

Healthcare Transportation Access On Martha's Vineyard

Traveling Towards Healthcare

Introduction

Access to health care services has always been an area of concern in the United States. Many research has been done in the past and within recent years to address this issue of lack of access due to transportation. This issue is more so concerning within the elderly population, due to their age, living conditions, income, and the location they reside in. Research pertaining to the topic of distance and health care services have been conducted in order to assess areas where intervention needs to be targeted. Interventions that have been disseminated due to research and results from spatial analysis of healthcare access such as fall prevention programs and palliative care program have been implemented across the not only the United States, but all over the world as well.^{2,3,4} Most of the research is focused on the elderly population, since they are most often viewed as the most vulnerable population. Distance of travel to healthcare facilities and ambulatory care access are issues of concern that these types of study accesses.

The island of Martha's Vineyard is a well known tourism destination as well as the summer homes to many people living on mainland Massachusetts. It is apart of Duke's County, which consists of 11 islands, with Martha's Vineyard being home to most of the county's population.¹ The county consists of seven towns, each with its own government, laws, and regulation. According to census data Duke's county is viewed as a very prominent county with high-income residence, however a majority of the County's population is classified as low income and belongs to the elderly population. These individuals who reside on the island year round may not have access to health care.^{6,7} Transportation has always been a matter of concern in health care access. Many studies over the years have been done in both rural and urban settings to assess impact of having/not having access to transportation/public transportation. Including in transportation is roadways and route of travel. Both important factors to consider where assessing access to healthcare. As previously mentioned, a majority of the residence on the island is considered to be low income. In addition, to being low income these residents are also within the elderly population group. Their ability to access healthcare are hindered by both their income and their ability (transportation) to travel to utilize healthcare services or for services to come to them.^{6,7,9,10,11} Each year more and more people are moving to the island for retirement, which adds to the growing elderly population on the island.

An issue of concern that Martha's Vineyard's Aging Council in conjunction with the Commission of the Vineyard is having is transportation routes and ambulatory care for the elderly population on the Island. How far are they from these garages and how accessible are they in cases of emergencies. Since the Island is divided into separate towns each with its own jurisdiction resources are sparse and must be used wisely. This project propose to address the issues of distance from healthcare by mapping individual addresses of the elderly on Martha's Vineyard and assess their distance from ambulatory garages, which are housed at the Island's fire station, hospitals, and the Aging Council.

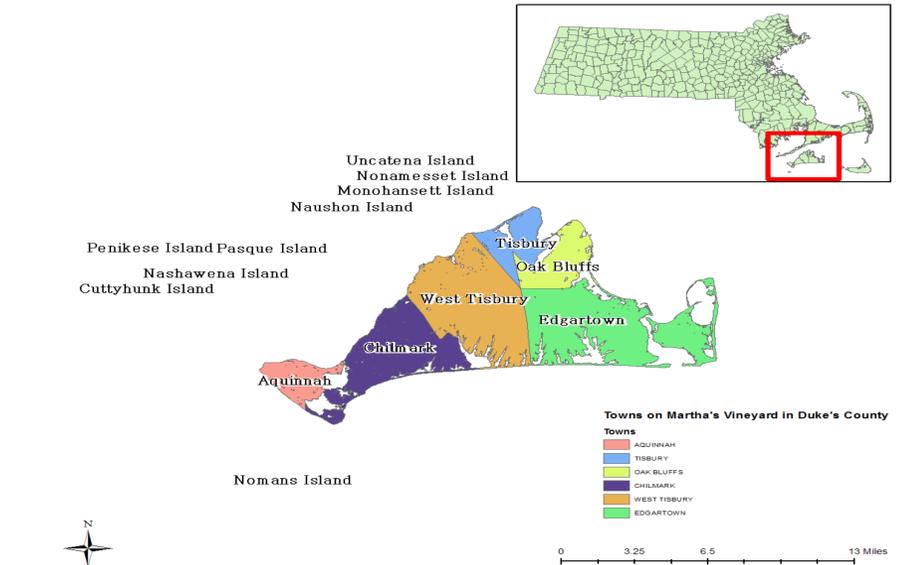
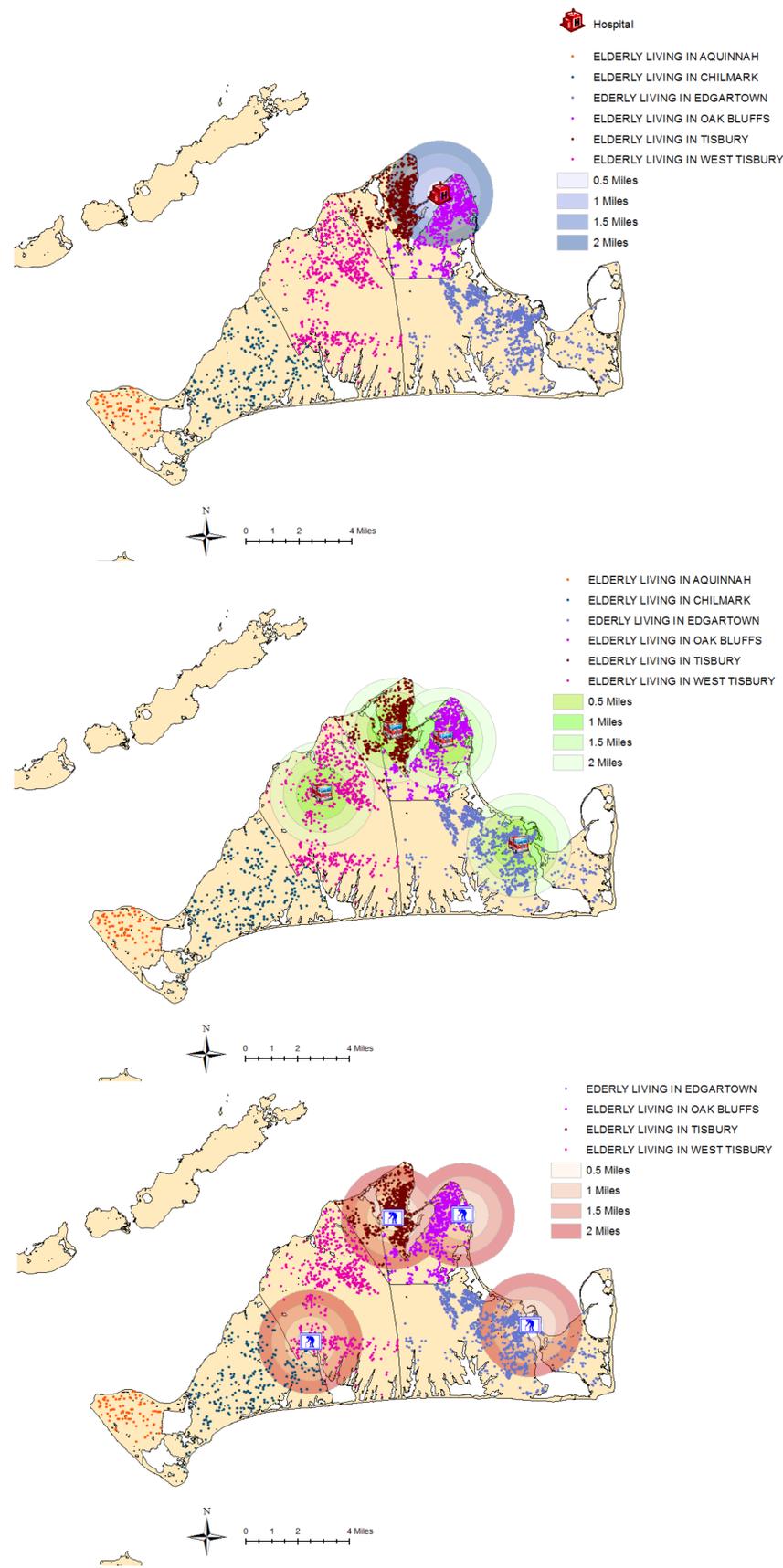
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Whitney Lee
Tufts University School of Medicine
Public Health &
Professional Degrees Programs
PH 262: GIS for Public Health
Instructor: Thomas Stopka
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Elderly Population on Martha's Vineyard



Methods

Data for this analysis was acquired from Martha's Vineyard's Aging Council. The dataset contained information regarding address and age of the residence of Martha's Vineyard. In addition to the data set layer and shape files pertaining to town boundaries and other town layers were given for use from the GIS-expert from Martha's Vineyard. The layer files for each town had individual addresses that have been geocoded for use. The data set file has age and addresses linked together. However, the formatting of these observations did not match and therefore could not be join easily. All 17000 or so observations were checked by hand to ensure data would match that of those is layer's attributes. Buffers were made with walking distances in mind for ambulatory garages (fires stations), hospitals, and the aging council.

Results & Discussion

Based on data observation, approximately 1/3 (n=5,359) of the population of the island is age 65 or older. The average age of this elderly population is 73.8 years of age. The majority of residents live on the western or central side of the island where most health and elderly services are. Residents with the most access to health services and other elderly care are individuals residing in Tisbury & Oak Bluffs. Both towns are also closer to the mainland compare to the other towns on the island. Accessing health care is easier for individuals living in Tisbury and Oak Bluffs compare to residents who reside in the other townships. In cases of emergency it is also easier for ambulances and other service vehicles to reach residents who live within Tisbury and Oak Bluffs. The closest ambulatory garage to those living in Aquinnah is over 5 miles away. According to Stata analysis approximately 130 residents over age 65 reside in Aquinnah's township. This calls for attention due to the lack of health services in that eastern part of the island. The maps made are density maps with buffers to show distances of 2 miles away from health services areas. Other density maps were made for this project showing individuals who lives alone in these areas. However, due to time constraints and missing data, the map is not present on this poster.

Martha's Vineyard, although is seen as a wealthy location is in dire need of health services such as clinics, hospitals, and ambulatory garage/care. The only places that house ambulances on the island are the four fire station shown in the center of the poster. Disparities in resources exists on the eastern park of the island.

Limitations: While the amount of data given was vast and had potential to be use for much complex analysis with GIS, variable names was the issue. When joined, a significant amount of residents were lost due incorrect matching. The process seems to have encounter some issue since the addresses has been cross check in Excel several times before joining. The issue either lies within the Excel file or the attribute table of each later itself.