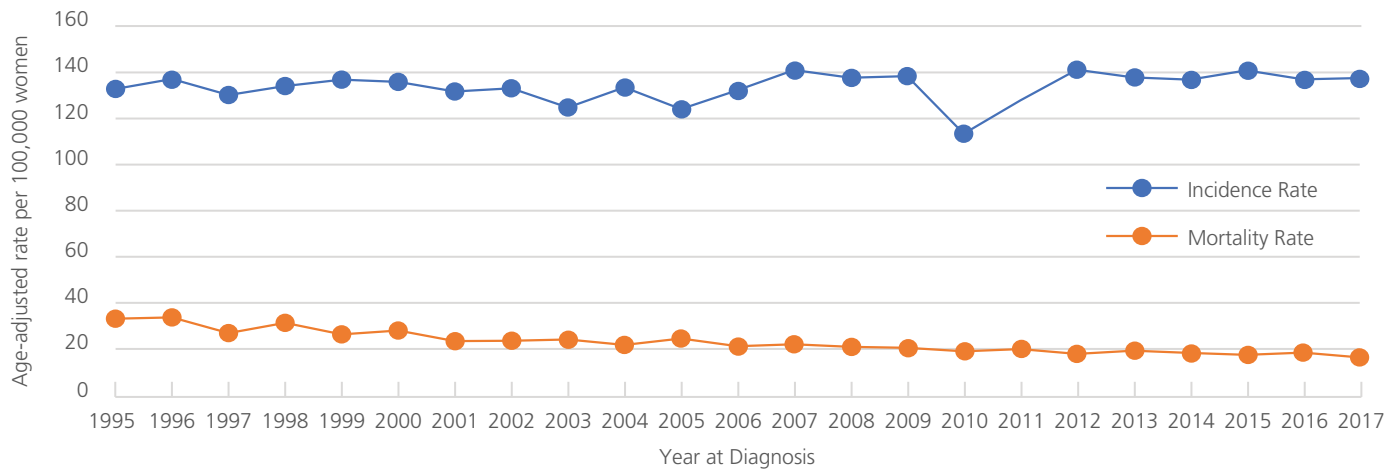# The Burden of Breast Cancer in Rhode Island

Prepared by the Rhode Island Cancer Registry (RICR), October 2020

OVERVIEW: Breast Cancer in Rhode Island

Breast cancer is one of the most commonly diagnosed cancers in Rhode Island, accounting for 15% of new cancer cases annually and 6-7% of cancer deaths.[1,2] From 1995 through 2017, incidence of newly diagnosed breast cancer each year (by age-adjusted rate) among Rhode Island women has remained unchanged, while mortality rate (age-adjusted deaths caused by breast cancer) has been decreasing on average by 3% per year *(Figure 1)*.

Figure 1 Trends of Breast Cancer Incidence and Mortality, RICR 1995-2017

*Rates are per 100,000 and age-adjusted to the 2000 US Standard Population (19 age groups - Census P25-1130). Invasive malignant breast cancers among females are included.

Breast Cancer Incidence and Mortality in Rhode Island Women by Race and Ethnicity

In Rhode Island, breast cancer cases are most frequently diagnosed among non-Hispanic white women (the white population is the largest in the state). Numbers of newly diagnosed breast cancers increased among all racial and ethnic subgroups in two recent decades (1996-2006 and 2007-2017). However, relative percentages of minority women's cases increased from the previous decade to the more recent one, reflecting minority population growth over the past decades *(Table 1.1)*.

Table 1.1 Breast Cancer Incidence (Newly Diagnosed Cases) by Race/ Ethnicity, RICR 1996-2017[1]

Years	Non-Hispanic White	Non-Hispanic Black	Hispanic	Total*
1996-2006	8,475 (93%)	226 (2%)	281 (3%)	9,077
2007-2017	8,854 (89%)	365 (4%)	548 (6%)	9,944

Table 1.2 Breast Cancer Mortality (Deaths) by Race/ Ethnicity, RICR 1996-2017[2]

Years	Non-Hispanic White	Non-Hispanic Black	Hispanic	Total*
1996-2006	1,848 (95%)	52 (3%)	27 (1%)	1,943
2007-2017	1,400 (91%)	74 (5%)	45 (3%)	1,540

*All cell values do not add up to total, due to missing or unknown information on race and ethnicity.

Overall, the number of non-Hispanic white women who died from breast cancer declined between 1996 and 2017; non-Hispanic black and Hispanic women's deaths attributed to breast cancer increased during these years, likely reflecting minority population growth and case increases over the past decades *(Table 1.2)*. Further study is needed to establish other factors that may contribute to these differences.

The Importance of Age, Staging, and Subtype of Breast Cancer Diagnosis in Survival

The National Cancer Institute's SEER (Surveillance, Epidemiology and End Results) Program collects and tracks cancer survival data nationally. According to SEER reports, 90% of women who were diagnosed with breast cancer for the first time lived for at least 5 years after their diagnosis, compared with the average 5-year survival rates of women without breast cancer.[3] As with other cancers, earlier stage breast cancer has a more favorable prognosis than does late stage disease.

The majority (over 70%) of women being diagnosed with breast cancer are middle-aged and elderly, between 50 and 79 years of age *(Figure 2)*. The average age at diagnosis for Rhode Island women is 65. Studies have shown that breast cancer diagnosed among younger women tends to have a poor prognosis because of the aggressive nature of the tumors.[4] In Rhode Island, women ages 20 to 49 years are more likely to have cancer diagnosed at later stages than women ages 50 and older *(Figure 3)*. Additionally, Rhode Island 2013-2017 data by racial and ethnic group shows that non-Hispanic black and Hispanic women have lower percentages of localized stage diagnoses than non-Hispanic White women—meaning that Hispanic women and women of color in Rhode Island are more likely to receive later-stage diagnoses *(Figure 4)*. More studies must be done to determine what actions can be taken to eliminate these differences.

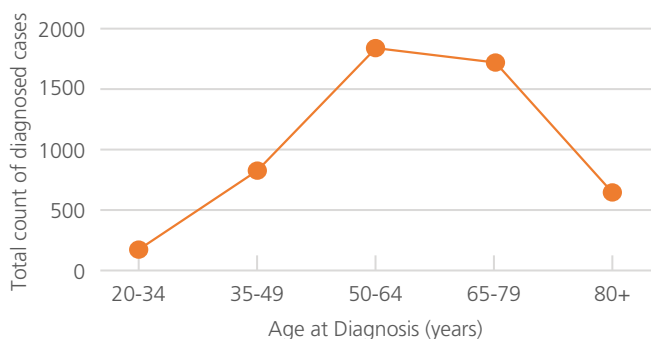Figure 2. Age at Breast Cancer Diagnosis, RICR 2013-2017 (n=4,707)

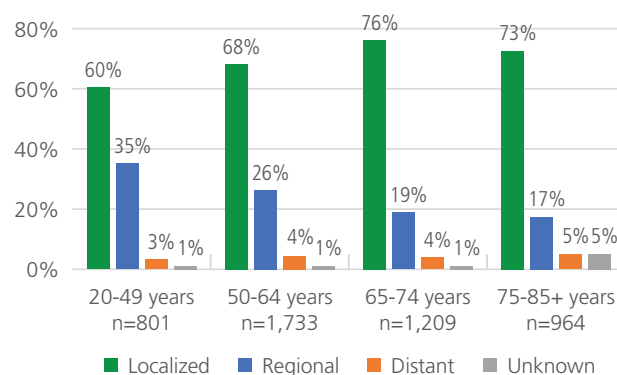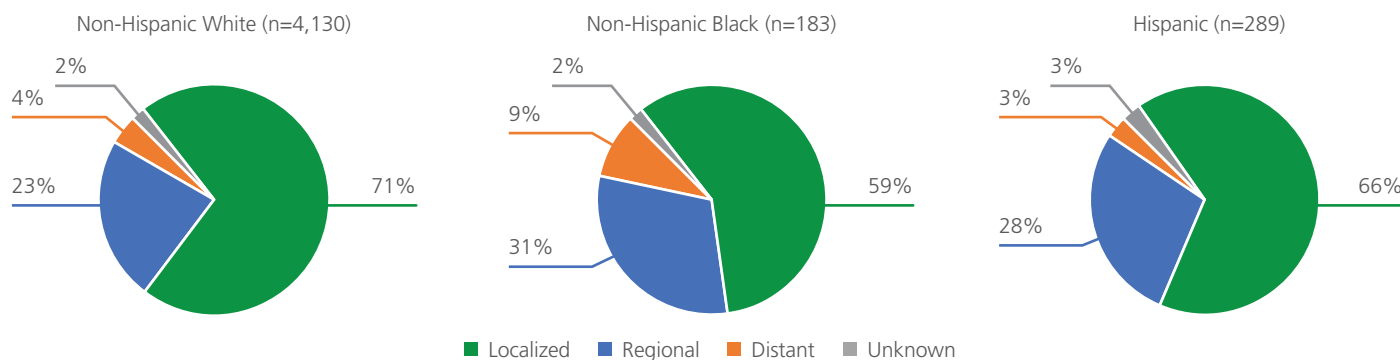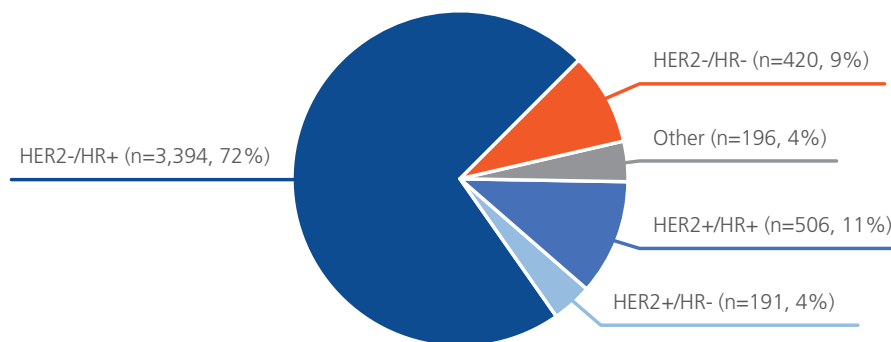Figure 3. Stage at Breast Cancer Diagnosis by Age Group, RICR 2013-2017

Figure 4. Stage at Breast Cancer Diagnosis by Race/Ethnicity, RICR 2013-2017

Cancer staging terminology: At localized stage, the cancer is confined to a primary site, in the regional stage the cancer has spread to regional lymph nodes, and in the distant stage it has metastasized.

There are four main breast cancer subtypes, determined by expressions of hormone receptors (HR: estrogen receptor (ER) and/or progesterone receptor (PR)) and human epidermal growth factor 2 (HER2).[5] HR+/HER2- tends to be slower growing and less aggressive than other subtypes, and is the most common type diagnosed among women in Rhode Island (72%, 2013-2017) *(Figure 5)*. HR+ tumors generally respond better to hormonal therapy and have more favorable survival rates, compared to HR-. HR-/HER- or the "triple negative" subtype has poorer prognosis than other subtypes.[6] Nearly one in ten (9%) Rhode Island women's breast cancer cases in 2013-2017 were triple negative type *(Figure 5)*. According to studies in the United States, triple negative breast cancers are more frequently diagnosed among younger-aged (premenopausal) women, non-Hispanic black women or those with the BRCA1 gene mutation.[6,7] Due to the small number of cases diagnosed among subgroups of women, Rhode Island-specific cancer data could not confirm these epidemiologic characteristics.

Figure 5. Breast cancer by molecular subytpe, RICR 2013-2017

HER2-/HR- (n=420, 9%)
Other (n=196, 4%)
HER2-/HR+ (n=3,394, 72%)
HER2+/HR+ (n=506, 11%)
HER2+/HR- (n=191, 4%)

References

[1] Rhode Island Cancer Data (extracted July 2020). Rhode Island Cancer Registry.

[2] Rhode Island Vital Records & CDC National Center for Health Statistics. (extracted and analyzed using SEER*Stat software v8.4.7, July 2020).

[3] NIH SEER Program. Cancer Stat Facts: Female Breast Cancer. https://seer.cancer.gov/statfacts/html/breast.html

[4] Shoemake ML, White MC, Wu M et al. Differences in breast cancer incidence among young women aged 20-49 years by stage and tumor characteristics, age, race and ethnicity, 2004-2013. Breast Cancer Res Treat. 2018;169(3):595-606.

[5] NIH SEER Program. Cancer Stat Facts: Female Breast Cancer Subtypes. https://seer.cancer.gov/statfacts/html/breast-subtypes.html

[6] American Cancer Society. Breast Cancer Facts & Figures, 2019-2020. https://www.cancer.org/content/dam/cancer-org/research/cancer-facts-and-statistics/breast-cancer-facts-and-figures/breast-cancer-facts-and-figures-2019-2020.pdf

[7] Howlader N, Altekruse SF, Li CI et al. US Incidence of Breast Cancer Subtypes Defined by Joint Hormone Receptor and HER Status. J Natl Cancer Inst. 2014;106(5):dju055. https://www.nuestrasvoces.org/uploads/2/5/8/7/25879931/howlader_2014.pdf

www.health.ri.gov

Gina M. Raimondo
Governor

Nicole Alexander-Scott, MD, MPH
Director of Health