

Informing Cancer Prevention and Control in Maryland through Geospatial Analysis and Community Advisory Partnerships

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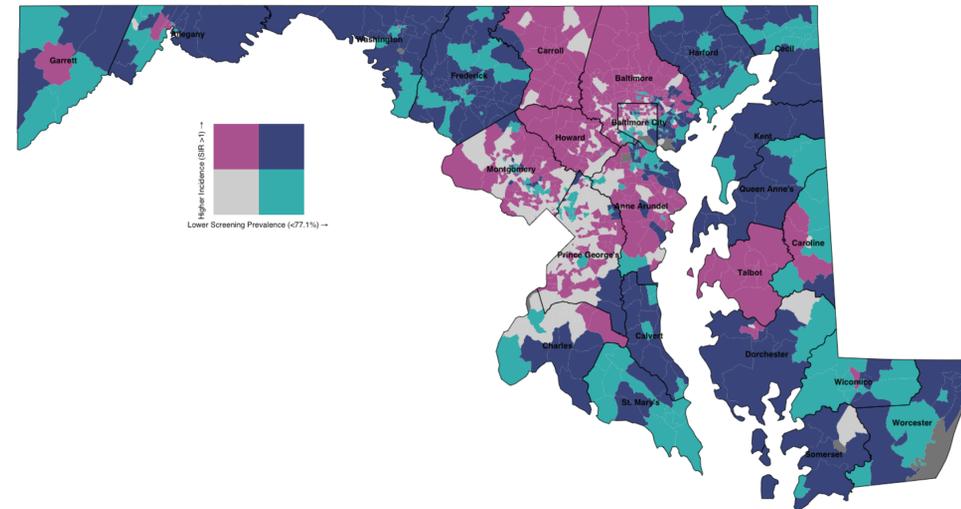
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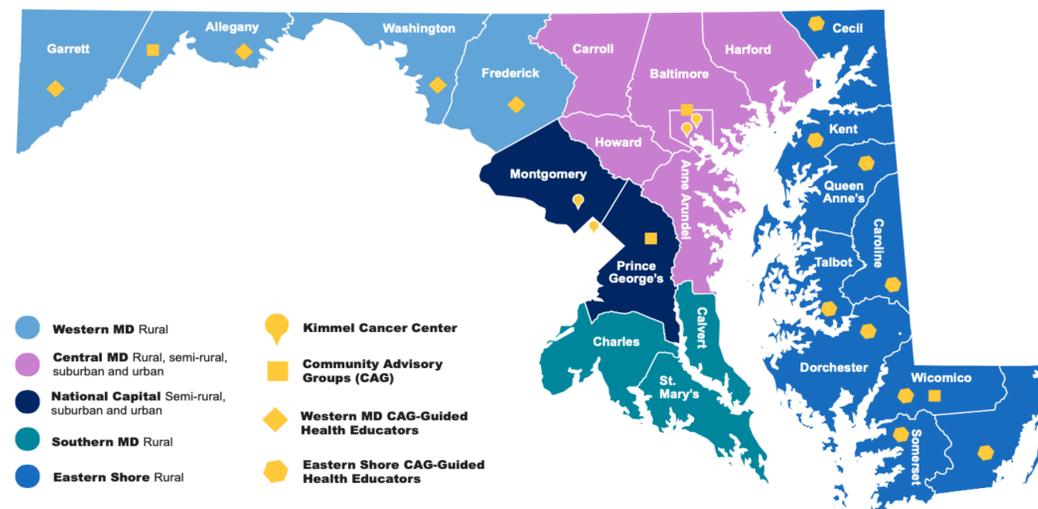
Background & Objectives

- The Community Outreach and Engagement (COE) office at the Johns Hopkins Sidney Kimmel Comprehensive Cancer Center (SKCCC) collaborates with community stakeholders to reduce the cancer burden in Maryland.
- Building sustainable, trustworthy, and effective partnerships requires understanding the unique needs of diverse communities.
- The goal is to enhance understanding of the breast cancer burden at the census tract level across Maryland.
- The initiative seeks to identify neighborhood-level factors affecting breast cancer outcomes, including mammography rates and social vulnerability, to inform targeted interventions.
- Strengthening partnerships with community stakeholders through Community Advisory Groups (CAGs) in Western Maryland, the Eastern Shore, Baltimore City and County, and Prince George's County is central to this effort

Tract-level Breast Cancer Incidence & Screening Objective SIR (Standardized Incidence Ratio) of Breast Cancer vs Screening Prevalence in the State of Maryland



Screening Prevalence threshold according to the Healthy People 2030



- Western MD Rural
- Central MD Rural, semi-rural, suburban and urban
- National Capital Semi-rural, suburban and urban
- Southern MD Rural
- Eastern Shore Rural
- Kimmel Cancer Center
- Community Advisory Groups (CAG)
- Western MD CAG-Guided Health Educators
- Eastern Shore CAG-Guided Health Educators

Methods

- Breast cancer data (2010–2022) were obtained from the Maryland Department of Health and aggregated at the census tract level.
- Tract-level data on preventive services, health behaviors, and social health needs were sourced from the CDC PLACES dataset.
- Standardized Incidence and Mortality Ratios (SIR, SMR) were calculated using state-level rates and compared with 2022 mammography and risk factor prevalence.
- Bivariate choropleth maps identified tracts with high burdens of breast cancer outcomes and risk factors.
- Findings were shared with Community Advisory Group (CAG) leaders to inform targeted, community-driven interventions.

Outcome

- From 2010–2022, Maryland reported 61,370 new breast cancer cases, a 34.6% increase—significantly higher than the expected 32.3%.
- Average annual incidence and mortality rates were 17.8 cases and 4.5 deaths per 10,000 females, respectively.
- Bivariate mapping showed high SIR and mammography rates below the Healthy People target (77.1%) in many tracts in Western Maryland (46.2%) and the Eastern Shore (58.1%).
- These findings are guiding Eastern Shore stakeholders to target mobile mammography programs in high-burden, low-screening areas.
- In contrast, the Central region showed fewer low-screening tracts (30.9%) despite high SIR (58.4%), suggesting additional influences such as treatment access, social vulnerability, and environmental exposures should be look at to improve mortality.

Conclusions and Future Directions

- Geospatial analysis offers community-level insights that support targeted, context-specific interventions.
- The mobile mammography program demonstrates how these data are currently being used in practice.
- Ongoing analysis of behavioral factors will inform public health efforts across multiple cancer types, advancing COE's mission to improve community cancer outcomes

Region	Tracts with a Mammography Prevalence < 77.1%		Tracts with high SIR and low Mammography Prevalence n (% total / % high SIR)
	Tracts with a high SIR n (%)	Tracts with a high SIR n (%)	
Capital	185 (37.4)	127 (25.7)	60 (12.1/32.4)
Central	387 (58.4)	205 (30.9)	116 (17.5/30.0)
Eastern Shore	66 (63.5)	82 (78.8)	48 (46.2/72.7)
Southern	27 (41.5)	44 (67.7)	24 (36.9/88.9)
Western	42 (67.7)	55 (88.7)	36 (58.1/85.7)