

Integrating Data to Identify Opportunities for Clinical Trial Recruitment: A Geospatial Approach

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1. Background

Monitoring and ensuring participation across NCI-Designated Cancer Center catchment areas is vital to the underlying goal of clinical trial participation. Despite this, identifying geographic areas of concern and opportunity related to trial participation can be difficult due to data accessibility, lack of system connectivity, lack of technical expertise, etc. Thus, the Sidney Kimmel Cancer Center's (SKCC) Clinical Trial Analytics (CTA) group has developed an interactive application incorporating geospatial techniques to monitor the SKCC catchment area for the regions of concern and opportunities to increase clinical trial participation.

2. Goals

- To create an automated, reproducible process to identify areas of opportunity within the SKCC catchment area related to clinical trial participation
- To ensure the data is accessible, easy to understand, and usable to downstream teams to create interventions based on the data generated

3. Solutions and Methods

The CTA team integrated data from multiple sources to create a census-level composite score for each census tract in SKCC's catchment area. Clinical trial accrual data was extracted from our clinical trial database (OnCore), cancer population data from our tumor registry database (Metriq), patient locations for both the trial and cancer population cohorts generated through creating linkages to our electronic medical record (EMR), EPIC, and population-level data generated for each census tract utilizing publicly available census data (ACS Census). To highlight potential areas of opportunity, a composite score for each census tract was created utilizing a combination of clinical trial accrual, SKCC tumor registry data, and publicly available population-level data. Specifically, the composite score was calculated in order to identify tracts which showed an increased tumor registry value (more SKCC cancer patients) compared to clinical trial accrual. The scores were then utilized to create a Shiny application which contains both interactive maps and tables and that lives within our Shiny application repository which can be used by teams across the SKCC.

4. Outcomes

An interactive application built in R-Shiny was developed by the SKCC CTA and is currently available to groups across our cancer center to use. This data is currently being used to find target areas to increase outreach around clinical trials, understand barriers within trial enrollment (particularly in sites outside of our academic hub), and find areas where clinical trial accrual can be increased.

5. Lessons Learned and Future Directions

Future efforts will be focused on the creation of more granular composite scores, particularly around specific cancer types, to create data that is easier to operationalize within our clinical trials office's (CTO) disease groups. Additionally, the integration of cancer incidence data external to the SKCC system (e.g., from state-wide cancer registries) would ensure we are capturing the full scope of cancer patients within each tract.

