

Identifying Priority Areas for Geographically Targeted Screening in the City of Hope Catchment Area

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1. Background

Identifying priority areas for cancer screening within a cancer center's catchment area may increase the efficiency of resource allocation and provide higher leverage to reduce cancer burden for screen-detected cancers. Specifically, this study implements a tool to identify priority areas for targeted screening resources for the top cancers in the City of Hope (COH) catchment area.

2. Goal

Our goal was to implement a tool to allow community members to interactively choose important domains and indicators to identify high priority cancer screening areas.

3. Solutions and Methods

The solution is an interactive web map tool where users may select individual indicators or combinations of indicators to identify priority screening areas for the top cancers. The data supporting the tool are across four domains: access, burden, disparities, and screening prevalence. Access is measured by distance to screening facility locations, with a further distance increasing an area's rank. Conversely, closer proximity to Federally Qualified Health Centers and similar facilities will increase an area's rank because this facilitates potential partner organizations to host community screening sites. Burden is measured with two indicators: age-adjusted incidence rates (AAIR) and cancer cases. Disparities are measured with rate ratios and rate differences for African American, Hispanic, and Asian groups compared to non-Hispanic white rates. Finally, screening prevalence is measured with model-based estimates from the U.S. Centers for Disease Control and Prevention's PLACES dataset for mammography use, colorectal cancer screening, and cervical cancer screening. The method is to create a priority rank based on an equally weighted summation of ranks across domains. Data privacy will be maintained by not showing small area cancer cases data (or of any data layers) but rather predefined rankings of the area (e.g., above the median).

4. Outcomes

The key outcome of this tool is to provide access to cancer screening related data layers, and customization of how to combine layers to make maps representing priority areas for cancer screening. This tool is flexible, as it will allow users to select which indicators are important; for instance, one could identify areas with the highest number of cases or areas with the largest disparity in rates. One decision point in the tool, based on discussions at COH, is whether to use cases or AAIR for ranking cancer burden. For breast cancer, using AAIR as the burden indicator resulted in 358 tracts with a higher ranking compared to using cases as the indicator (i.e., based on median AAIR these tracts were classified as a higher priority than based on median cases). Importantly, 35 of these tracts were recategorized into the highest need for screening. Comparing spatial variation in the resulting highest need for screening categories, due to indicator selection, may empower community members to consider which indicators are most relevant and combine with other information to inform priority screening areas.

5. Lessons Learned and Future Directions

There is no one method to identify priority cancer screening areas. This tool will allow catchment area community members to explore how selection of indicators results in different spatial priority areas. This allows visualization to inform discussion about which domains are most important, and which indicators within the domains are most relevant to various communities.