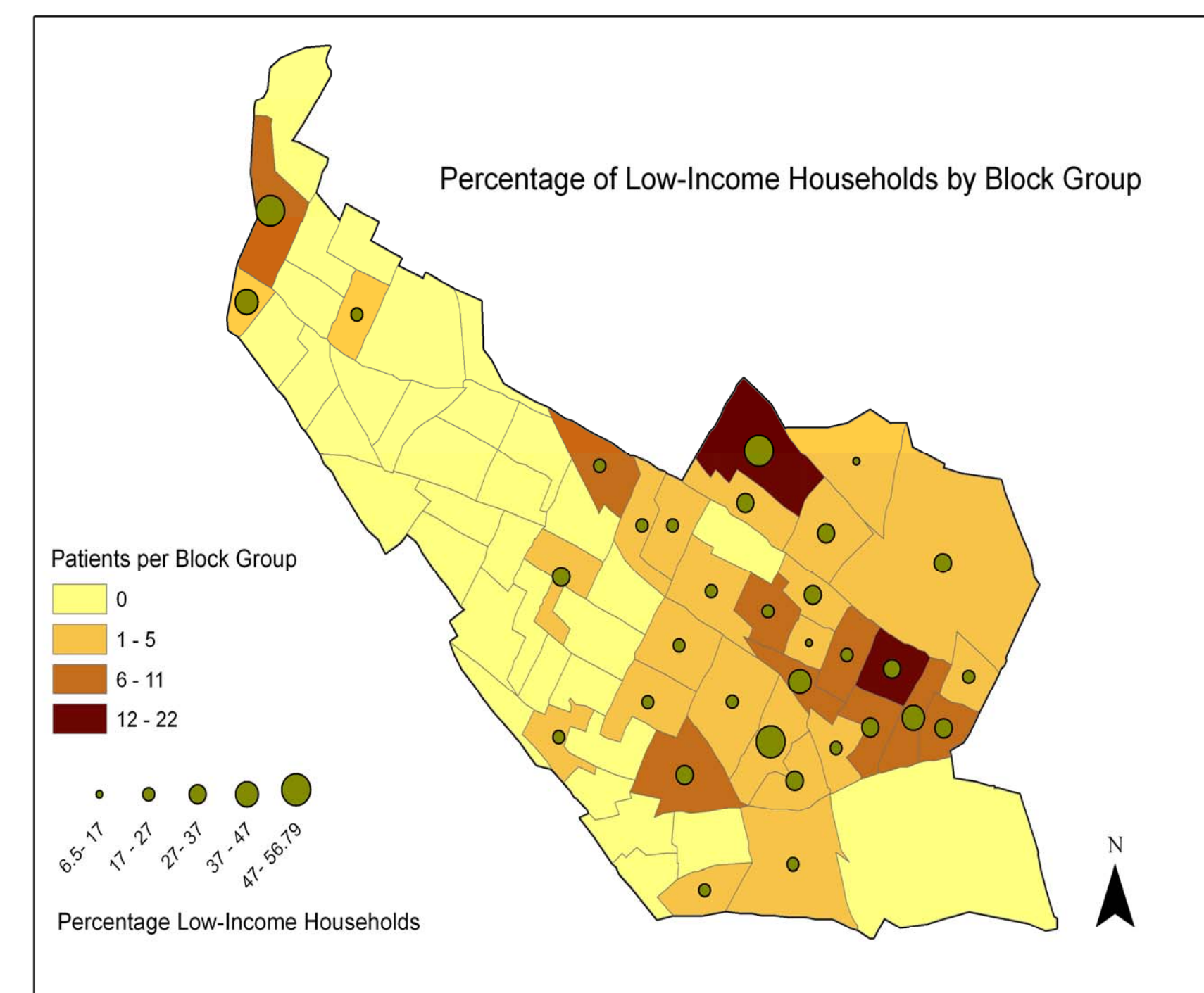
This project is part of an effort by the Cambridge Health Alliance (CHA) to map Latino diabetes patients in Somerville, Massachusetts in order to analyze community systems of import to these patients. The CHA seeks to develop appropriate education and support strategies to enhance these patients' self-management knowledge and skills. The maps presented in this poster are intended to show where Latino diabetes patients are distributed throughout Somerville and to analyze resources and barriers to care in the environments in which they live. This will help inform appropriate community level interventions and strategies to assist them in effective self-care management of the disease.



Methodology

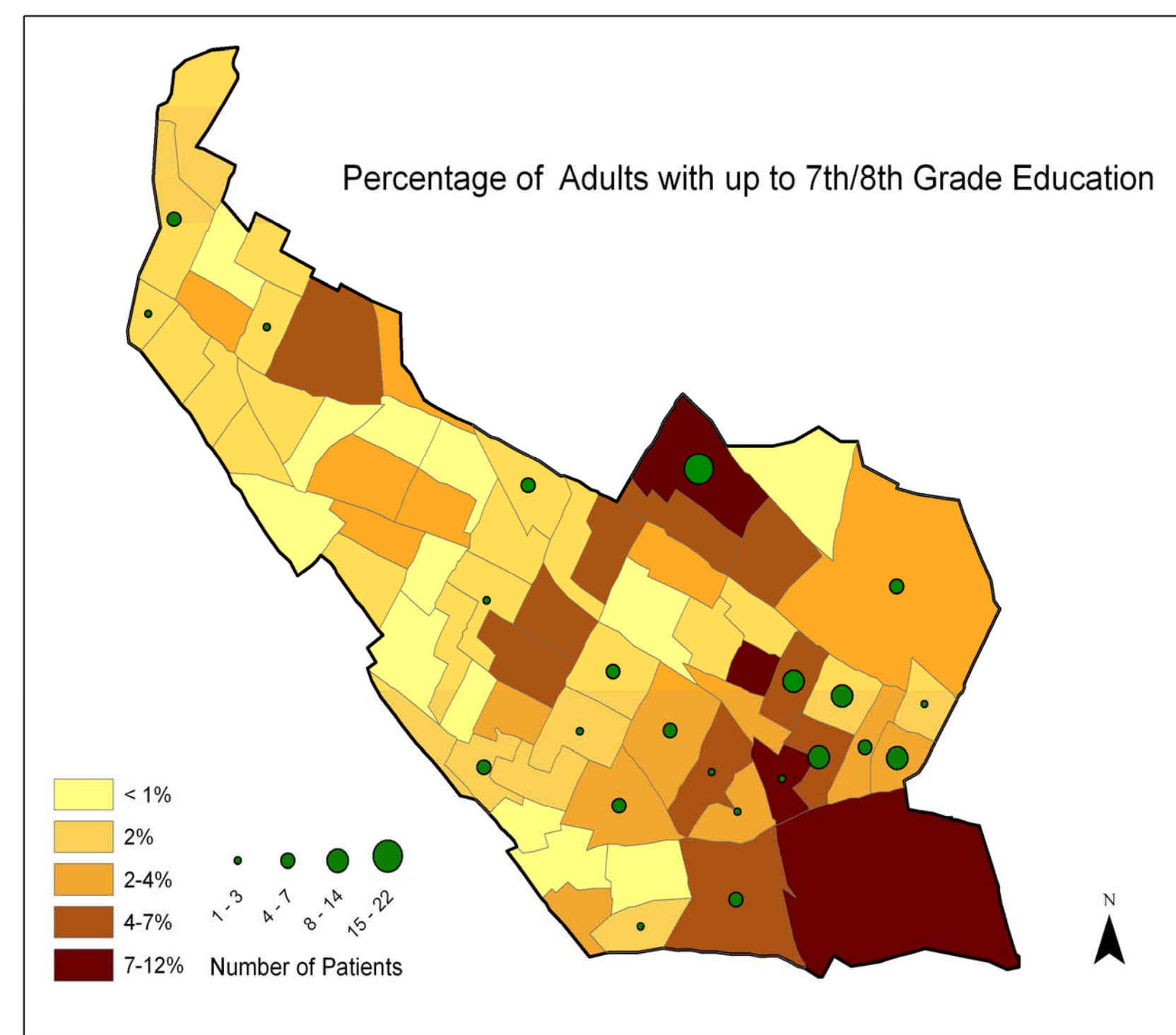
Patient address information was collected by the CHA through their community health centers. As patient information is protected through HIPPA, the patients have been de-identified in order to ensure their privacy. First, patient address locations were geocoded and aggregated to the census block level. This provides a simple count of patients per block group without specific address locations. To ensure the highest level of patient privacy, I have aggregated the patients' up to the block group level for analysis in maps for public presentation. Data regarding socio-demographics comes from the 2000 US Census.

Barriers to Care: Socio-Demographic Indicators



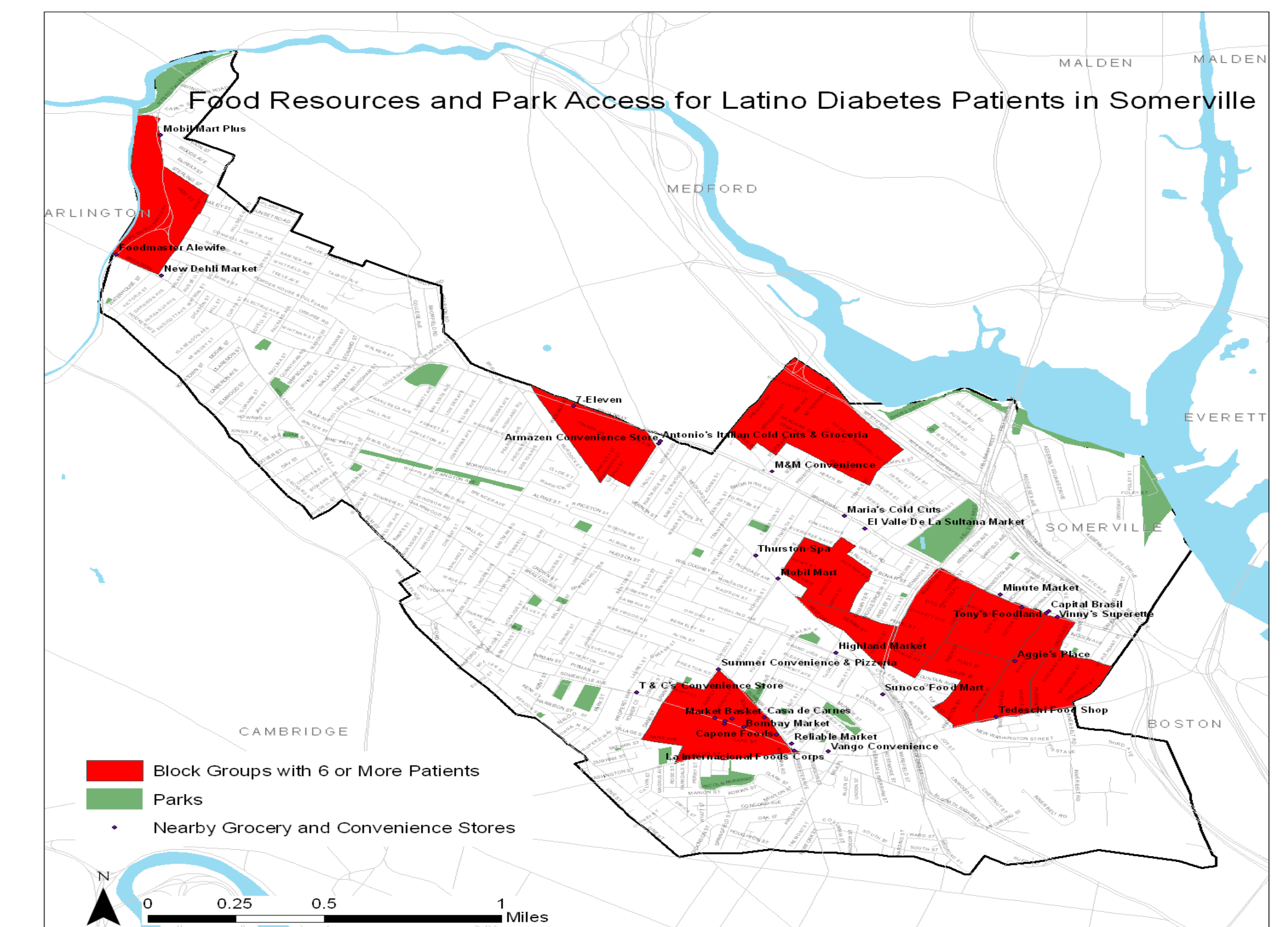
The Cambridge Health Alliance has identified certain socio-demographic indicators as potential barriers to care for patients. These include poverty and low levels of educational attainment/literacy. Using Census 2000 data, I explored both the percentage of low-income households and the percentage of adults with up to a 7/8 grade education in Somerville by block group in relationship to where patients live.

This information can provide the CHA a better understanding of these barriers in block groups with high counts of patients, allowing health providers to target these areas with potential interventions. Low-income households are those that have a median household income of less than \$25,000. The level of educational attainment refers to male and female adults over 25 years of age. Other socio-demographic indicators that are barriers to care that could be explored in future studies include transportation, immigration status and neighborhood safety (crime rates).



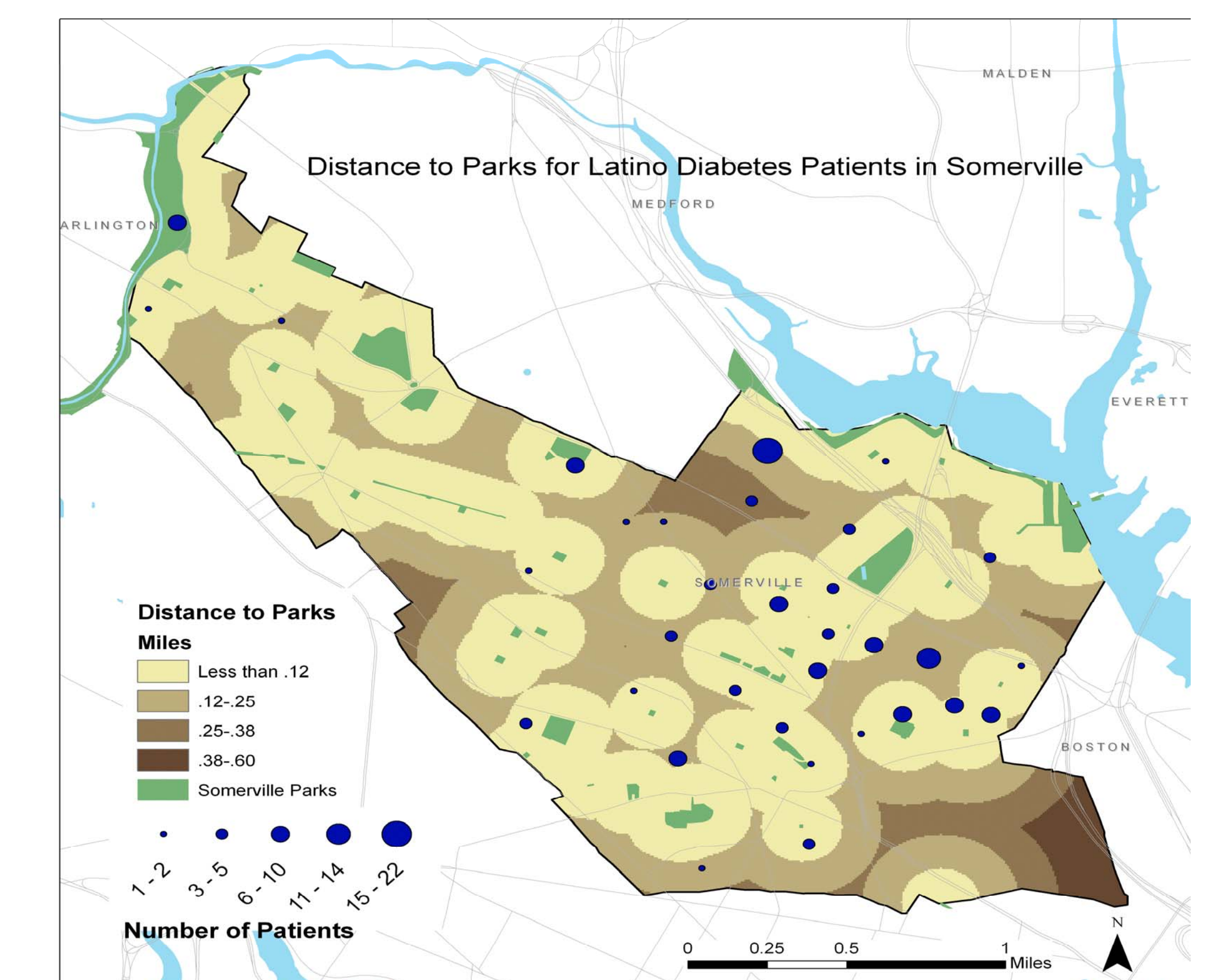
Limitations of Data

There are several limitations to the use of this data for analysis. Address errors in the patient database meant that 126 address points could not be matched, and were excluded from the data. This could lead to bias in the analysis eliminating areas where patients do exist, but are not mapped. Therefore, this project serves as a pilot demonstration of what types of analysis can be conducted with the patient data for community health purposes. In addition, the proximity and distance analyses do not take into account the actual street network but measure distance "as the crow flies." Future study could include a network analysis to determine the actual 'walkability' to these resources.



Resources for Self-Care

The CHA has identified grocery stores that carry fresh fruit and vegetables and parks that provide opportunities for exercise as resources for proper care and self-management of diabetes. These maps explore these two variables in relationship to where patients live. Grocery stores near areas with high numbers of patients could be targeted to carry fresh foods. Parks nearest patients can be analyzed for recreational opportunities offered.



Sources:
 Mass GIS (www.mass.gov), Somerville GIS (Tufts University GIS Center)
 Projection: NAD 1983 State Plane, Massachusetts
 Patient data obtained from the Cambridge Health Alliance, 2009 (www.cha.harvard.edu)
 Grocery/convenience store data obtained from Anna Pierson, Tufts University, Intern, Shape Up Somerville, Fall 2009
 Special thanks to Hyein Ahn and Lisa Brukilacchio, Cambridge Health Alliance and the Institute for Community Health