

Using Spatiotemporal Analyses and Demographic Benchmarking to Evaluate Expansion in Cancer Center Outreach

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INTRODUCTION

- Community Outreach and Engagement (COE) offices at cancer centers are responsible for delivering health education and outreach across their service area. [1]
- Moffitt's service area expanded from 15 to 23 counties
- COE office needs to demonstrate where outreach impact grew geographically since catchment expansion 1/1/2023, important metric for Cancer Center Support Grant
- Aims:**
 - Quantify the spatial growth of COE outreach from 2019 to 2025
 - Compare the demographics of populations reached with those residing within 5, 10, and 15 minutes of in-person outreach locations to assess proximity with priority populations

METHODS

- Data integration:** Standardized historic data with REDCap-based tracking system and created 7-year outreach files from 2019-2025.
- Spatial Analyses:** Event locations were geocoded and organized into annual files, converted to raster format; Space-time cube created for emerging hot spot analysis using change point detection.
- Demographic characteristics were summarized for populations within 5,10,15-mile drive-time thresholds using 2023 ACS estimates.
- Demographic Analysis:** Block-group-level binomial generalized linear models with logit link were fitted for demographic comparison to catchment-area benchmarks.

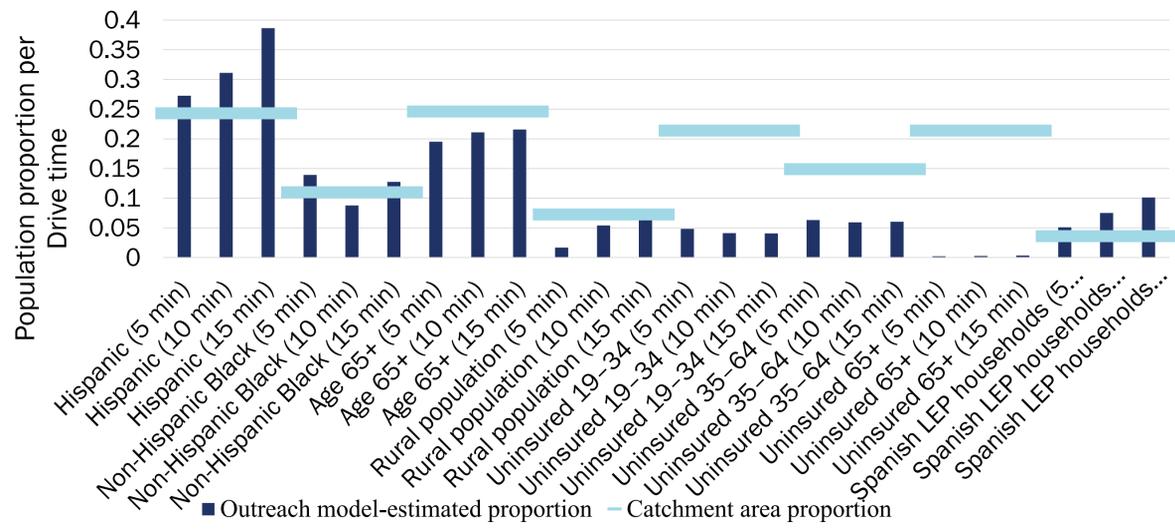


Figure 1 Drive-time Binomial Regression of Priority Populations

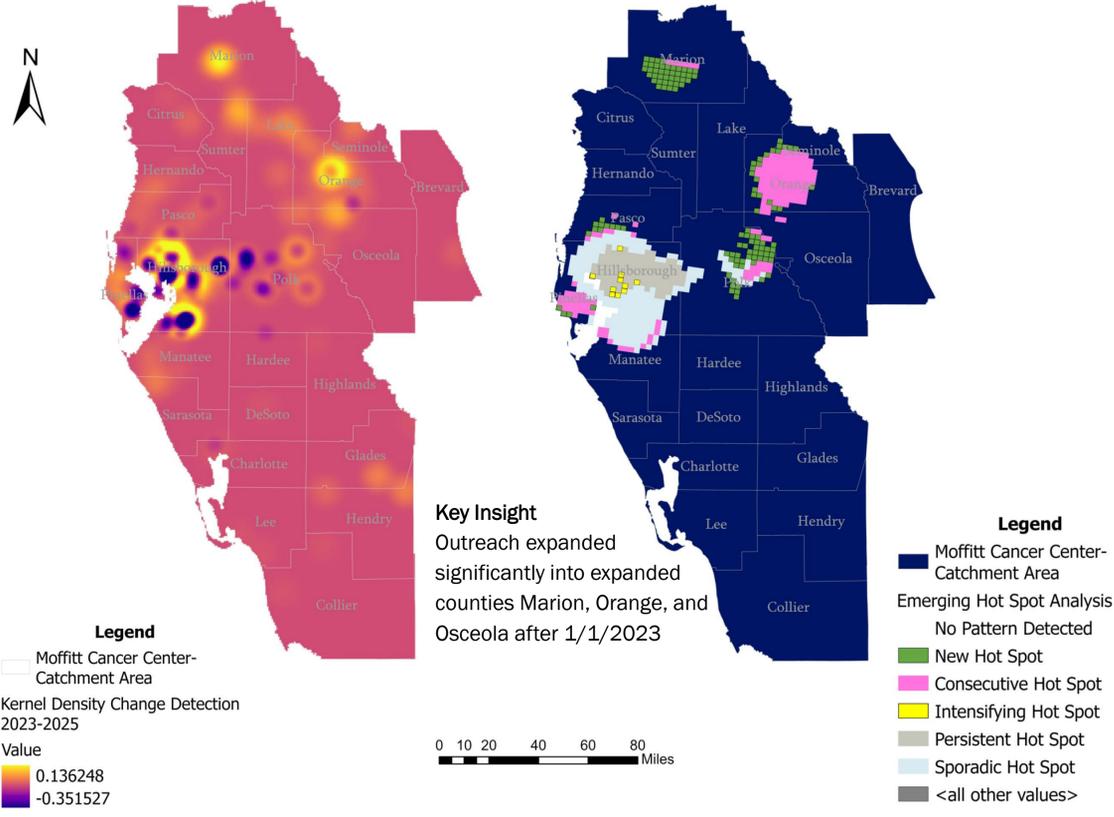


Figure 2 Kernel Density Change Detection 2023-2025

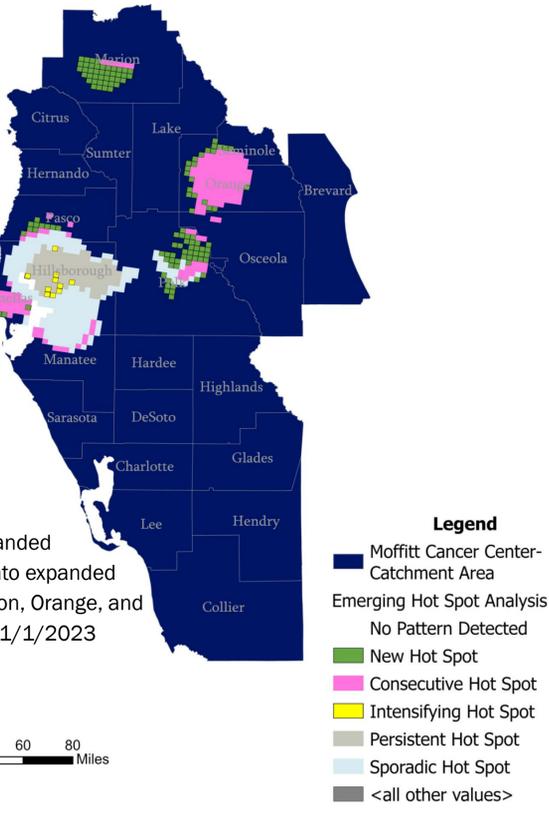


Figure 3 Emerging HotSpot Analysis

RESULTS

- 1,397 in-person events reaching 73,345 people between 2019-2025
- In-person outreach activity grew by approximately 7.6% annually
- Emerging Hot Spot Analysis identified new and consecutive hot spots within priority expansion regions
- Hispanic and Spanish-speaking-Low English households exceeded catchment proportion benchmarks at 5, 10, and 15 miles, NH Black populations were above catchment proportions at 5 and 15 miles.

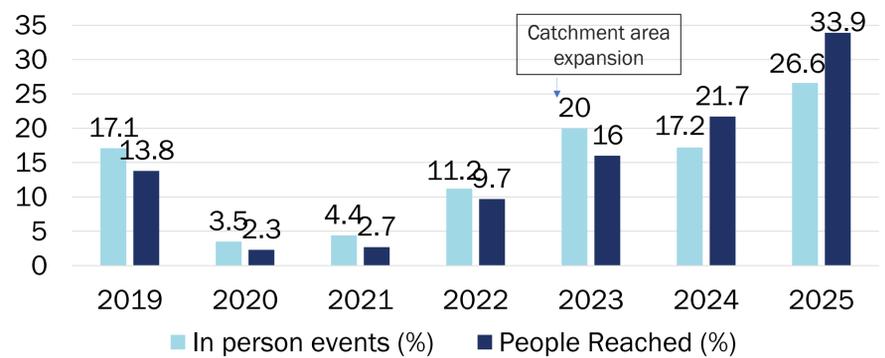


Figure 4 In-person Events and Population Reached

CONCLUSION

- This study introduces an analytic framework for quantifying outreach growth across both time and geography, turning institutional goals into measurable outcomes.
- Spatial change detection provides the evidence base for strategic decisions, showing where outreach has expanded and where gaps remain.
- Future analyses will include outreach participation-weighted space-time analyses and analysis of attendee demographics across the catchment area events

References: [1] Pohl, S. A., Nelson, B. A., Patwary, T. R., Amanuel, S., Benz Jr, E. J., & Lathan, C. S. (2024). Evolution of community outreach and engagement at National Cancer Institute-Designated Cancer Centers, an evolving journey. *CA: A Cancer Journal for Clinicians*, 74(4), 383-396.