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Invasive Female Breast Cancer in New Jersey

Cancer Health Equity Center of Excellence, **Rutgers Cancer Institute**

According to the Centers for Disease Control and Prevention (CDC), invasive breast cancer was the leading cause of new cancers diagnosed (incidence rate) and the second leading cause of cancer deaths (mortality rate) among individuals assigned females at birth in the United States (US) from 2017-2021 [1].

Female Breast Cancer in New Jersey

Female breast cancer rates are higher in New Jersey than the US overall. It is estimated that for every 100,000 females in NJ, 177 were diagnosed with breast cancer from 2017-2021 [2]. This number includes both *in situ* (non-invasive, Stage 0) and invasive cancers, whose separate age-adjusted rates in the state are estimated to be 41 and 136 out of 100,000, respectively [3]. It is important to note that there are no mortality statistics for *in situ* breast cancer, as this type or stage of cancer is not life-threatening. Only when it progresses and becomes invasive does it become life-threatening for the individuals affected. Additionally, while individuals assigned males at birth can develop breast cancer, it "is about 100 times less common among White [males] than among White [females]…[and] 70 times less common among Black [males] than Black [females]" [4]. Therefore, we focus this fact sheet on *invasive female breast cancer*.

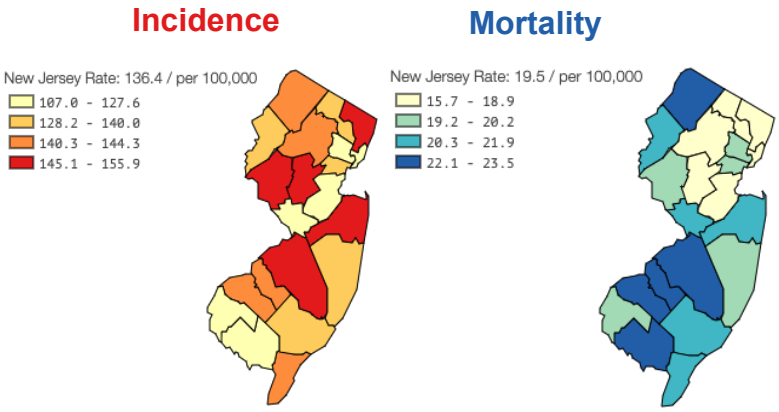

Figure 1. Age-Adjusted Invasive Female Breast Cancer Incidence (L) and Mortality (R) Rates in New Jersey, by County (2017-2021) [3, 6].

The Role of Hereditary Risk

Although most females who get breast cancer do not have a family history of breast cancer, females with a family history are at a higher risk of developing the disease [5]. Five to ten percent (5-10%) will develop breast cancer in part because they inherited certain gene mutations passed on from a parent; the most common of these that result in hereditary breast cancer is the *BRCA1* (Breast Cancer 1) or *BRCA2* (Breast Cancer 2) gene mutations [5]. "A [female] with a *BRCA1* or *BRCA2* gene mutation has up to a 7 in 10 chance of getting breast cancer by age 80" [5]. It is important for those with a strong family history of breast cancer—or any other factors that put them at higher risk—to consider genetic counseling and testing to look for these mutations. It is also important for those with these risks to get screened regularly for breast cancer.

Who Does This Impact the Most?

Across the nation, including in New Jersey, the population with the highest rate of female breast cancer are Non-Hispanic (NH) White females. In both the US and NJ, rates were higher among NH White females compared to their racial and ethnic counterparts **(Figure 2)**. While NH White females have the highest rates of new breast cancers, NH Black females have the highest rates of death due to the disease.

Racial and Ethnic Group	NJ Incidence Rate	NJ Mortality Rate
NH White	148.5	20.4
NH Black	131.3	26.5
NH Asian/Pacific Islander	106.0	10.2
Hispanic	105.3	12.3

Figure 2. Female Breast Cancer Incidence (Invasive) and Mortality Rates by Race and Ethnicity: 2017-2021 [3, 6].
*American Indian and Alaskan Natives (AI/AN) statistics suppressed due to small numbers.

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Apart from the hereditary factors previously discussed, it is also important to note that other modifiable risk factors can result in the development of breast cancer. For example, the CDC lists those who lack physical activity, those who are overweight or obese, those who drink more alcohol, and smoking can all increase a woman's risk of developing breast cancer [7].

Breast Cancer in African-American Females

Recent studies suggest that racial and ethnic disparities in cancer outcomes are a result of continued racism and discriminatory behavior [8]. The Black population in America is more often born into high, and even chronic, stress situations that are a direct result of our country's racist history [8]. These high stress situations can include long-term, sustained poverty, lower incomes, and neighborhood disadvantages which can all lead to low socioeconomic status (SES) in this population. All of these factors can also result in less access to healthcare and quality education to improve health literacy. In these cases, this population is not always fortunate enough to get the help – such as healthcare – they need, when they need it. This oftentimes leads to poorer overall health, and poorer health outcomes. In terms of breast cancer, this disadvantage manifests in the higher rates of deaths due to this disease in Black females, and the higher probability of being diagnosed at a later stage, with more aggressive cancers, and types of breast cancer that are harder to treat.

Triple-Negative Breast Cancer

Another reason for the racial differences in female breast cancer death rates is that NH Black females are at higher risk of developing triple-negative breast cancer (TNBC). TNBC is an invasive type of breast cancer that is estrogen receptor-negative, progesterone receptor-negative, and HER2-negative; meaning that these cancer cells do not have the receptors for estrogen or progesterone hormones and do not make an appropriate amount of the HER2 protein. Because of this, there are less treatment options for TNBC compared to more common breast cancers. TNBC does not respond to hormonal therapy medicines or medicines that target the HER2 protein, and is typically "more aggressive, harder to treat, and more likely to come back (recur)…" [9]. They are most at risk for developing this specific subtype primarily because of social determinants of health that were discussed previously [9]. **Figure 3** presents the 2021 data on the amount of TNBC diagnoses across all races and ethnicities in New Jersey by age group.

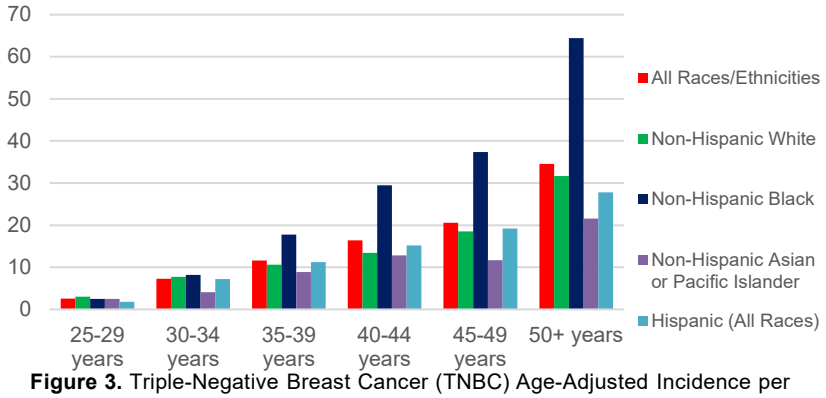

Figure 3. Triple-Negative Breast Cancer (TNBC) Age-Adjusted Incidence per 100,000 in the US 2021 by Age, Race, and Ethnicity *Source: Incidence – SEER Research Plus Data, 17 Registries, Nov 2023 Sub (2000-2021).*

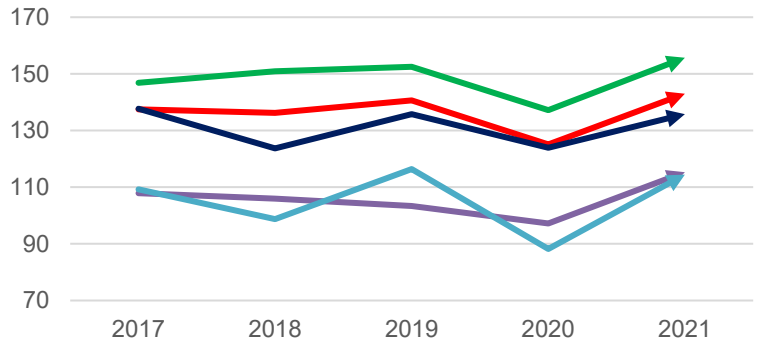

Figure 4. Age-Adjusted Female Breast Cancer Incidence Trends in New Jersey, 2017-2021. Rates per 100,000 *Source: Incidence – SEER Research Plus Data, 17 Registries, Nov 2023 Sub (2000-2021).*

Recent Trends and Outlook

Figure 4 shows that from 2019-2020 the rate of new diagnoses for female breast cancer has declined; however, the rates have already begun to rebound. In New Jersey in 2024, it is estimated that there will be 8,880 new female breast cancers diagnosed and 1,170 breast cancer deaths [10]. It is also important to note that the drop in incidence from 2019 to 2020 is largely due to the COVID-19 pandemic, and quarantine during this pandemic, which prevented many individuals from getting screened for breast cancer and in turn being diagnosed. The most important preventive strategy for female breast cancer lies in early detection and diagnosis. According to the ACS, when breast cancer is detected early, and is in the localized stage, the 5-year relative survival rate is 99% [11]. Some early detection strategies recommended by the National Breast Cancer Foundation, Inc. include monthly breast self-exams and scheduling regular clinical breast exams & mammograms (breast cancer screening) [12]. In catching breast cancer early, both the death rate and the probability of this cancer developing into its later, more life-threatening stages will decrease, along with the overall cancer burden.

For more information about Rutgers Cancer Institute Cancer Health Equity Center of Excellence, click here or visit https://www.cinj.org/outreach/cancer-health-equity-center-excellence.

For more information regarding screening guidelines, recommendations, and other resources, refer to the following links:
Cancer Screening Recommendations from the United States Preventive Services Task Force (USPSTF): https://www.uspreventiveservicestaskforce.org/uspstf/topic_search_results?topic_status=P&category%5B%5D=15&searchterm=.
Cancer Screening Guidelines from the American Cancer Society (ACS): https://www.cancer.org/cancer/screening/american-cancer-society-guidelines-for-the-early-detection-of-cancer.html.
ScreenNJ for prevention, education, and detection information: https://screennj.org/.

For information regarding Rutgers Cancer Institute clinical trials (what is open, at which sites, general clinical trials page, interest in diversity in clinical trials, etc.) click here or visit https://www.cinj.org/clinical-trials/find-clinical-trial.

Link to Fact Sheet References: https://go.rutgers.edu/cancerfacts_reference