Accessibility to National Designated Cancer Centers for Metastatic Patients

INTRODUCTION

- There are two objectives in this study. The first objective, like previous studies, is to examine physical access to NCI Cancer Centers using the Enhanced Two-Step Floating Catchment Approach (E2SFCA). Unlike previous studies, we used a less aggressive decay function to reflect travel patterns because we made an underlying assumption that patients experiencing advanced forms of cancer are more willing to travel further, than those experiencing less severe forms of cancer.

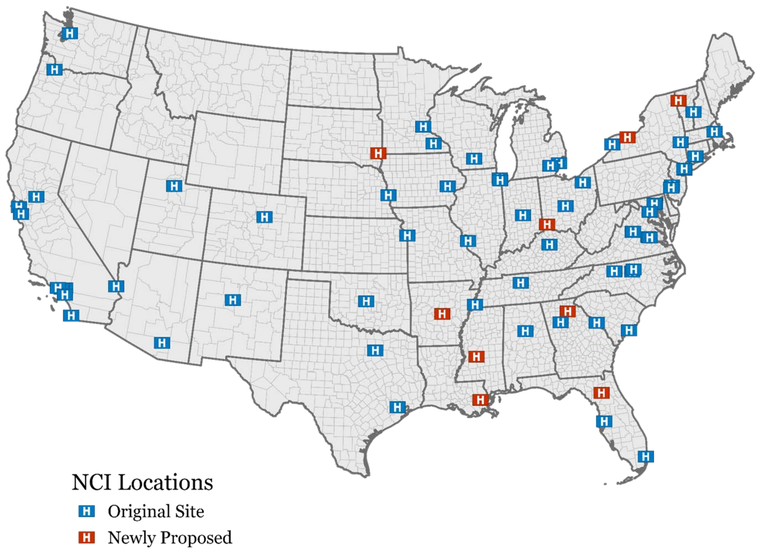
- The second objective of this study is to identify other community hospitals with reasonable staffing and research resources to become a new NCI Cancer Center. Looking at a spread of cancer centers now, most of them are located on college campuses in heavily populated areas.

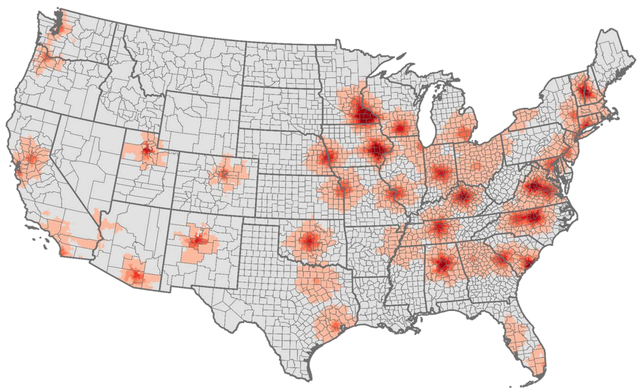
METHODS

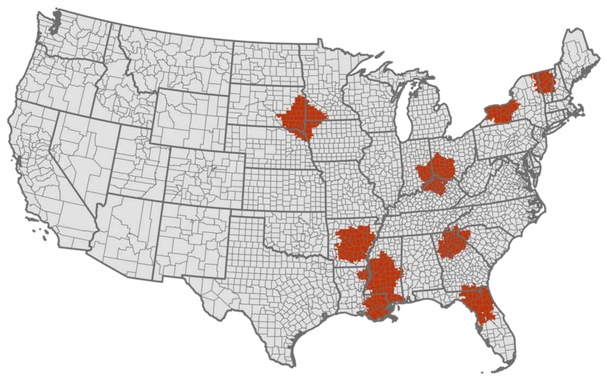
- IM Data on NCI locations were obtained from a NIH website. The bed count and other attributes regarding NCIs come from the American Hospital Association. US Census Tract population counts and additional characteristics came from the US Census Bureau American Community Survey 5-year estimates. We measured accessibility to hospital beds at NCI Cancer Centers using the Enhanced Two-Step Floating Catchment Approach (E2SFCA).

- Travel time estimates for the E2SFCA were generated using ArcGIS Pro © and StreetMap Premium ©. To evaluate solutions of increasing E2SFA scores given new hospitals, large non-NCI Cancer Center designated community teaching hospitals were selected as candidate sites to become an NCI in a location-allocation model. The E2SCFA score is the objective function in our location-allocation model.

RESULTS







CONCLUSIONS/SIGNIFICANCE

- Cancer patients that receive care from NCI Cancer Centers have lower mortality rates than those that seek care elsewhere.
- Cancer centers aren't spread evenly around the U.S. They are focused around large populations and teaching hospitals.
- More equitable access to these centers has promise in reducing deaths due to cancer in the US and advancing research in this area.

RECOMMENDATIONS

- By designating nine hospitals that have the capability to become a NCI Cancer Center, accessibility increased in the South East.
- Continue to put NCI Centers along the "cancer belt." This is a strip of the U.S. from Louisiana to New York where there more cases of cancer than anywhere else in the U.S.

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