Cancer Prevention and Control

Dr. Scott Siegel's research focuses on understanding and identifying multilevel characteristics and potentially modifiable risk factors associated with cancer. He works with multidisciplinary teams across sectors, including local and state governments, academic partners, and community-based organizations, to address the social and behavioral determinants of health related to cancer screening, diagnosis, and interventions.

The Challenge

Over **2 million new** cancer cases are diagnosed each year in the United States. In Delaware, the incidence and mortality rates due to cancer surpass those of the U.S., with over **457 per 100,000** individuals diagnosed and **156 per 100,000** succumbing to cancer each year. Black and Hispanic populations having lower screening rates, decreased access to care, and **more advanced cancer at diagnosis** as compared to the White population.

The Approach

Siegel's research focuses on cancer prevention and control to address health disparities, particularly with minority and low-income populations. His research includes:

- Using cancer registry data and spatial mapping to identify and characterize cancer hotspots.
- Randomized trial of a precision pharmacotherapy hospital-based smoking cessation intervention.
- Using epigenetic signatures to develop a biomarker for early detection of aggressive breast cancer.

The Impact

Siegel's research has resulted in clinical, community, economic, and policy benefits through:

- **Identification of four cancer hotspots** in New Castle County, DE where individuals had higher rates of breast cancer; Black women had higher incidence and more advanced disease than White women.
- **Population assessment** to outline structural and environmental factors related to higher incidence and mortality of triple-negative breast cancer.
- Development of an **intervention to increase uptake of breast cancer screening** by providing education and addressing barriers to screening and treatment in cancer hotspots.
- Translation of an **evidence-based precision pharmacotherapy** smoking cessation intervention to treat tobacco use disorder.

RESEARCH HIGHLIGHTS

Siegel's Cancer Prevention and Control research has resulted in:

- Updated policy recommendations for **earlier screening for breast cancer**.
- Increased awareness among health professionals of how precision public health can be used to **address cancer disparities in the community**.
- Improved **community-based interventions** for smoking cessation and breast cancer screening for high-risk individuals.

Key Benefits

CLINICAL — Modified hospital guidelines to initiate breast cancer screening at age 40.

COMMUNITY — Planned use of CancerIQ software to facilitate breast cancer screening for high-risk individuals.

COMMUNITY — Increased awareness, education, and ultimately access to care using a Community Health Worker model.

COMMUNITY — Health care system's consideration of creating a community-based mixed specialty clinic in cancer hotspot area.

ECONOMIC — Reduced social and economic health care costs through early screening, diagnosis, and intervention for breast and lung cancer.

POLICY — Contributed to the revised U.S. Prevention Services Task Force (USPSTF) policy guidelines for earlier initiation of breast cancer screening.

The investigator:

Dr. Siegel is a behavioral psychologist and population scientist. He completed his BA in psychology at Rutgers University and his PHD in clinical health psychology at the University of Miami (FL) and an MHCDS at Dartmouth College. He is the Director of Cancer Control & Population Sciences at the Helen F. Graham Cancer Center & Research Institute.