Chapter III

Using a GIS and the American Community Survey to Address Community Health Problems

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This chapter describes two case studies that demonstrate how the technology of Geographic Information Systems (GIS) can be combined with community data to address healthcare problems. The purpose is to present a model that can be replicated by other hospitals or those with an interest in promoting the public health.

BACKGROUND

Baystate Medical Center (BMC), located in Springfield, Massachusetts, was contracted by the U.S. Census Bureau to conduct two case studies to demonstrate the utility of annually adjusted data from the American Community Survey (ACS). In addition, BMC is the sponsor of the Injury Prevention Task Force, a city-wide collaboration of community, civic and healthcare organizations formed to address the problem of violence. Stemming from its dual role in both of these entities, BMC has access to medical data from the major area hospitals, geographic data from the City of Springfield Planning Department and community population data from the ACS.
Springfield is a mid-sized city in Hampden County, situated in Western Massachusetts. It has approximately 150,000 people and a surrounding metropolitan area of more than 500,000. Springfield is a major urban center for employment, culture, commerce and government. The city has a diverse mixture of racial, cultural, ethnic and income groups, which characterize different parts of the city. This makes Springfield an ideal climate for investigating the uses of census data.

The American Community Survey is a survey by the U.S. Census Bureau patterned on the decennial census long-form. Data are collected monthly and used to provide annually adjusted estimates of the population based on a sample of the population. Hampden County is one of 31 pilot sites for the ACS, chosen to demonstrate the utility of yearly data collection. These sites represent diversity in population size, rate of growth, ease of enumeration and region of the country.

The ACS has several advantages over the decennial census. It provides the most current available data on population estimates. Yearly publication of updates allow tracking population shifts over time. This contrasts with census data, which can be as much as 11 years old. This advantage is augmented by the six-month turnaround for the ACS, which contrasts with a two-year turnaround for census data. A further advantage is that additional questions are included in the ACS which are not on the census: these concern school lunch, heating and cooling assistance, food stamps and public housing. This increases the ability of ACS data to address community issues.

There are, however, certain limitations in using ACS data that the reader should keep in mind in reading this chapter. ACS figures are estimates from a sample of the population, not exact counts. These estimates are weighted to give greater representation to areas of greater population size. Weights for the data presented in this chapter are based on 1990 Census population proportions. In 2002 they will be revised with 2000 Census weights, resulting in greater accuracy. These ACS estimates should therefore be used as community profiles with an emphasis on the relative proportions in each population subgroup. ACS is not a count of the population but rather a mechanism for measuring changes and trends in the population in the interval between decennial Census counts. For example, in interpreting estimates for ethnicity, the focus should be on determining what is the predominant ethnic subgroup in a geographic area rather than on obtaining a count of the number of people in each subgroup.

**CASE STUDY: INVESTIGATING LATE-STAGE BREAST CANCER**

The first case study for the American Community Survey concerns the utilization of ACS population and housing data in a GIS to improve breast cancer
Using the Retrospective Approach to Commemorate AutoCarto Six

www.igi-global.com/article/using-the-retrospective-approach-to-commemorate-autocarto-six/106924?camid=4v1a