

2022 FCDS Virtual Annual Conference
August 11, 2022

Social Determinants of Health

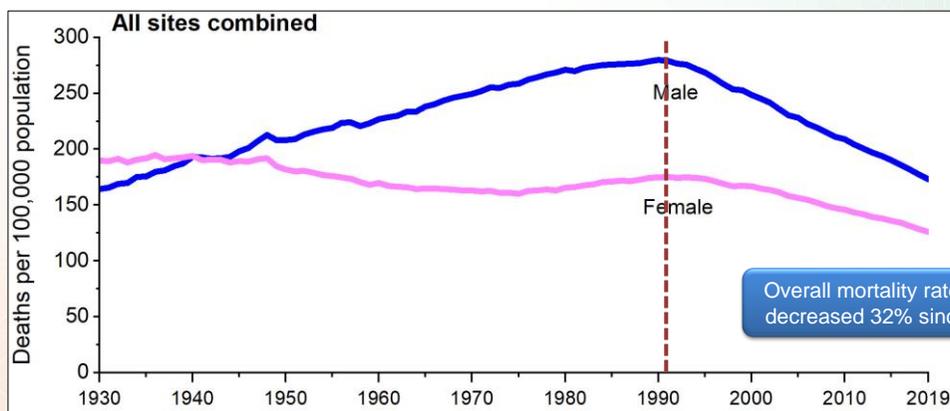
Jordan A. Baeker Bispo, PhD, MPH
Postdoctoral Scholar
Sylvester Comprehensive Cancer Center
University of Miami



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Strides in cancer control in recent decades

Trends in Age-adjusted Cancer Death Rates, US, 1930-2019

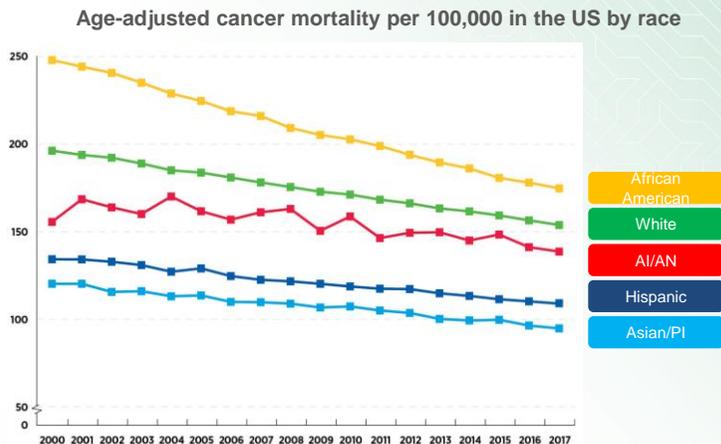


Siegel RL, Miller KD, Fuchs HE, Jemal A. Cancer statistics, 2022. CA Cancer J Clin. 2022 Jan;72(1):7-33. doi: 10.3322/caac.21708. Epub 2022 Jan 12. PMID: 35020204.

2

Despite progress, cancer disparities persist

- By race and ethnicity
- By geography
- By nativity
- By sexual orientation



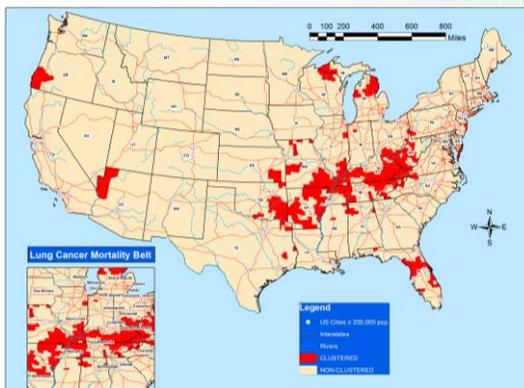
CancerDisparitiesProgressReport.org [Internet]. Philadelphia: American Association for Cancer Research; ©2022 [cited 2022 Aug 9] Available from <http://www.CancerDisparitiesProgressReport.org/>.

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County-level lung cancer mortality clusters, contiguous United States, 2004-2014

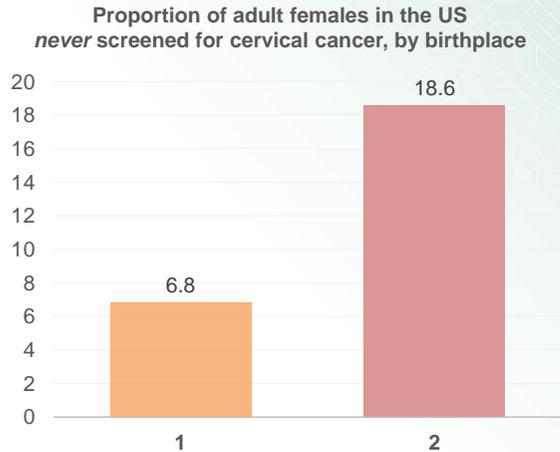


Moore JX, Akinyemiju T, Wang HE. Pollution and regional variations of lung cancer mortality in the United States. Cancer Epidemiol. 2017 Aug;49:118-127.

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Despite progress, cancer disparities persist

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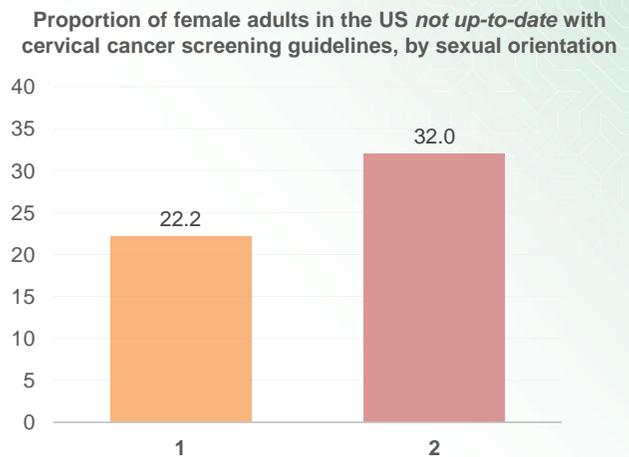


Endeshaw M, Clarke T, Senkomago V, Saraiya M. Cervical Cancer Screening Among Women by Birthplace and Percent of Lifetime Living in the United States. *J Low Genit Tract Dis.* 2018 Oct;22(4):280-287. doi: 10.1097/LGT.0000000000000422. PMID: 30063576; PMCID: PMC6664302.



Despite progress, cancer disparities persist

- By race and ethnicity
- By geography
- By nativity
- By sexual orientation



Suk R, Hong Y, Rajan SS, Xie Z, Zhu Y, Spencer JC. Assessment of US Preventive Services Task Force Guideline—Concordant Cervical Cancer Screening Rates and Reasons for Underscreening by Age, Race and Ethnicity, Sexual Orientation, Rurality, and Insurance, 2005 to 2019. *JAMA Netw Open.* 2022;5(1):e2143582.



Social determinants drive many cancer disparities

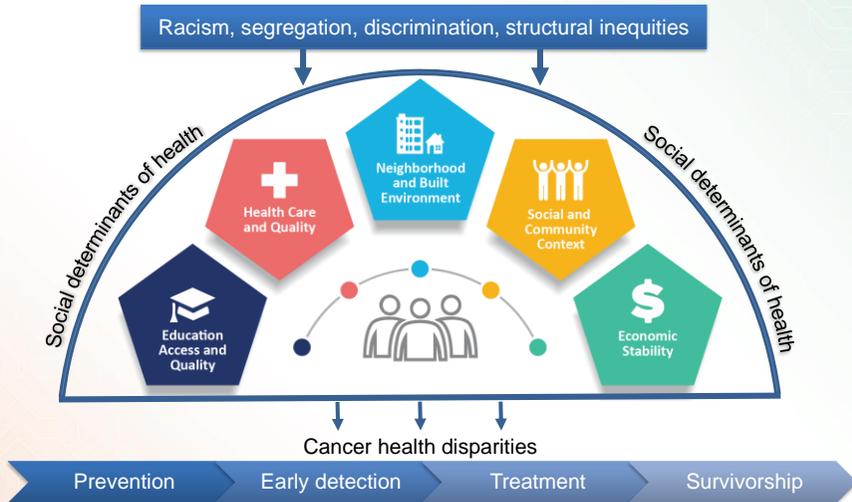
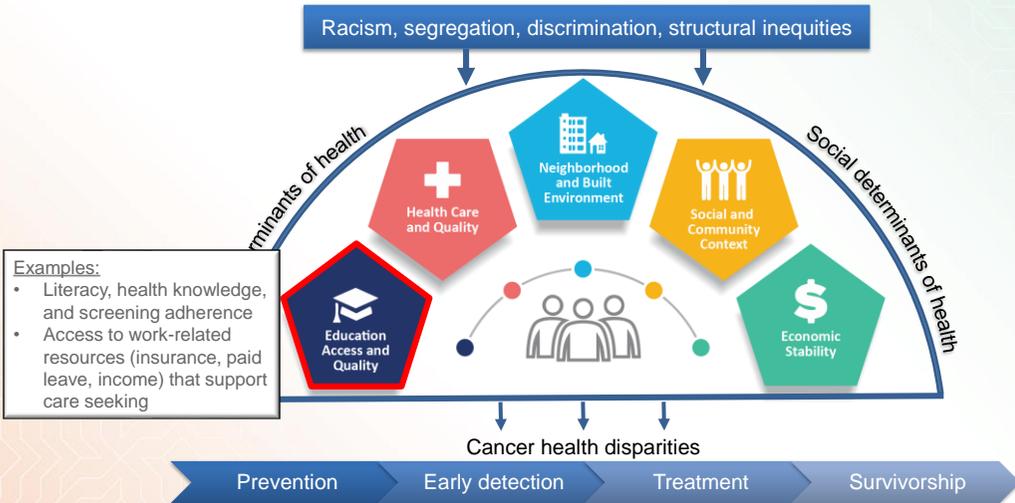


Figure adapted from CDC and AACR (available at <https://www.cdc.gov/publichealthgateway/sdoh/index.html> and <http://www.CancerDisparitiesProgressReport.org/>)



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Social determinants drive many cancer disparities



Examples:

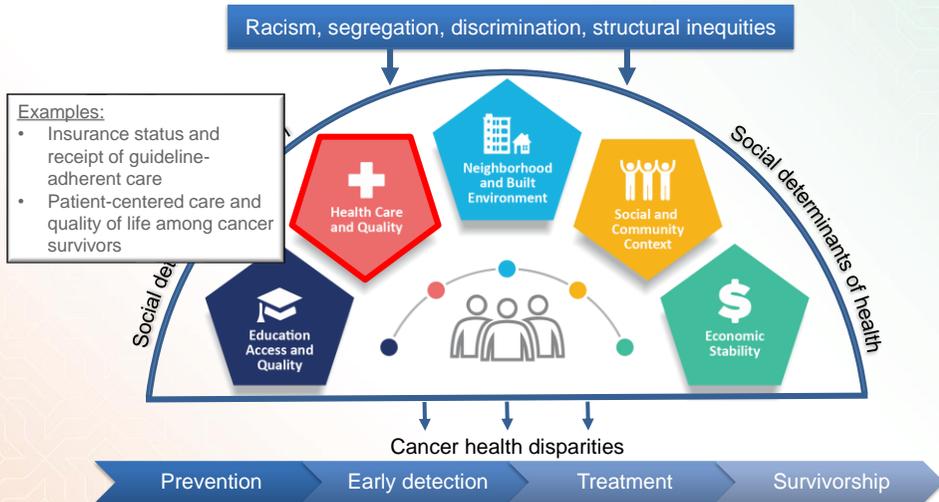
- Literacy, health knowledge, and screening adherence
- Access to work-related resources (insurance, paid leave, income) that support care seeking

Baccolini V, Isonne C, Salerno C, et al. The association between adherence to cancer screening programs and health literacy: A systematic review and meta-analysis. *Prev Med.* 2022;155:106927. Peipins LA, Soman A, Berkowitz Z, White MC. The lack of paid sick leave as a barrier to cancer screening and medical care-seeking: results from the National Health Interview Survey. *BMC Public Health.* 2012 Jul 12;12:520. doi: 10.1186/1471-2458-12-520. PMID: 22788387; PMCID: PMC3433348.



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Social determinants drive many cancer disparities



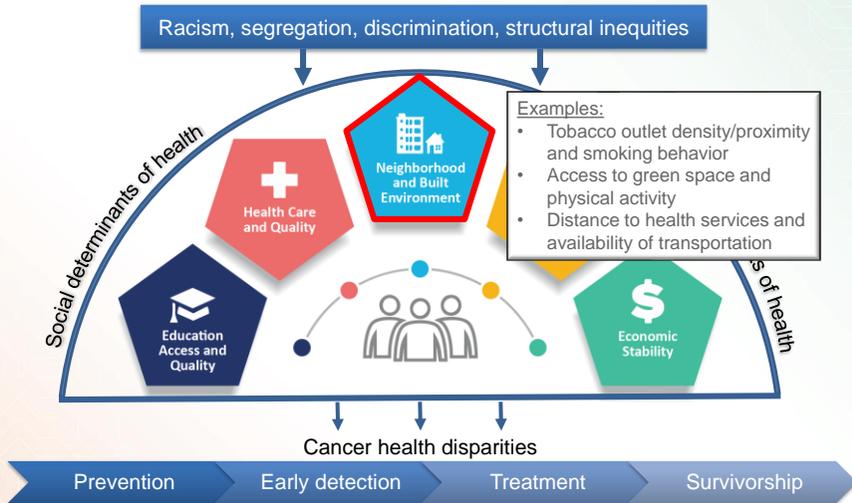
Examples:

- Insurance status and receipt of guideline-adherent care
- Patient-centered care and quality of life among cancer survivors



Wu J, Huang Y, Tergas AI, Melamed A, Khoury-Collado F, Hou JY, St Clair CM, Ananth CV, Hershman DL, Wright JD. The effect of guideline-concordant care in mitigating insurance status disparities in cervical cancer. *Gynecol Oncol.* 2020 Nov;159(2):309-316.

Social determinants drive many cancer disparities



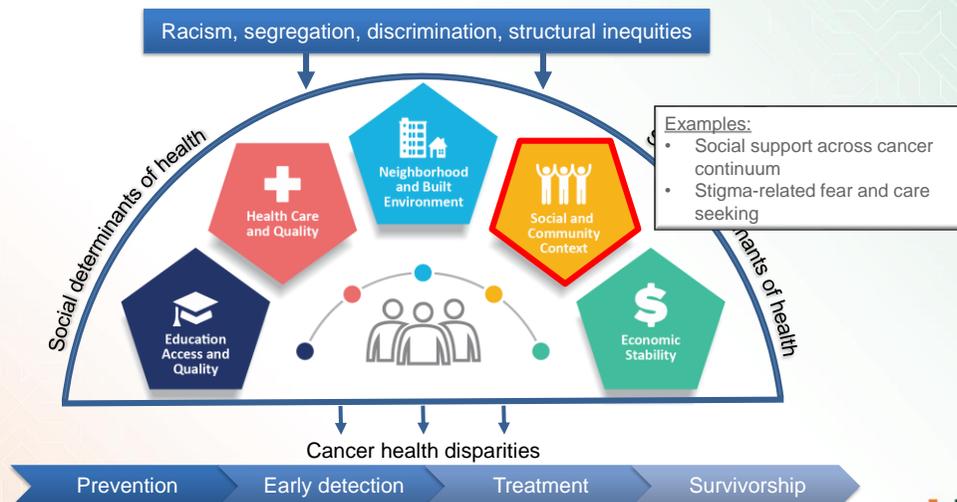
Examples:

- Tobacco outlet density/proximity and smoking behavior
- Access to green space and physical activity
- Distance to health services and availability of transportation



Reitzel LR, Cromley EK, Li Y, Cao Y, Dela Mater R, Mazas CA, Cofta-Woerpel L, Cinciripini PM, Wetter DW. The effect of tobacco outlet density and proximity on smoking cessation. *Am J Public Health.* 2011 Feb;101(2):315-20.
 Wercholak AN, Parikh AA, Snyder RA. The Road Less Traveled: Transportation Barriers to Cancer Care Delivery in the Rural Patient Population. *JCO Oncology Practice.* 2022;OP.22.00122.

Social determinants drive many cancer disparities

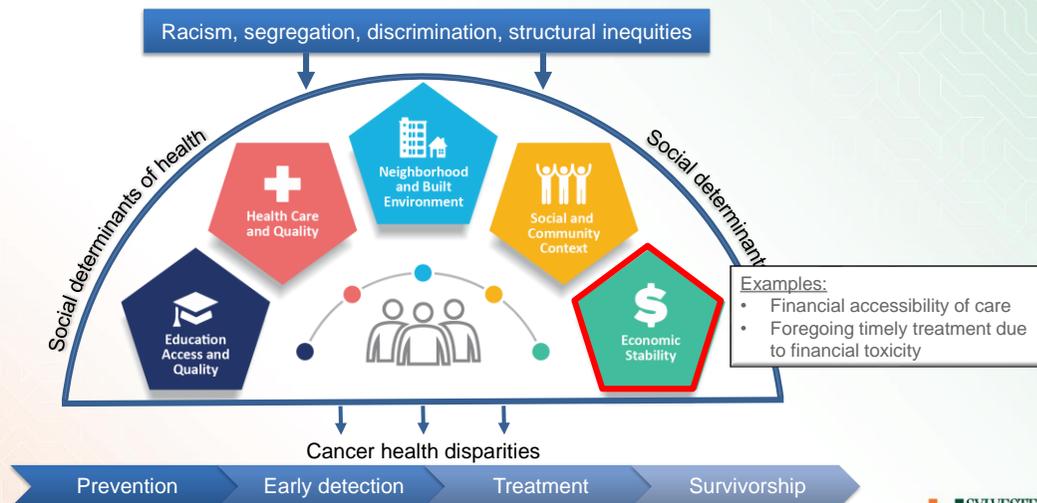


Kim ES, Kawachi I. Perceived Neighborhood Social Cohesion and Preventive Healthcare Use. *Am J Prev Med.* 2017 Aug;53(2):e35-e40.
 Culbertson, M.G., Bennett, K., Kelly, C.M. et al. The psychosocial determinants of quality of life in breast cancer survivors: a scoping review. *BMC Cancer* 20, 948 (2020).
 Falagas ME, Zarkadoulia EA, Ioannidou EN, Peppas G, Christodoulou C, Rafailidis PI. The effect of psychosocial factors on breast cancer outcome: a systematic review. *Breast Cancer Res.* 2007;9(4):R44.



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Social determinants drive many cancer disparities

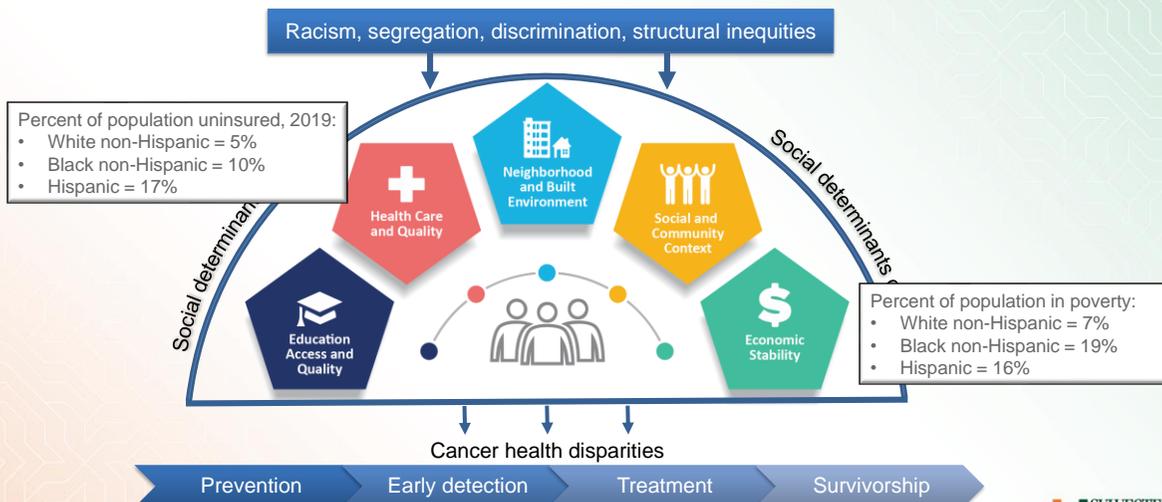


Knight TG, Deal AM, Dusetzina SB, et al. Financial Toxicity in Adults With Cancer: Adverse Outcomes and Noncompliance. *Journal of Oncology Practice.* 2018;14(11):e665-e673.
 Sabik LM, Vichare AM, Dahman B, Bradley CJ. Co-payment policies and breast and cervical cancer screening in Medicaid. *Am J Manag Care.* 2020 Feb;26(2):69-74.



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Social determinants drive many cancer disparities

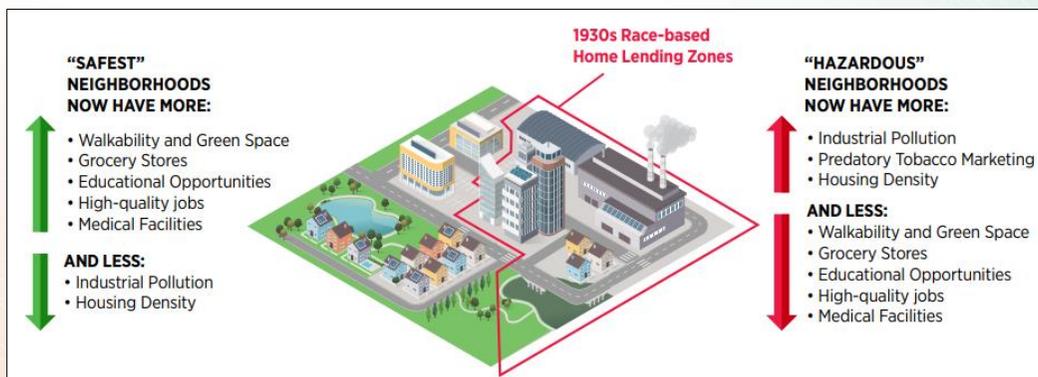


Keisler-Starkey, Katherine, and Bunch, Lisa N. (2021). Health insurance coverage in the United States: 2019. United States Census Bureau. Available at <https://www.census.gov/library/publications/2020/demo/p60-271.html>
 Creamer, John. (2020). Inequalities Persist Despite Decline in Poverty For All Major Race and Hispanic Origin Groups. United States Census Bureau. Available at <https://www.census.gov/library/stories/2020/09/poverty-rates-for-blacks-and-hispanics-reached-historic-lows-in-2019.html#:~:text=In%202019%2C%20the%20share%20of,share%20in%20the%20general%20population.>

Social determinants drive many cancer disparities

How Redlining Underlies Cancer Disparities

AACR Cancer Disparities Progress Report, 2022



CancerDisparitiesProgressReport.org [Internet]. Philadelphia: American Association for Cancer Research; ©2022 [cited 2022 Aug 9]. Available from <http://www.CancerDisparitiesProgressReport.org/>.

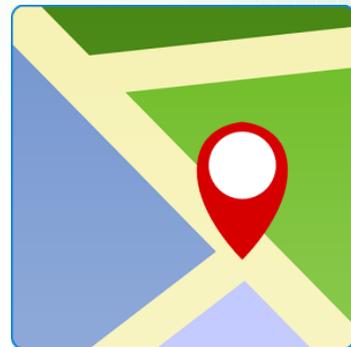
Robust documentation of SDOH and related measures in cancer registries is challenging

- Limited **scope, accuracy and completeness** of SDOH measures in electronic medical records
 - In FL, 47% of firefighters missing occupation code
- Missingness and misclassification is **not random**
 - Cases with missing fields tend to have worse survival
 - Misclassification of ethnicity is highest for US-born and Black Hispanics
- Broad aggregations mask important within-group variability
 - US-born Black patients in FL have higher risk of lung cancer mortality relative to Caribbean-born (4x higher for males, 3.5x higher for females)
- SDOH vary across the life-course and operate at multiple levels of influence



Data linkages facilitate research on cancer and SDOH, and catalyze action to reduce cancer inequities

- US Census and American Community Survey
Data on patient's neighborhood of residence at time of diagnosis
- Medicare data
- External occupational data sources



Example: Residential Segregation and Epithelial Ovarian Cancer (EOC) Survival

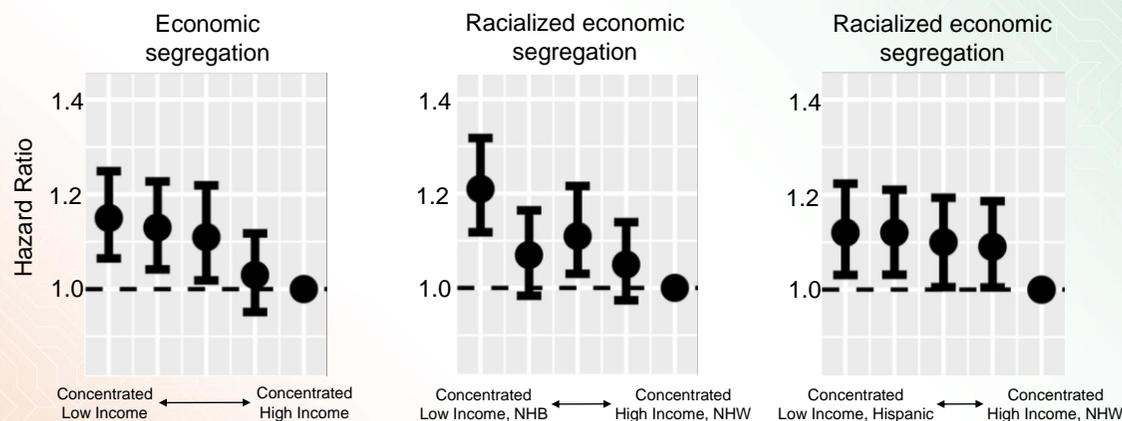
- **Research Question:**
Is survival from EOC worse for patients who reside in neighborhoods characterized by racial/ethnic and economic segregation?
- **Data source:**
FCDS (patient characteristics) and US Census/American Community Survey (characteristics of a patient's of residence at the time of diagnosis)
- **Dependent Variables:**
Index of Concentration at the Extremes (ICE) for Census Defined Places
 - Economic segregation (e.g. concentration of low vs. high income households)
 - Racial segregation (e.g. concentration of NHB vs. NHW)
 - Racialized economic segregation (e.g. concentration of low income NHB vs. high income NHW)

Westrick, AC, Bailey, ZD, Schlumbrecht, M, Hlaing, WM, Kobetz, EE, Feaster, DJ, Balise, RR. Residential segregation and overall survival of women with epithelial ovarian cancer. *Cancer*. 2020; 126: 3698- 3707.



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Example: Residential Segregation and Epithelial Ovarian Cancer (EOC) Survival



Models adjusted for patient demographics, tumor characteristics, and treatment (receipt of chemotherapy and receipt of surgery)

Westrick, AC, Bailey, ZD, Schlumbrecht, M, Hlaing, WM, Kobetz, EE, Feaster, DJ, Balise, RR. Residential segregation and overall survival of women with epithelial ovarian cancer. *Cancer*. 2020; 126: 3698- 3707.

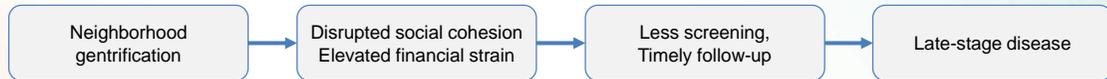


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Example: Neighborhood Gentrification and Late-Stage Breast Cancer Diagnosis

- **Research Question:**

Is neighborhood gentrification associated with the distribution of late-stage BC diagnosis?
Does the association vary by race/ethnicity?



- **Data source:**

FCDS (patient characteristics) and US Census/American Community Survey (characteristics of a patient's of neighborhood at the time of diagnosis)

- **Dependent Variable:**

Neighborhood gentrification from 2000-2010

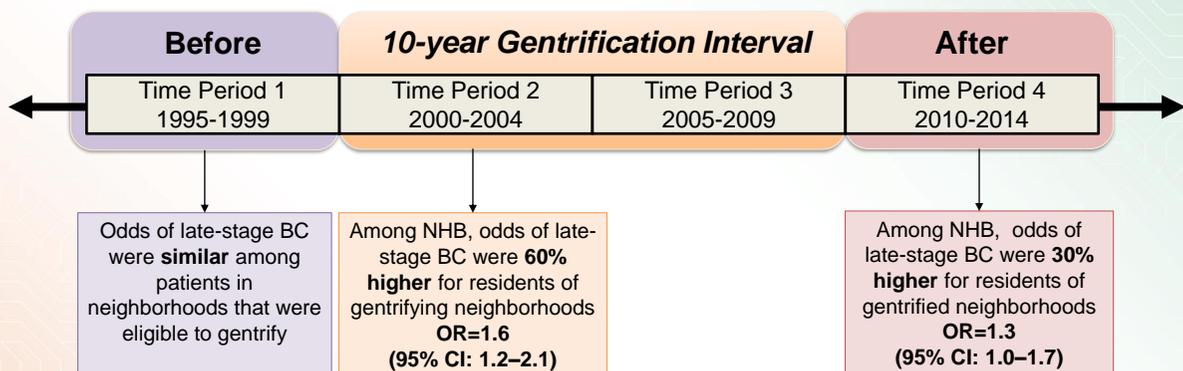
- Gentrified or Not Gentrified (based on census tract-level changes in education, home value and rent)



(NP) Baeker Bispo J, Bailey Z, Ashad-Bishop K, Goel N, Balise R, Kobetz E. *Heterogeneous effects of neighborhood gentrification on the burden of late-stage breast cancer across race and ethnicity: An exploratory analysis from Miami-Dade County, Florida.* Oral Presentation, 2022 Society for Epidemiologic Research Annual Conference, Chicago, FL.

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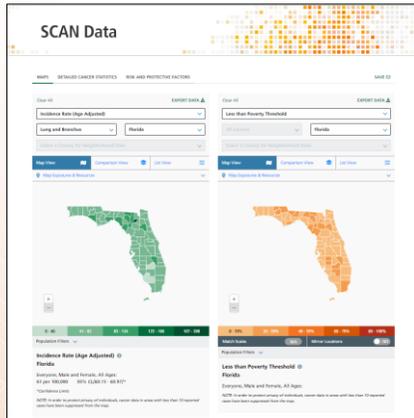
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Example: SCAN 360 – A geospatial tool to advance cancer control efforts in Florida



Interactive tool available at:
<https://scan360.com/>

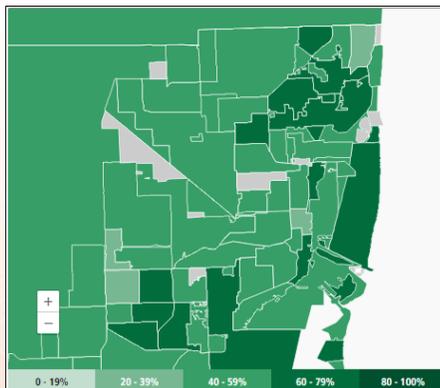
- Visualize the **spatial patterning of cancer morbidity and mortality** across the state
 - Powered by FCDS
- Visualize of **spatial patterning of contextual factors and social determinants of health** across the state
 - US Census/American Community Survey
 - Behavioral Risk Factor Surveillance System
 - USDA Food Environment Atlas
 - Robert Wood Johnson Foundation County Health Rankings
 - ...and more!



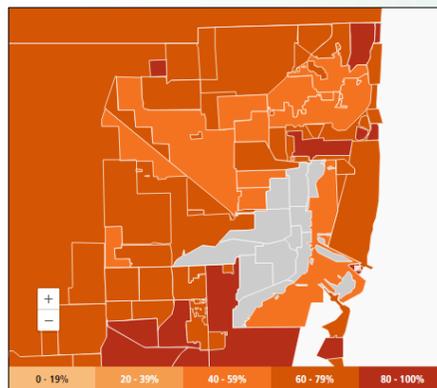
Bailey Z, Balise R, Bouzoubaa L, Kobetz E. SCAN360: A Resource for a 360-Degree View of Cancer Prevention, Risk, and Survival. *Prev Chronic Dis.* 2020 Nov 25;17:E149.
 Baeker Bispo, JA, Balise, R.R. & Kobetz, E.K. Cancer Data Visualization: Developing Tools to Serve the Needs of Diverse Stakeholders. *Curr Epidemiol Rep* (2022).

Example: SCAN 360 – A geospatial tool to advance cancer control efforts in Florida

Proportion late-stage colorectal cancer, males, Dade County, 2012-2016



Insurance coverage, males 18-64 years, Dade County, 2014-2018



Example: SCAN 360 – A geospatial tool to advance cancer control efforts in Florida

Sylvester Comprehensive Cancer Center's Game Changer Vehicle



- Free screening for cervical, colorectal, and skin cancers
- Route informed by geospatial distribution of cancer morbidity and related social determinants
- Routinely services Northern Dade County, Hialeah, other medically underserved regions



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Cancer Control and Research Advisory Council's 2020-2025 Cancer Plan

Goal 2: Ensure collection of comprehensive and high-quality cancer-related data from all FL cancer patients to inform cancer prevention and control programs.

- **Objective 2.1: Form a state cancer data workgroup** consisting of members from CCRAB, FL DOH, FCDS, FHA, AHCA, and other key stakeholders to develop strategies for adding cancer biology data, **social determinants of health data**, cancer screening data, and precancerous cervical pathology test results (CIN2/3, CIS) to the state cancer registry.
- **Objective 2.3: Pilot addition of social determinants of health** and additional demographics such as occupation or country of origin as data collected and archived by Florida's statewide cancer data and surveillance program



Cancer plan available at: https://www.ccrab.org/index.cfm?a=Files.Serve&File_id=936C3AD4-2EFA-4390-BBCA-402CBF53FE57



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Thank you!

Jordan A. Baeker Bispo, PhD
Postdoctoral Scholar
University of Miami
Sylvester Comprehensive Cancer Center
jab549@miami.edu

