m1 DEPARTMENT OF HEALTH

Disparities in the Burden of Breast Cancer Among Black Vs. White Women in Minnesota

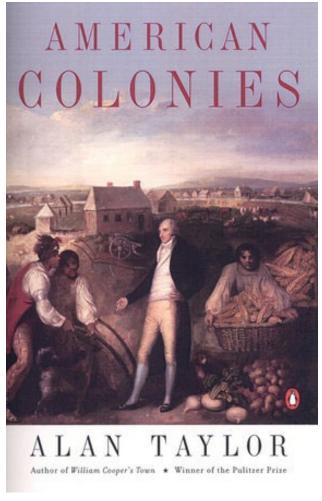Kenneth Adams, PhD.
Epidemiologist, Minnesota Cancer Reporting System

Kenneth Adams

- kenneth.adams@state.mn.us

- 651-201-5481

- Please don't hesitate to contact me if you wish to see specific statistical results.

mn DEPARTMENT OF HEALTH

- We're living on American Indian land

National Data Provide the Context for This Presentation

- U.S. data show large disparities in breast cancer outcomes between Black and White-NH women, with Black women faring worse.

  - Breast cancer death rate for Black women in the U.S. is 35-40% higher than in White women.

- This talk will examine whether Black women in Minnesota experience similar disparities as reported nationally.

DeSantis CE et al. Breast cancer statistics, 2019. CA Cancer: J Clin 2019; 69(6): 438-451

DEPARTMENT OF HEALTH

Data sources

- Minnesota Cancer Surveillance System (MCRS), Minnesota's centralized, population-based cancer registry

- U.S. Census population denominators

- Vital Statistics (death records) from Minnesota Center for Health Statistics and National Center for Health Statistics (U.S.)

Outcome measures

- Population-based incidence and mortality rates

- 5-year survival percentages among women diagnosed with cancer

Rates are population-level statistics

- Rate == count / population size / time period

- Populations

  - ~215,000 Black females living in Minnesota

  - ~2,380,000 White Non-Hispanic females living in Minnesota

- Incidence rate == Number of new breast cancer diagnoses / 100,000 members of the population / year
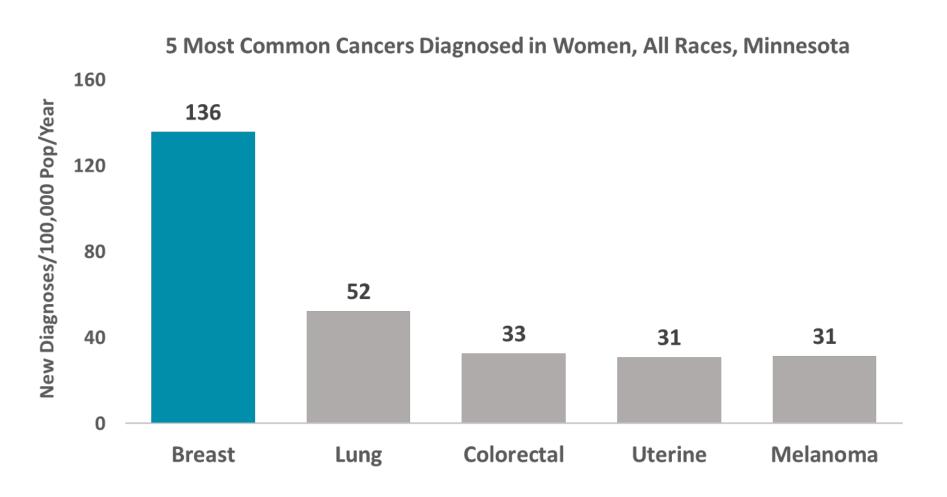
- Rates are typically age-standardized

DEPARTMENT OF HEALTH

- Presentation order

  - Incidence rates

  - Mortality rates

  - Survival percentages

- Conventions

  - Mostly bar charts, 1 line graph

  - Results for Black women will be shown using blue, purple, green, and yellow color bars (group of interest)

  - Results for White women will be shown using gray colors (comparison group)

  - "White" == Non-Hispanic White woman

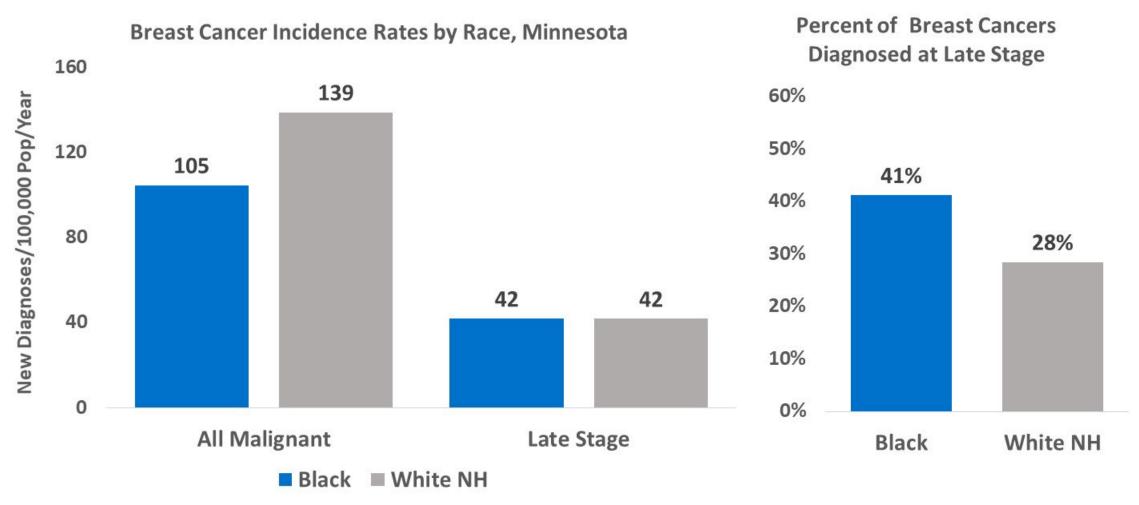 - "Black" includes U.S. and foreign-born women

DEPARTMENT OF HEALTH

5 Most Common Cancers Diagnosed in Women, All Races, Minnesota

Breast cancer accounts for 31% of malignant cancers diagnosed in women in MN

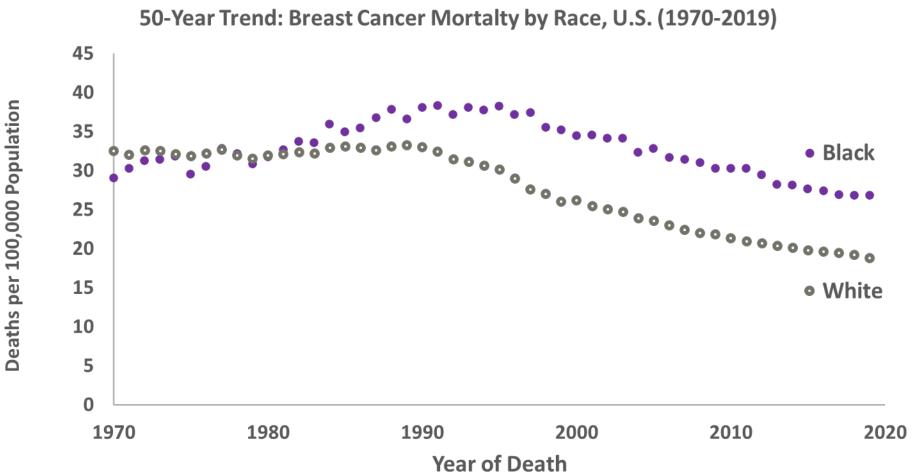# Breast Cancer Incidence is Higher in White Women but Incidence of *Late-Stage* Breast Cancer is Similar

Breast Cancer Incidence Rates by Race, Minnesota

New Diagnoses/100,000 Pop/Year

- All Malignant: Black 105, White NH 139
- Late Stage: Black 42, White NH 42

Legend: ■ Black ■ White NH

Percent of Breast Cancers Diagnosed at Late Stage

- Black: 41%
- White NH: 28%

- Mortality rates are considered the ultimate measure of cancer burden.

    - Mortality rates reflect of all the factors that influence cancer occurrence and lethality in a population.

- Cancer mortality trends (change in rates over time) are our most reliable measure of progress against cancer.

    - Not subject to the biases that affect survival measures.

REF: Mariotto AB. Cancer survival: an overview of measures, uses, and interpretation. JNCI Monographs, No. 49, 2014
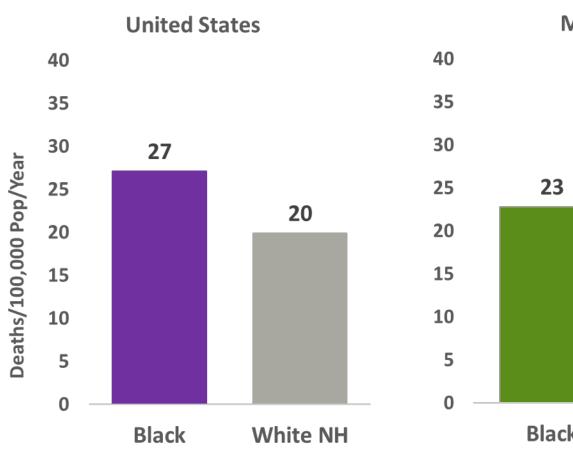
U.S. Long-Term Trend: Breast Cancer Mortality Rates Have Steadily Declined Since their Peak in 1990, But with a Large Black-White Gap

50-Year Trend: Breast Cancer Mortalty by Race, U.S. (1970-2019)
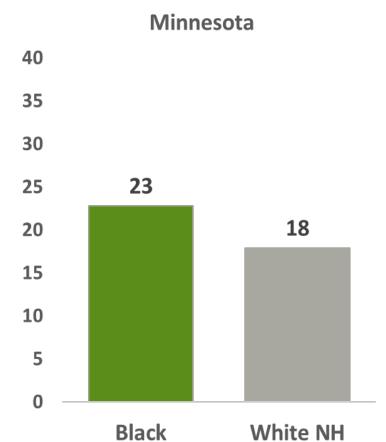
- In the 1970s breast cancer mortality in Blacks was as low or lower as it was in Whites

- Mortality rates have been declining in both Blacks and Whites since around 1995, but with a persistent gap.
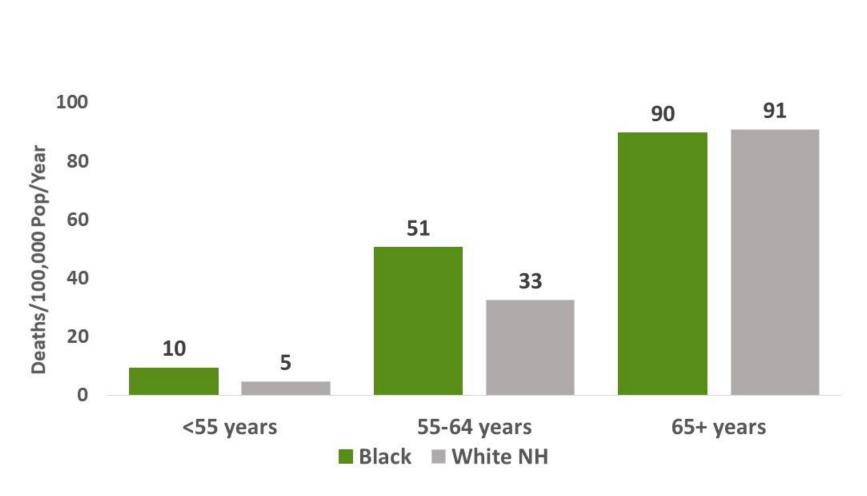
Breast Cancer Death Rates by Race, U.S. and Minnesota

United States

Deaths/100,000 Pop/Year

	Black	White NH
	27	20

Minnesota

	Black	White NH
	23	18

- U.S.-- Breast cancer mortality is 36% higher in Black women

- Minnesota-- Breast cancer mortality is 27% higher in Black women

The Mortality Disparity is Concentrated in Younger Black Women

- Black women are twice as likely as White women to die of breast cancer before age 55 years.

- ... And 56% more likely as White women to die of breast cancer at 55-64 years

Proposed Explanations for the Mortality Gap (1 of 2)

- Later stage at diagnosis (late stage == regional or distant stage)

- Unfavorable tumor characteristics

- Higher prevalence of obesity, comorbidities

- Less access to high quality prevention, early detection, and treatment services

- Lower likelihood of receiving guideline-concordant care

- Higher likelihood of delay in treatment initiation

REF: DeSantis CE et al. Breast cancer statistics, 2019. CA Cancer: J Clin 2019; 69(6): 438-451.

REF: Islami F, et al. American Cancer Society's report on the status of cancer disparities in the United States, 2021. CA Cancer: J Clin 2022; 72: 112-143

- Social determinants influence breast cancer incidence, stage at diagnosis and survival.

  - Unemployment, poverty, income inequality

  - Residential segregation by race

  - Racial discrimination

REF: Coughlin SS. Social determinants of breast cancer risk, stage, and survival. Breast Cancer Res Treat 2019; 177 (3): 537-548

Also see Racism & health. Health Affairs 2022; 41(2)

- Breast cancer 5-year relative survival--

  - Probability that women newly diagnosed with breast cancer will survive *their cancer* for 5 years or longer.

  - Alternatively, ... The chance that a woman diagnosed with breast cancer will live 5 years, *compared with what the chance would be if not for the cancer diagnosis*.

- 5-year crude probability of breast cancer death--

  - Probability that a woman newly diagnosed with breast cancer *will die of the disease* within 5 years.
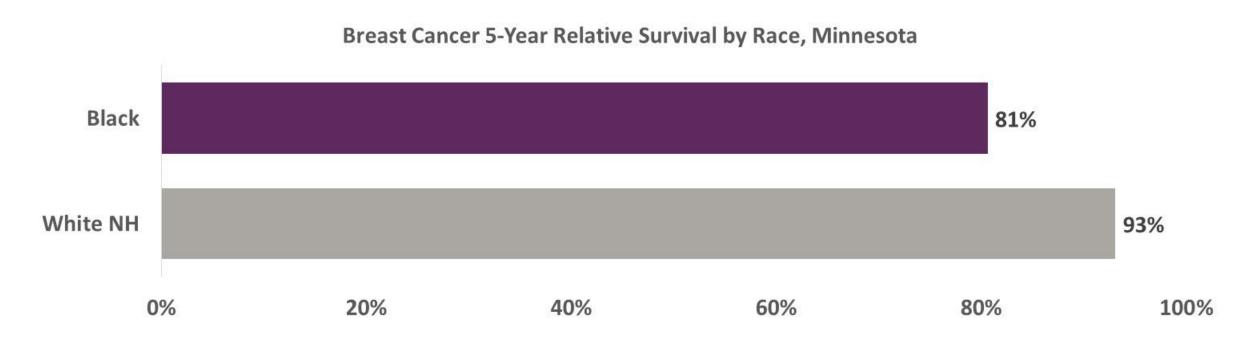
- Stage at diagnosis is earlier

- Treatment and follow-up care is high quality, timely and guideline concordant

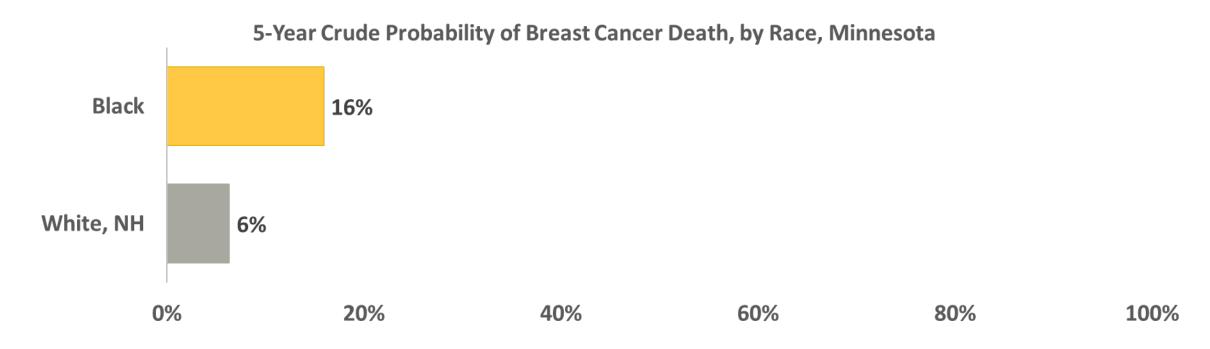- Biology is favorable (hormone receptor status, grade)

Among Women Diagnosed with Breast Cancer, 5-year Relative Survival is Lower in Black Women

Breast Cancer 5-Year Relative Survival by Race, Minnesota

Race	Survival
Black	81%
White NH	93%

- Black women are 12% less likely than White women to survive their breast cancer 5 years after diagnosis.
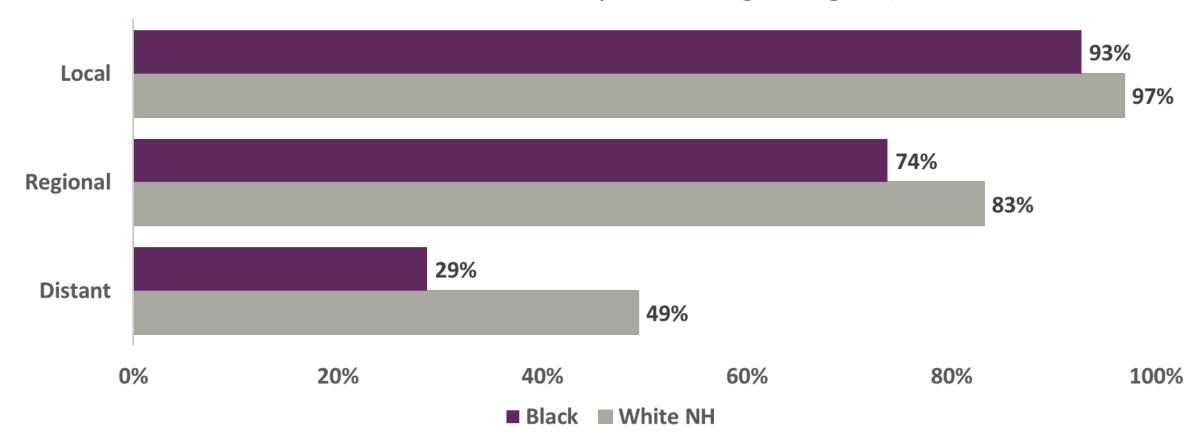
5-Year Crude Probability of Breast Cancer Death, by Race, Minnesota

- Black women are 2.5 times more likely than White women to die of their breast cancer within 5 years of diagnosis

DEPARTMENT OF HEALTH

19

Breast Cancer 5-Year Relative Survival is Lower in Black Women, Regardless of Stage at Diagnosis

Breast Cancer 5-Year Relative Survival by Race and Stage at Diagnosis, Minnesota

Local — Black: 93%, White NH: 97%
Regional — Black: 74%, White NH: 83%
Distant — Black: 29%, White NH: 49%

Legend: Black, White NH

DEPARTMENT OF HEALTH

5-Year Crude Probability of Breast Cancer Death Is Higher in Black Women, Regardless of Stage at Diagnosis

5-Year Probability of Breast Cancer Death by Race and Stage at Diagnosis, Minnesota

Local
- Black: 5%
- White NH: 1%

Regional
- Black: 21%
- White NH: 10%

Distant
- Black: 69%
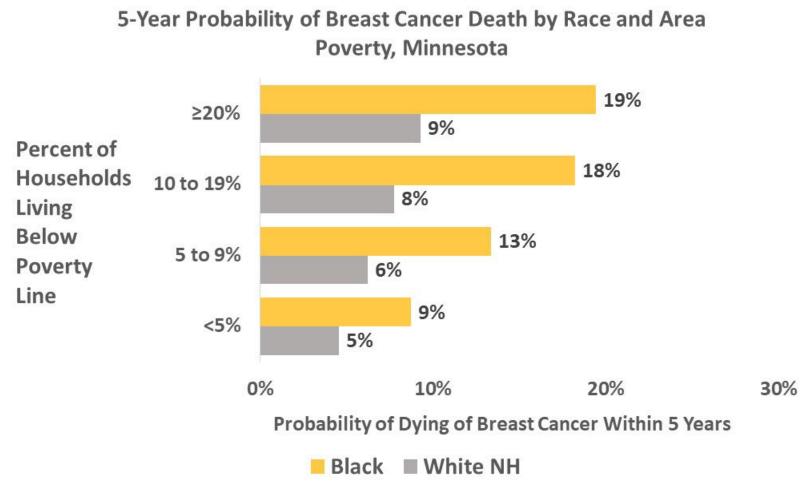- White NH: 61%

Legend: Black | White NH

Area Poverty==Percentage of Households in Census Tract with Incomes Below the Poverty Rate

Percent of MN Households in Census Tract with Incomes Below Poverty Rate	Descriptor	White, NH	Black
≥20%	High poverty area	6%	29%
10 to 19%		25%	27%
5 to 9%		37%	23%
<5%	Low poverty area	33%	21%

- The cancer registry has a data item measuring area poverty

- It is based on census tract-level income

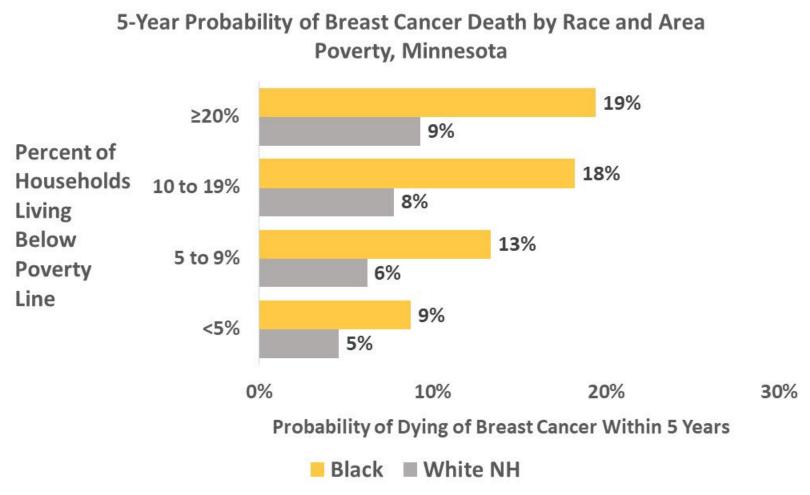- The data item is available only for persons diagnosed with cancer

Poverty effect: 5-Year Probability of Breast Cancer Death is Higher in Higher Poverty Areas, Regardless of Race

5-Year Probability of Breast Cancer Death by Race and Area Poverty, Minnesota

- Compare between the high and low poverty areas. (Consider only yellow bars or only gray bars for the moment.)

- Women living in the high poverty area and diagnosed with breast cancer have ~2x the probability of dying of their cancer within 5-years as women living in the low poverty area, regardless of race.

Race Effect: 5-Year Probability of Breast Cancer Death is Higher in Black Women, Regardless of Area Poverty

5-Year Probability of Breast Cancer Death by Race and Area Poverty, Minnesota

- Compare within each category of area poverty. (Compare yellow and gray bars at each level of area poverty).

- At each level of area poverty, Black women diagnosed with breast cancer have ~2x the probability of dying of the disease within 5 years as do White women.

Black women have--

- Late-stage breast cancer incidence rates similar to White women–

  - with a higher percentage of diagnoses at late stage.

- Higher breast cancer mortality –

  - with the disparity concentrated in younger women.

- Black women diagnosed with breast cancer have lower 5-year relative survival—

  - and higher 5-year probability of breast cancer death.

- Black women diagnosed with breast cancer have lower 5-year relative survival at each stage—

  - And a higher probability of dying of their breast cancer death at each stage.

- Among women diagnosed with breast cancer, those living in higher poverty areas are more likely to die of their cancer within 5 years than are women living in lower poverty areas.

- Regardless of area poverty level-- If diagnosed with breast cancer, Black women are twice as likely as White women to die of the disease within 5 years.

Sage Programs is dedicated to addressing health equity and social determinants of health disparities by:

- Providing improved access to and quality of health services particularly for uninsured, low-income communities

- Assisting patients to navigate systems and reduce structural barriers through appointment scheduling, transportation assistance, and translation and interpreter services

- Partnering with community organizations, over 400 medical provider sites, and many in other sectors to promote equity-oriented health care and improve systems that lead to healthier environments

- Engaging and empowering communities of interest and conducting community needs assessment and health planning

- Conducting awareness, education, outreach, and recruitment activities aimed at isolated, underserved and hard-to-reach populations

- Ensuring program materials are developed in multiple languages, contain images that reflect diversity and inclusion, and depict specific cultures of the intended audiences

References

DeSantis CE et al. Breast cancer statistics, 2019. CA Cancer: J Clin 2019; 69(6): 438-451

Islami F, et al. American Cancer Society's report on the status of cancer disparities in the United States, 2021. CA Cancer: J Clin 2022; 72: 112-143

Coughlin SS. Social determinants of breast cancer risk, stage, and survival. Breast Cancer Res Treat 2019; 177 (3):537-548

Mariotto AB. Cancer survival: an overview of measures, uses, and interpretation. JNCI Monographs, No. 49, 2014

Racism & health. Health Affairs 2022; 41(2)

Contact information

- kenneth.adams@state.mn.us
- 651-201-5481

mn DEPARTMENT OF HEALTH