SMR Calculations - US Reference Population

Mar 24, 2025 - 02:36 PM

Table 1 Baseline Characteristics of women who died in Puerto Rico diagnosed with Breast Cancer from 2004-2019 and followed through 2021

| **Characteristic** | **All death causes**. N = 6,881 | **BC death** N = 3,636 | **CVD death** N = 470 | **Other Death** N = 2,775 | **p-value** |
| --- | --- | --- | --- | --- | --- |
| Age at Diagnosis (Continuous) |  |  |  |  | <0.001 |
| Mean(±SD) | 64.9(±14.6) | 60.1(±14.4) | 73.9(±11.0) | 69.6(±13.0) |  |
| Median (Q1-Q3) | 66.0 (55.0-76.0) | 60.0 (50.0-70.0) | 75.0 (67.0-82.0) | 71.0 (62.0-79.0) |  |
| Min-Max | 18.0-104.0 | 18.0-97.0 | 35.0-101.0 | 26.0-104.0 |  |
| Age at Diagnosis (Categorical) |  |  |  |  | <0.001 |
| 18-39 | 362 (5.3%) | 288 (7.9%) | 2 (0.4%) | 72 (2.6%) |  |
| 40-49 | 779 (11%) | 618 (17%) | 13 (2.8%) | 148 (5.3%) |  |
| 50-59 | 1,241 (18%) | 849 (23%) | 31 (6.6%) | 361 (13%) |  |
| 60-69 | 1,650 (24%) | 897 (25%) | 105 (22%) | 648 (23%) |  |
| 70-79 | 1,660 (24%) | 630 (17%) | 160 (34%) | 870 (31%) |  |
| 80+ | 1,189 (17%) | 354 (9.7%) | 159 (34%) | 676 (24%) |  |
| Age at Death |  |  |  |  | <0.001 |
| Mean(±SD) | 70.2(±15.1) | 64.6(±14.5) | 80.2(±11.2) | 75.8(±13.4) |  |
| Median (Q1-Q3) | 72.0 (60.0-82.0) | 65.0 (54.0-75.0) | 83.0 (73.0-89.0) | 78.0 (68.0-86.0) |  |
| Min-Max | 21.0-107.0 | 21.0-100.0 | 41.0-103.0 | 28.0-107.0 |  |
| Follow Up Time (Years) |  |  |  |  | <0.001 |
| Mean(±SD) | 4.4(±3.6) | 3.5(±3.2) | 5.3(±3.7) | 5.3(±3.9) |  |
| Median (Q1-Q3) | 3.3 (1.4-6.4) | 2.6 (1.2-4.9) | 4.5 (2.1-7.7) | 4.5 (2.1-7.8) |  |
| Min-Max | 0.1-16.6 | 0.1-16.4 | 0.1-16.6 | 0.1-16.6 |  |
| Health Region |  |  |  |  | 0.091 |
| Noreste Metro | 1,731 (25%) | 918 (25%) | 127 (27%) | 686 (25%) |  |
| Central Bayamon | 1,030 (15%) | 532 (15%) | 59 (13%) | 439 (16%) |  |
| Oeste Aguadilla/Mayaguez | 1,041 (15%) | 546 (15%) | 75 (16%) | 420 (15%) |  |
| Sureste Caguas | 953 (14%) | 499 (14%) | 61 (13%) | 393 (14%) |  |
| Sur Ponce | 1,018 (15%) | 582 (16%) | 75 (16%) | 361 (13%) |  |
| Norte Arecibo | 833 (12%) | 418 (11%) | 55 (12%) | 360 (13%) |  |
| Este Fajardo | 270 (3.9%) | 140 (3.9%) | 18 (3.8%) | 112 (4.0%) |  |
| County Unknown | 5 (<0.1%) | 1 (<0.1%) | 0 (0%) | 4 (0.1%) |  |
| Marital Status |  |  |  |  | <0.001 |
| Married | 2,996 (44%) | 1,700 (47%) | 159 (34%) | 1,137 (41%) |  |
| Unmarried | 3,242 (47%) | 1,629 (45%) | 263 (56%) | 1,350 (49%) |  |
| Unknown | 643 (9.3%) | 307 (8.4%) | 48 (10%) | 288 (10%) |  |
| Treatment |  |  |  |  | <0.001 |
| Surgery Only | 1,066 (15%) | 436 (12%) | 105 (22%) | 525 (19%) |  |
| Chemotherapy Only | 686 (10.0%) | 492 (14%) | 23 (4.9%) | 171 (6.2%) |  |
| Radiotherapy Only | 889 (13%) | 321 (8.8%) | 80 (17%) | 488 (18%) |  |
| Chemotherapy and Radiotherapy | 1,753 (25%) | 1,156 (32%) | 74 (16%) | 523 (19%) |  |
| Other | 2,487 (36%) | 1,231 (34%) | 188 (40%) | 1,068 (38%) |  |
| Stage at Diagnosis |  |  |  |  | <0.001 |
| Localized | 2,893 (42%) | 1,042 (29%) | 300 (64%) | 1,551 (56%) |  |
| Regional | 2,980 (43%) | 1,895 (52%) | 137 (29%) | 948 (34%) |  |
| Distant | 621 (9.0%) | 490 (13%) | 10 (2.1%) | 121 (4.4%) |  |
| Unknown/unstaged | 387 (5.6%) | 209 (5.7%) | 23 (4.9%) | 155 (5.6%) |  |
| P-values were calculated using Welch's one-way test for continuous variables to account for unequal variances. For categorical variables, the chi-squared test was used unless cell counts were low, in which case Fisher's exact test was applied to obtain a simulated p-value. | | | | | |

## CVD SMR for PR BC Survivors with PR Population as Referent

| observed | expected | pyrs | sir | sir.lo | sir.hi | p\_value |
| --- | --- | --- | --- | --- | --- | --- |
| 470 | 218.9794 | 66377.99 | 2.1463 | 1.95664 | 2.349423 | 0 |

(To be put in text)

Table 2 CVD SMRs by Year of Diagnosis for BC Survivors in Puerto Rico Using PR Population as Referent

| Year of Diagnosis | Observed | Expected | Person-Years | Standardized Mortality Ratio (SMR) | Lower 95% CI | Upper 95% CI | P-Value |
| --- | --- | --- | --- | --- | --- | --- | --- |
| 2004 | 45 | 30.1 | 6945.4 | 1.5 | 1.1 | 2.0 | 0 |
| 2005 | 41 | 25.5 | 6888.3 | 1.6 | 1.2 | 2.2 | 0 |
| 2006 | 40 | 22.6 | 5938.2 | 1.8 | 1.3 | 2.4 | 0 |
| 2007 | 47 | 23.9 | 6237.4 | 2.0 | 1.4 | 2.6 | 0 |
| 2008 | 37 | 21.6 | 6084.2 | 1.7 | 1.2 | 2.4 | 0 |
| 2009 | 45 | 17.4 | 5354.7 | 2.6 | 1.9 | 3.5 | 0 |
| 2010 | 33 | 16.7 | 5409.2 | 2.0 | 1.4 | 2.8 | 0 |
| 2011 | 35 | 14.4 | 4762.6 | 2.4 | 1.7 | 3.4 | 0 |
| 2012 | 27 | 11.7 | 4094.0 | 2.3 | 1.5 | 3.4 | 0 |
| 2013 | 26 | 9.9 | 3749.2 | 2.6 | 1.7 | 3.9 | 0 |
| 2014 | 19 | 7.6 | 2853.6 | 2.5 | 1.5 | 3.9 | 0 |
| 2015 | 19 | 6.1 | 2587.7 | 3.1 | 1.9 | 4.9 | 0 |
| 2016 | 21 | 4.4 | 1985.3 | 4.8 | 3.0 | 7.3 | 0 |
| 2017 | 13 | 3.1 | 1506.9 | 4.1 | 2.2 | 7.1 | 0 |
| 2018 | 11 | 2.6 | 1232.4 | 4.2 | 2.1 | 7.5 | 0 |
| 2019 | 11 | 1.3 | 748.8 | 8.2 | 4.1 | 14.7 | 0 |

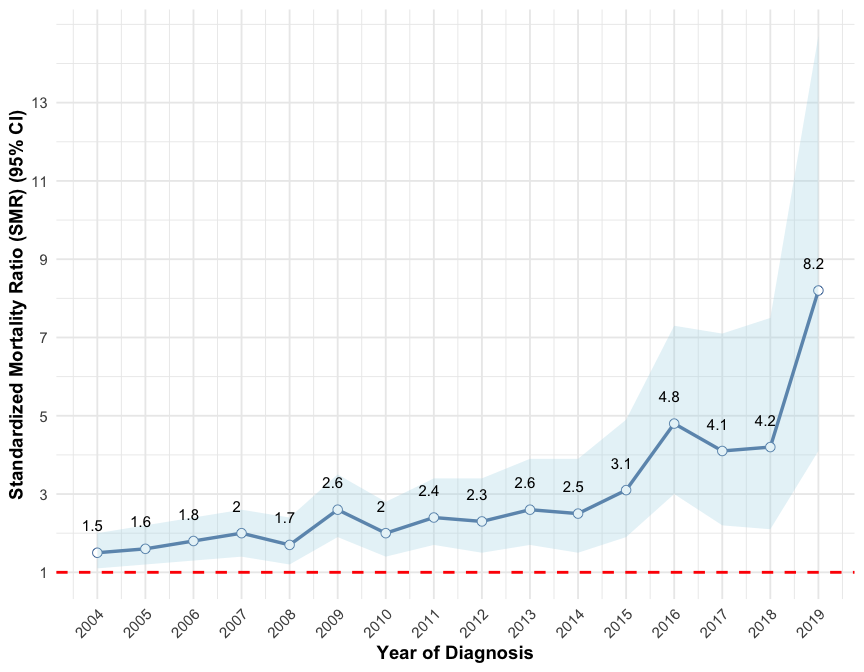
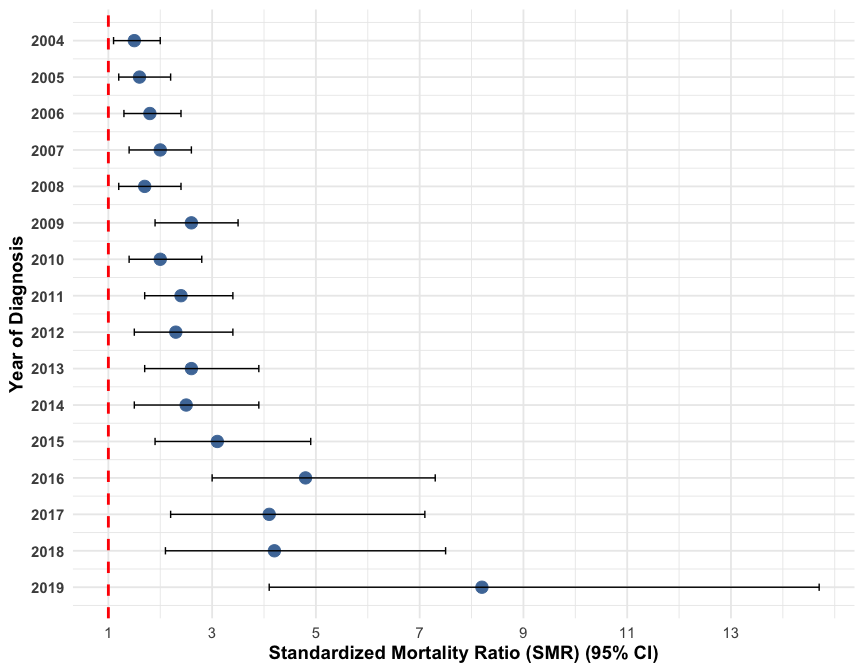
Figure 1 CVD SMRs by Year of Diagnosis for BC survivors in Puerto Rico Using PR population as Referent  V2: Figure 2 CVD SMRs by Year of Diagnosis for BC survivors in Puerto Rico Using PR population as Referent 

Table 3 CVD SMRs by Year of Diagnosis for BC Survivors in Puerto Rico Using PR Population as Referent

| Year of Diagnosis | Observed | Expected | SMR | CI.Lower | CI.Upper |
| --- | --- | --- | --- | --- | --- |
| 2004-2009 | 255 | 141.1 | 1.807229 | 1.592201 | 2.043200 |
| 2010-2014 | 140 | 60.3 | 2.321725 | 1.953077 | 2.739726 |
| 2015-2019 | 75 | 17.5 | 4.285714 | 3.370986 | 5.372180 |

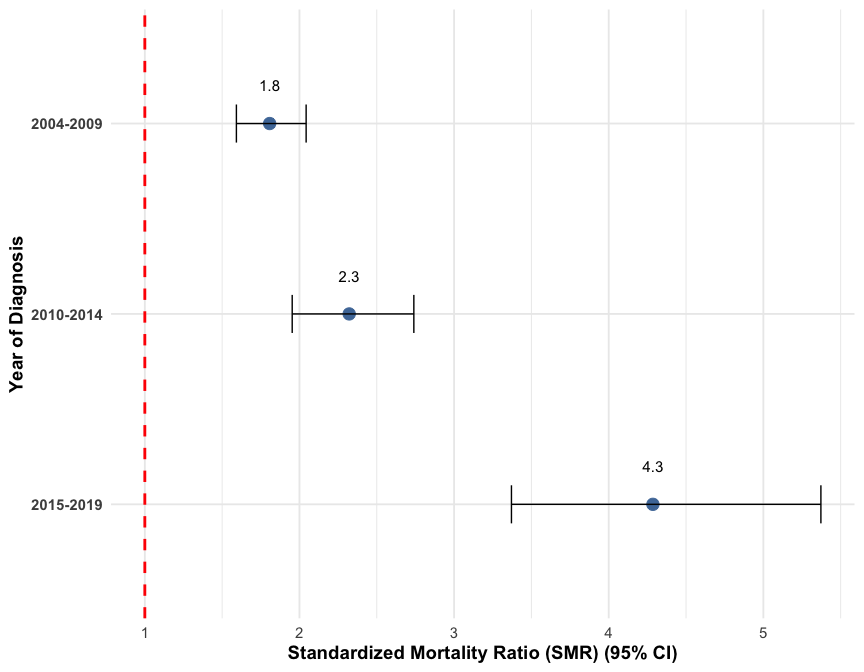
Figure 3 CVD SMRs by Year of Diagnosis for BC survivors in Puerto Rico Using PR population as Referent 

Table 4 CVD SMRs by Age at Diagnosis for BC Survivors in Puerto Rico Using PR Population as Referent

| AgeDxCat | observed | expected | pyrs | sir | sir.lo | sir.hi | p\_value |
| --- | --- | --- | --- | --- | --- | --- | --- |
| 18-39 | 2 | 0.3618 | 4335.471 | 5.5282 | 0.6694563 | 19.968733 | 0.0156 |
| 40-49 | 13 | 3.0177 | 11221.510 | 4.3079 | 2.2937842 | 7.366669 | 0.0000 |
| 50-59 | 31 | 10.3163 | 15789.738 | 3.0049 | 2.0417200 | 4.265291 | 0.0000 |
| 60-69 | 105 | 31.8479 | 17462.728 | 3.2969 | 2.6965545 | 3.991123 | 0.0000 |
| 70-79 | 160 | 92.2412 | 12236.839 | 1.7346 | 1.4762222 | 2.025151 | 0.0000 |
| 80+ | 159 | 81.1944 | 5331.703 | 1.9583 | 1.6657077 | 2.287411 | 0.0000 |

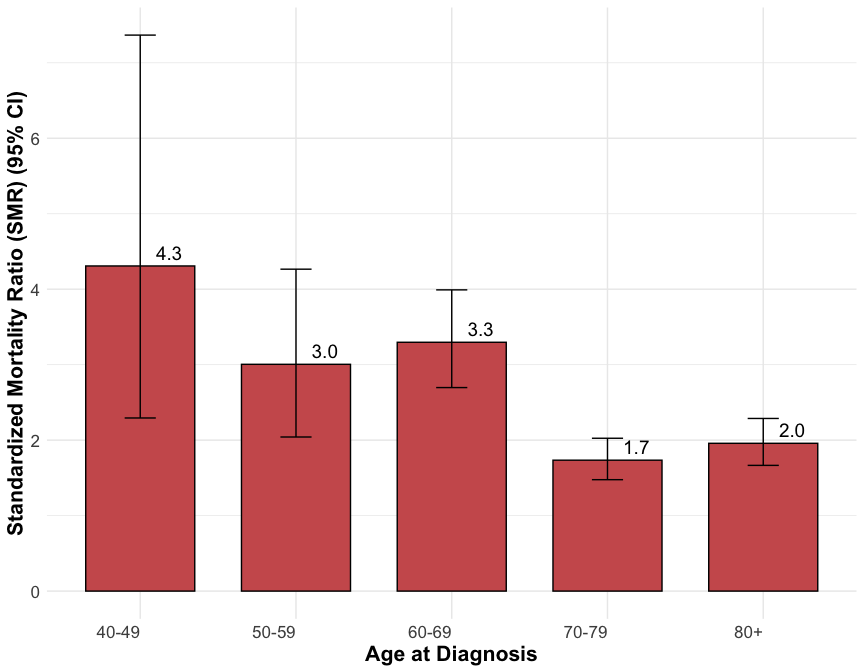
Figure 4 CVD SMRs by Age at Diagnosis for BC survivors in Puerto Rico Using PR population as Referent 

Table 5 CVD SMRs by Initial Treatment Type for BC Survivors in Puerto Rico Using PR Population as Referent

| Procedure | observed | expected | pyrs | sir | sir.lo | sir.hi | p\_value |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Surgery Only | 105 | 49.4422 | 10255.05 | 2.1237 | 1.736970 | 2.570859 | 0e+00 |
| Chemotherapy Only | 23 | 10.0487 | 6180.92 | 2.2889 | 1.450937 | 3.434404 | 7e-05 |
| Radiotherapy Only | 80 | 45.8998 | 11781.60 | 1.7429 | 1.382033 | 2.169224 | 0e+00 |
| Chemotherapy and Radiotherapy | 74 | 30.7605 | 17319.30 | 2.4057 | 1.888978 | 3.020114 | 0e+00 |
| Other | 188 | 82.8283 | 20841.12 | 2.2698 | 1.956887 | 2.618421 | 0e+00 |

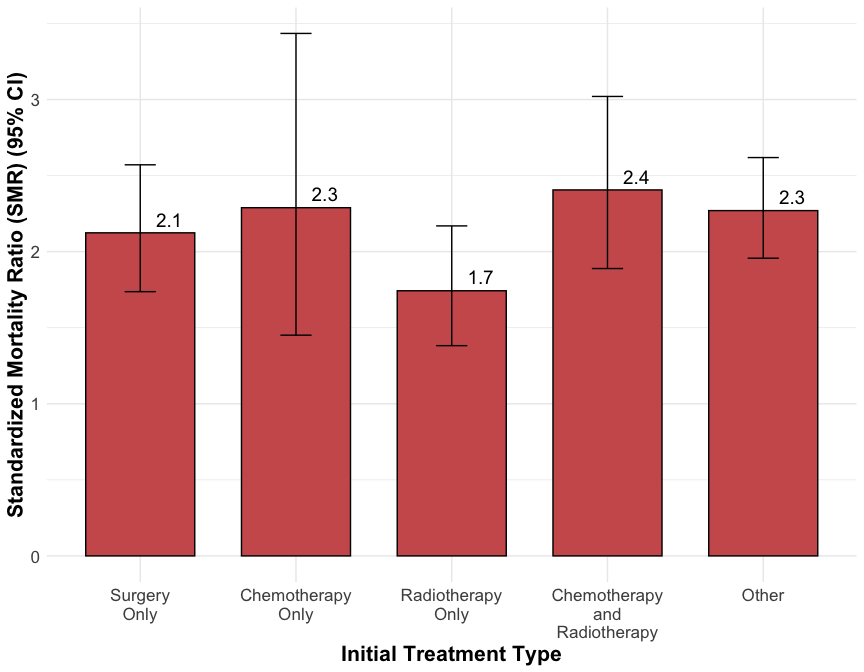
Figure 5 CVD SMRs by Initial Treatment Type for BC survivors in Puerto Rico Using PR population as Referent 

Table 6 CVD SMRs for BC Survivors in PR Hispanic and US Race/Ethnicity Groups Using US Population as Referent

| **PR Hispanic** | | | | **US Hispanic** | | | | **White** | | | | **Black** | | | | **AANHPI & AIAN** | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| O | E | SMR | 95% CI | O | E | SMR | 95% CI | O | E | SMR | 95% CI | O | E | SMR | 95% CI | O | E | SMR | 95% CI |
| 470 | 371.4876 | 1.2652 | (1.15 - 1.38) | 2193 | 2657.04 | 0.83 | (0.79 - 0.86) | 23582 | 27275.69 | 0.86 | (0.85 - 0.88) | 3292 | 3192.44 | 1.03 | (1 - 1.07) | 1632 | 1510.29 | 1.08 | (1.03 - 1.13) |
| SMRs were calculated as the observed number of cardiovascular disease deaths among breast cancer patients divided by the expected number of cardiovascular disease deaths in the race- and ethnic-matched general female U.S. population. SMR calculations for results with <10 events were suppressed. AANHPI, Asian American, Native Hawaiian, and Pacific Islander; AIAN, American Indian and Alaska Native; CVD: cardiovascular disease; E = Expected; O = Observed; SMR = Standardized Mortality Ratio. | | | | | | | | | | | | | | | | | | | |

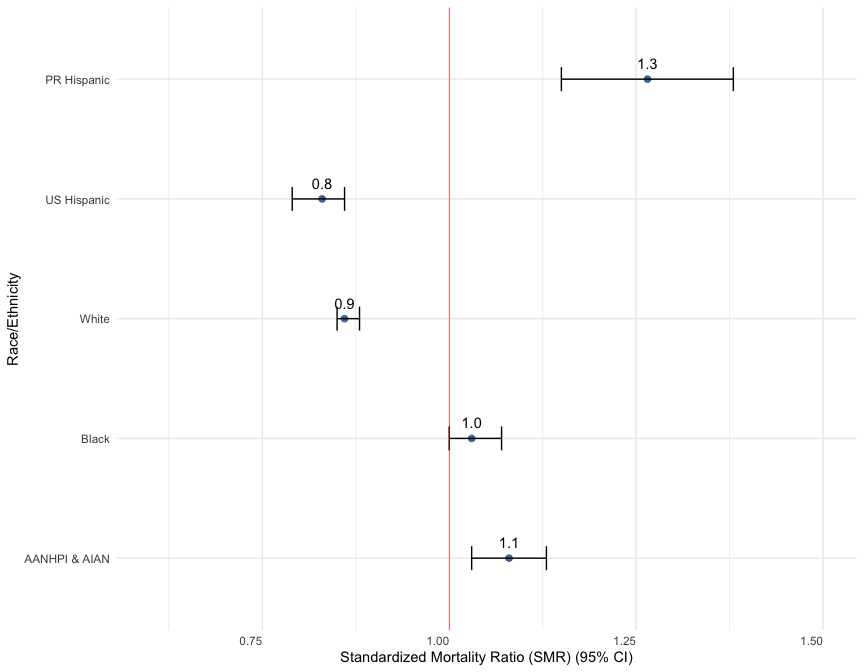
Figure 6 CVD SMRs for BC survivors in PR Hispanic and US Race/Ethnicity Groups using US population as referent 

Table 7 CVD SMRs by Year of Diagnosis for BC Survivors in PR Hispanic and US Race/Ethnicity Groups Using US population as Referent

|  | **PR Hispanic** | | | | **US Hispanic** | | | | **White** | | | | **Black** | | | | **AANHPI & AIAN** | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Year of Diagnosis | O | E | SMR | 95% CI | O | E | SMR | 95% CI | O | E | SMR | 95% CI | O | E | SMR | 95% CI | O | E | SMR | 95% CI |
| 2004 | 45 | 48.1 | 0.9 | (0.7 - 1.3) | 227 | 257.4 | 0.9 | (0.8 - 1.0) | 2927 | 3171.6 | 0.9 | (0.9 - 1.0) | 340 | 305.8 | 1.1 | (1.0 - 1.2) | 162 | 149.6 | 1.1 | (0.9 - 1.3) |
| 2005 | 41 | 40.8 | 1.0 | (0.7 - 1.4) | 246 | 265.7 | 0.9 | (0.8 - 1.0) | 2695 | 2915.1 | 0.9 | (0.9 - 1.0) | 317 | 276.4 | 1.1 | (1.0 - 1.3) | 181 | 148.2 | 1.2 | (1.0 - 1.4) |
| 2006 | 40 | 36.4 | 1.1 | (0.8 - 1.5) | 189 | 242.9 | 0.8 | (0.7 - 0.9) | 2510 | 2767.0 | 0.9 | (0.9 - 0.9) | 306 | 272.6 | 1.1 | (1.0 - 1.3) | 158 | 135.0 | 1.2 | (1.0 - 1.4) |
| 2007 | 47 | 39.3 | 1.2 | (0.9 - 1.6) | 190 | 236.8 | 0.8 | (0.7 - 0.9) | 2304 | 2582.0 | 0.9 | (0.9 - 0.9) | 278 | 281.7 | 1.0 | (0.9 - 1.1) | 154 | 138.7 | 1.1 | (0.9 - 1.3) |
| 2008 | 37 | 35.6 | 1.0 | (0.7 - 1.4) | 182 | 226.2 | 0.8 | (0.7 - 0.9) | 2058 | 2381.4 | 0.9 | (0.8 - 0.9) | 286 | 271.4 | 1.0 | (0.9 - 1.2) | 143 | 132.8 | 1.1 | (0.9 - 1.3) |
| 2009 | 45 | 29.2 | 1.5 | (1.1 - 2.1) | 187 | 206.6 | 0.9 | (0.8 - 1.0) | 1952 | 2257.7 | 0.9 | (0.8 - 0.9) | 269 | 259.4 | 1.0 | (0.9 - 1.2) | 126 | 119.4 | 1.0 | (0.9 - 1.3) |
| 2010 | 33 | 28.8 | 1.1 | (0.8 - 1.6) | 168 | 186.3 | 0.9 | (0.8 - 1.0) | 1700 | 1974.0 | 0.9 | (0.8 - 0.9) | 230 | 230.1 | 1.0 | (0.9 - 1.1) | 123 | 111.6 | 1.1 | (0.9 - 1.3) |
| 2011 | 35 | 25.4 | 1.4 | (1.0 - 1.9) | 150 | 198.0 | 0.8 | (0.6 - 0.9) | 1521 | 1788.5 | 0.8 | (0.8 - 0.9) | 209 | 225.0 | 0.9 | (0.8 - 1.1) | 118 | 107.8 | 1.1 | (0.9 - 1.3) |
| 2012 | 27 | 21.0 | 1.3 | (0.8 - 1.9) | 132 | 162.8 | 0.8 | (0.7 - 1.0) | 1321 | 1606.3 | 0.8 | (0.8 - 0.9) | 210 | 215.8 | 1.0 | (0.8 - 1.1) | 106 | 97.2 | 1.1 | (0.9 - 1.3) |
| 2013 | 26 | 18.2 | 1.4 | (0.9 - 2.1) | 127 | 153.8 | 0.8 | (0.7 - 1.0) | 1112 | 1403.5 | 0.8 | (0.8 - 0.8) | 194 | 192.6 | 1.0 | (0.9 - 1.2) | 103 | 83.7 | 1.2 | (1.0 - 1.5) |
| 2014 | 19 | 14.4 | 1.3 | (0.8 - 2.1) | 114 | 136.5 | 0.8 | (0.7 - 1.0) | 977 | 1187.8 | 0.8 | (0.8 - 0.9) | 152 | 162.0 | 0.9 | (0.8 - 1.1) | 66 | 71.4 | 0.9 | (0.7 - 1.2) |
| 2015 | 19 | 11.6 | 1.6 | (1.0 - 2.6) | 95 | 117.1 | 0.8 | (0.7 - 1.0) | 817 | 1027.8 | 0.8 | (0.7 - 0.8) | 149 | 151.9 | 1.0 | (0.8 - 1.1) | 58 | 64.0 | 0.9 | (0.7 - 1.2) |
| 2016 | 21 | 8.5 | 2.5 | (1.5 - 3.8) | 58 | 103.4 | 0.6 | (0.4 - 0.7) | 648 | 833.0 | 0.8 | (0.7 - 0.8) | 120 | 123.4 | 1.0 | (0.8 - 1.2) | 54 | 55.4 | 1.0 | (0.7 - 1.3) |
| 2017 | 13 | 6.3 | 2.1 | (1.1 - 3.5) | 54 | 75.2 | 0.7 | (0.5 - 0.9) | 458 | 645.2 | 0.7 | (0.7 - 0.8) | 117 | 100.4 | 1.2 | (1.0 - 1.4) | 37 | 42.5 | 0.9 | (0.6 - 1.2) |
| 2018 | 11 | 5.3 | 2.1 | (1.0 - 3.7) | 45 | 54.4 | 0.8 | (0.6 - 1.1) | 376 | 458.7 | 0.8 | (0.7 - 0.9) | 72 | 76.6 | 0.9 | (0.7 - 1.2) | 24 | 33.2 | 0.7 | (0.5 - 1.1) |
| 2019 | 11 | 2.7 | 4.0 | (2.0 - 7.2) | 29 | 33.9 | 0.8 | (0.6 - 1.2) | 206 | 275.8 | 0.8 | (0.7 - 0.9) | 43 | 47.5 | 0.9 | (0.7 - 1.2) | 19 | 19.7 | 1.0 | (0.6 - 1.5) |
| SMRs were calculated as the observed number of cardiovascular disease deaths among breast cancer patients divided by the expected number of cardiovascular disease deaths in the race- and ethnic-matched general female U.S. population. SMR calculations for results with <10 events were suppressed. AANHPI, Asian American, Native Hawaiian, and Pacific Islander; AIAN, American Indian and Alaska Native; CVD: cardiovascular disease; E = Expected; O = Observed; SMR = Standardized Mortality Ratio. | | | | | | | | | | | | | | | | | | | | |

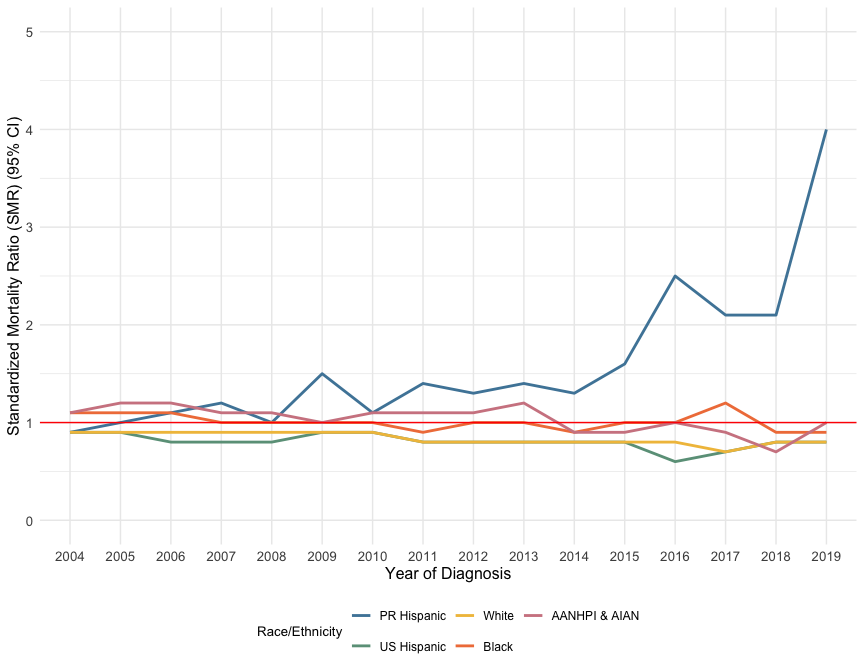
Figure 7 CVD SMRs by Year of Diagnosis for BC survivors in PR Hispanic and US Race/Ethnicity Groups Using US population as Referent 

Table 8 CVD SMRs by Year of Diagnosis for BC Survivors in PR Hispanic and US Race/Ethnicity Groups Using US population as Referent

|  | **PR Hispanic** | | | | **US Hispanic** | | | | **White** | | | | **Black** | | | | **AANHPI & AIAN** | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Year of Diagnosis | O | E | SMR | 95% CI | O | E | SMR | 95% CI | O | E | SMR | 95% CI | O | E | SMR | 95% CI | O | E | SMR | 95% CI |
| 2004-2009 | 255 | 229.3 | 1.1 | (1.0 - 1.3) | 1221 | 1435.6 | 0.9 | (0.8 - 0.9) | 14446 | 16075.0 | 0.9 | (0.9 - 0.9) | 1796 | 1667.2 | 1.1 | (1.0 - 1.1) | 924 | 823.9 | 1.1 | (1.1 - 1.2) |
| 2010-2015 | 159 | 119.3 | 1.3 | (1.1 - 1.6) | 786 | 954.5 | 0.8 | (0.8 - 0.9) | 7448 | 8988.0 | 0.8 | (0.8 - 0.8) | 1144 | 1177.4 | 1.0 | (0.9 - 1.0) | 574 | 535.7 | 1.1 | (1.0 - 1.2) |
| 2016-2021 | 56 | 22.8 | 2.5 | (1.9 - 3.2) | 186 | 266.9 | 0.7 | (0.6 - 0.8) | 1688 | 2212.7 | 0.8 | (0.7 - 0.8) | 352 | 347.9 | 1.0 | (0.9 - 1.1) | 134 | 150.7 | 0.9 | (0.8 - 1.1) |
| SMRs were calculated as the observed number of cardiovascular disease deaths among breast cancer patients divided by the expected number of cardiovascular disease deaths in the race- and ethnic-matched general female U.S. population. SMR calculations for results with <10 events were suppressed. AANHPI, Asian American, Native Hawaiian, and Pacific Islander; AIAN, American Indian and Alaska Native; CVD: cardiovascular disease; E = Expected; O = Observed; SMR = Standardized Mortality Ratio. | | | | | | | | | | | | | | | | | | | | |

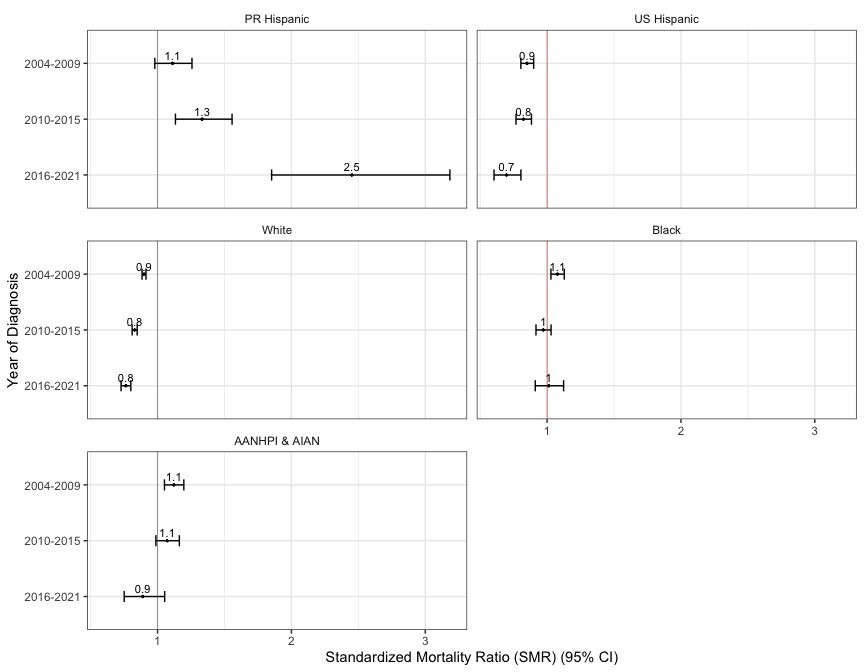
Figure 8 CVD SMRs by Year of Diagnosis for BC survivors in PR Hispanic and US Race/Ethnicity Groups Using US population as Referent 

Table 9 CVD SMRs by Age at Diagnosis for BC Survivors in PR Hispanic and US Race/Ethnicity Groups Using US population as Referent

|  | **PR Hispanic** | | | | **US Hispanic** | | | | **White** | | | | **Black** | | | | **AANHPI & AIAN** | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Age at Diagnosis | O | E | SMR | 95% CI | O | E | SMR | 95% CI | O | E | SMR | 95% CI | O | E | SMR | 95% CI | O | E | SMR | 95% CI |
| 18-39 | <10 | - | - | - | 15 | 12.7 | 1.2 | (0.7 - 2.0) | 43 | 42.0 | 1.0 | (0.7 - 1.4) | 40 | 23.1 | 1.7 | (1.2 - 2.4) | 12 | 4.9 | 2.5 | (1.3 - 4.3) |
| 40-49 | 13 | 4.4 | 3.0 | (1.6 - 5.1) | 63 | 97.3 | 0.7 | (0.5 - 0.8) | 299 | 462.2 | 0.7 | (0.6 - 0.7) | 206 | 168.2 | 1.2 | (1.1 - 1.4) | 43 | 42.2 | 1.0 | (0.7 - 1.4) |
| 50-59 | 31 | 17.6 | 1.8 | (1.2 - 2.5) | 189 | 244.4 | 0.8 | (0.7 - 0.9) | 1190 | 1589.2 | 0.8 | (0.7 - 0.8) | 490 | 444.5 | 1.1 | (1.0 - 1.2) | 157 | 123.8 | 1.3 | (1.1 - 1.5) |
| 60-69 | 105 | 57.6 | 1.8 | (1.5 - 2.2) | 493 | 511.4 | 1.0 | (0.9 - 1.0) | 3665 | 4366.5 | 0.8 | (0.8 - 0.9) | 774 | 765.7 | 1.0 | (0.9 - 1.1) | 295 | 293.3 | 1.0 | (0.9 - 1.1) |
| 70-79 | 160 | 157.7 | 1.0 | (0.9 - 1.2) | 710 | 966.0 | 0.7 | (0.7 - 0.8) | 7610 | 9948.4 | 0.8 | (0.8 - 0.8) | 971 | 1008.2 | 1.0 | (0.9 - 1.0) | 541 | 555.4 | 1.0 | (0.9 - 1.1) |
| 80+ | 159 | 133.6 | 1.2 | (1.0 - 1.4) | 723 | 825.3 | 0.9 | (0.8 - 0.9) | 10775 | 10867.4 | 1.0 | (1.0 - 1.0) | 811 | 782.8 | 1.0 | (1.0 - 1.1) | 584 | 490.8 | 1.2 | (1.1 - 1.3) |
| SMRs were calculated as the observed number of cardiovascular disease deaths among breast cancer patients divided by the expected number of cardiovascular disease deaths in the race- and ethnic-matched general female U.S. population. SMR calculations for results with <10 events were suppressed. AANHPI, Asian American, Native Hawaiian, and Pacific Islander; AIAN, American Indian and Alaska Native; CVD: cardiovascular disease; E = Expected; O = Observed; SMR = Standardized Mortality Ratio. | | | | | | | | | | | | | | | | | | | | |

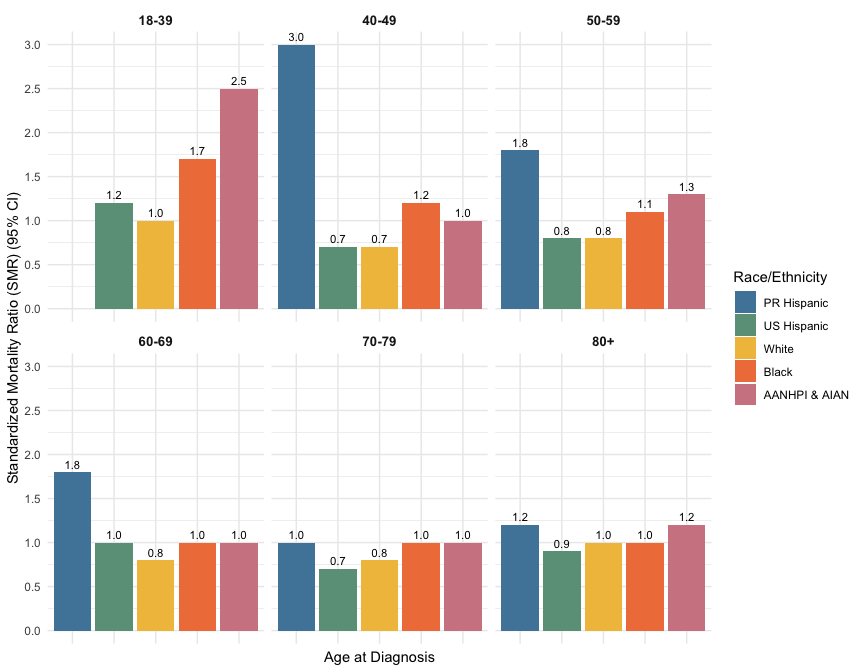
Figure 9 CVD SMRs by Age at Diagnosis for BC survivors in PR Hispanic and US Race/Ethnicity Groups Using US population as Referent 

Table 10 CVD SMRs by Stage at Diagnosis for BC Survivors in PR Hispanic and US Race/Ethnicity Groups Using US population as Referent

|  | **PR Hispanic** | | | | **US Hispanic** | | | | **White** | | | | **Black** | | | | **AANHPI & AIAN** | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Stage | O | E | SMR | 95% CI | O | E | SMR | 95% CI | O | E | SMR | 95% CI | O | E | SMR | 95% CI | O | E | SMR | 95% CI |
| Localized | 300 | 233.6 | 1.3 | (1.1 - 1.4) | 1417 | 1870.4 | 0.8 | (0.7 - 0.8) | 16604 | 20445.7 | 0.8 | (0.8 - 0.8) | 1957 | 2155.1 | 0.9 | (0.9 - 0.9) | 1108 | 1122.3 | 1.0 | (0.9 - 1.0) |
| Regional | 137 | 110.2 | 1.2 | (1.0 - 1.5) | 685 | 699.3 | 1.0 | (0.9 - 1.1) | 6008 | 6055.0 | 1.0 | (1.0 - 1.0) | 1138 | 922.1 | 1.2 | (1.2 - 1.3) | 441 | 345.4 | 1.3 | (1.2 - 1.4) |
| Distant | 10 | 9.8 | 1.0 | (0.5 - 1.9) | 47 | 47.2 | 1.0 | (0.7 - 1.3) | 516 | 410.7 | 1.3 | (1.1 - 1.4) | 131 | 60.8 | 2.2 | (1.8 - 2.6) | 53 | 23.9 | 2.2 | (1.7 - 2.9) |
| Unknown/unstaged | 23 | - | - | - | 44 | - | - | - | 454 | - | - | - | 66 | - | - | - | 30 | - | - | - |
| SMRs were calculated as the observed number of cardiovascular disease deaths among breast cancer patients divided by the expected number of cardiovascular disease deaths in the race- and ethnic-matched general female U.S. population. SMR calculations for results with <10 events were suppressed. AANHPI, Asian American, Native Hawaiian, and Pacific Islander; AIAN, American Indian and Alaska Native; CVD: cardiovascular disease; E = Expected; O = Observed; SMR = Standardized Mortality Ratio. | | | | | | | | | | | | | | | | | | | | |

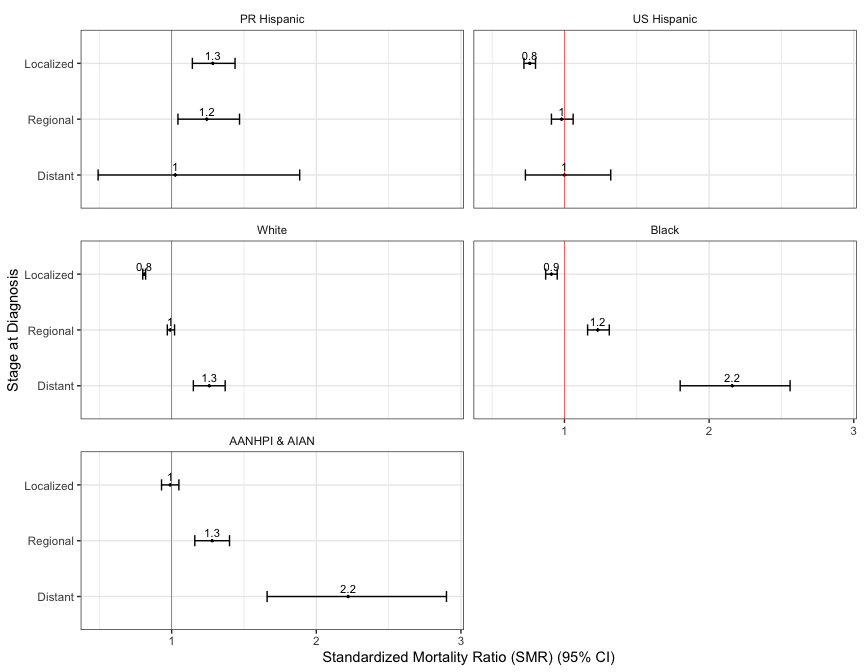
Figure 10 CVD SMRs by Stage at Diagnosis for BC survivors in PR Hispanic and US Race/Ethnicity Groups Using US population as Referent 

Table 11 CVD SMRs by Initial Treatment for BC Survivors in PR Hispanic and US Race/Ethnicity Groups Using US population as Referent

|  | **PR Hispanic** | | | | **US Hispanic** | | | | **White** | | | | **Black** | | | | **AANHPI & AIAN** | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Treatment | O | E | SMR | 95% CI | O | E | SMR | 95% CI | O | E | SMR | 95% CI | O | E | SMR | 95% CI | O | E | SMR | 95% CI |
| Surgery Only | 105 | 82.2 | 1.3 | (1.0 - 1.5) | 1015 | 1092.6 | 0.9 | (0.9 - 1.0) | 11353 | 11378.0 | 1.0 | (1.0 - 1.0) | 1287 | 1131.9 | 1.1 | (1.1 - 1.2) | 724 | 645.8 | 1.1 | (1.0 - 1.2) |
| Chemotherapy Only | 23 | 17.4 | 1.3 | (0.8 - 2.0) | 245 | 290.7 | 0.8 | (0.7 - 1.0) | 1621 | 1889.0 | 0.9 | (0.8 - 0.9) | 512 | 437.0 | 1.2 | (1.1 - 1.3) | 151 | 147.5 | 1.0 | (0.9 - 1.2) |
| Radiotherapy Only | 80 | 77.2 | 1.0 | (0.8 - 1.3) | 513 | 822.5 | 0.6 | (0.6 - 0.7) | 6961 | 10191.8 | 0.7 | (0.7 - 0.7) | 707 | 878.3 | 0.8 | (0.8 - 0.9) | 440 | 492.1 | 0.9 | (0.8 - 1.0) |
| Chemotherapy and Radiotherapy | 74 | 53.0 | 1.4 | (1.1 - 1.8) | 245 | 331.3 | 0.7 | (0.7 - 0.8) | 1957 | 2744.1 | 0.7 | (0.7 - 0.8) | 522 | 578.0 | 0.9 | (0.8 - 1.0) | 191 | 171.5 | 1.1 | (1.0 - 1.3) |
| Other | 188 | 141.7 | 1.3 | (1.1 - 1.5) | 175 | 120.0 | 1.5 | (1.2 - 1.7) | 1690 | 1072.6 | 1.6 | (1.5 - 1.6) | 264 | 167.2 | 1.6 | (1.4 - 1.8) | 126 | 53.4 | 2.4 | (2.0 - 2.8) |
| SMRs were calculated as the observed number of cardiovascular disease deaths among breast cancer patients divided by the expected number of cardiovascular disease deaths in the race- and ethnic-matched general female U.S. population. SMR calculations for results with <10 events were suppressed. AANHPI, Asian American, Native Hawaiian, and Pacific Islander; AIAN, American Indian and Alaska Native; CVD: cardiovascular disease; E = Expected; O = Observed; SMR = Standardized Mortality Ratio. | | | | | | | | | | | | | | | | | | | | |

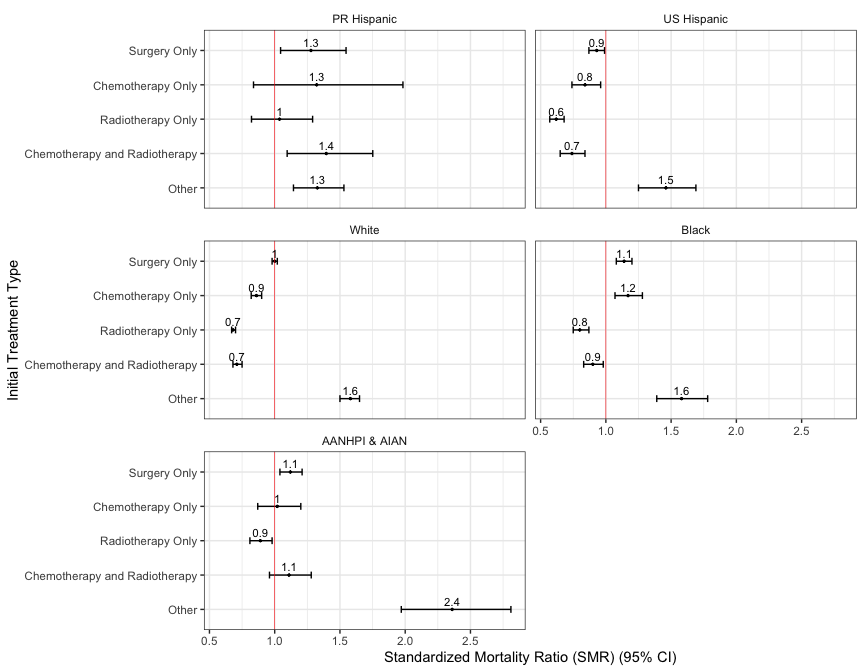
Figure 11 CVD SMRs by Initial Treatment for BC survivors in PR Hispanic and US Race/Ethnicity Groups Using US population as Referent 

Table 12 CVD SMRs by Stage and Treatment for BC Survivors in PR Hispanic and US Race/Ethnicity Groups Using US population as Referent

|  | **US Hispanic** | | | | **White** | | | | **Black** | | | | **AANHPI & AIAN** | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Stage | O | E | SMR | 95% CI | O | E | SMR | 95% CI | O | E | SMR | 95% CI | O | E | SMR | 95% CI |
| **Surgery Only** | | | | | | | | | | | | | | | | |
| Localized | 759 | 331.02 | 2.29 | (2.13 - 2.46) | 8791 | 4463.91 | 1.97 | (1.93 - 2.01) | 925 | 357.40 | 2.59 | (2.42 - 2.76) | 561 | 174.22 | 3.22 | (2.96 - 3.5) |
| Regional | 245 | 96.79 | 2.53 | (2.22 - 2.87) | 2379 | 1149.96 | 2.07 | (1.99 - 2.15) | 338 | 119.50 | 2.83 | (2.53 - 3.15) | 147 | 51.36 | 2.86 | (2.42 - 3.36) |
| Distant | <10 | - | - | - | 80 | 47.68 | 1.68 | (1.33 - 2.09) | 12 | 3.26 | 3.68 | (1.9 - 6.43) | <10 | - | - | - |
| **Chemotherapy Only** | | | | | | | | | | | | | | | | |
| Localized | 70 | 21.17 | 3.31 | (2.58 - 4.18) | 650 | 186.76 | 3.48 | (3.22 - 3.76) | 176 | 37.58 | 4.68 | (4.02 - 5.43) | 52 | 9.55 | 5.44 | (4.07 - 7.14) |
| Regional | 152 | 38.67 | 3.93 | (3.33 - 4.61) | 828 | 292.96 | 2.83 | (2.64 - 3.03) | 281 | 64.64 | 4.35 | (3.85 - 4.89) | 80 | 15.78 | 5.07 | (4.02 - 6.31) |
| Distant | 18 | 6.01 | 3.00 | (1.78 - 4.73) | 130 | 54.08 | 2.40 | (2.01 - 2.85) | 50 | 11.07 | 4.52 | (3.35 - 5.95) | 16 | 2.96 | 5.41 | (3.09 - 8.78) |
| **Radiotherapy Only** | | | | | | | | | | | | | | | | |
| Localized | 416 | 191.46 | 2.17 | (1.97 - 2.39) | 5573 | 2927.50 | 1.90 | (1.85 - 1.95) | 541 | 198.99 | 2.72 | (2.49 - 2.96) | 366 | 116.07 | 3.15 | (2.84 - 3.49) |
| Regional | 91 | 51.84 | 1.76 | (1.41 - 2.16) | 1299 | 722.79 | 1.80 | (1.7 - 1.9) | 152 | 52.20 | 2.91 | (2.47 - 3.41) | 69 | 24.63 | 2.80 | (2.18 - 3.55) |
| Distant | <10 | - | - | - | 71 | 53.84 | 1.32 | (1.03 - 1.66) | 13 | 5.05 | 2.57 | (1.37 - 4.4) | <10 | - | - | - |
| **Chemotherapy and Radiotherapy** | | | | | | | | | | | | | | | | |
| Localized | 71 | 20.61 | 3.44 | (2.69 - 4.34) | 683 | 199.12 | 3.43 | (3.18 - 3.7) | 178 | 40.49 | 4.40 | (3.77 - 5.09) | 71 | 11.18 | 6.35 | (4.96 - 8.01) |
| Regional | 157 | 46.39 | 3.38 | (2.88 - 3.96) | 1197 | 417.59 | 2.87 | (2.71 - 3.03) | 313 | 78.64 | 3.98 | (3.55 - 4.45) | 113 | 21.87 | 5.17 | (4.26 - 6.21) |
| Distant | 11 | 3.59 | 3.06 | (1.53 - 5.48) | 67 | 28.77 | 2.33 | (1.81 - 2.96) | 29 | 6.07 | 4.78 | (3.2 - 6.86) | <10 | - | - | - |
| **Other** | | | | | | | | | | | | | | | | |
| Localized | 101 | - | - | - | 907 | - | - | - | 137 | - | - | - | 58 | - | - | - |
| Regional | 40 | - | - | - | 305 | - | - | - | 54 | - | - | - | 32 | - | - | - |
| Distant | <10 | - | - | - | 168 | - | - | - | 27 | - | - | - | 18 | - | - | - |
| SMRs were calculated as the observed number of cardiovascular disease deaths among breast cancer patients divided by the expected number of cardiovascular disease deaths in the race- and ethnic-matched general female U.S. population. SMR calculations for results with <10 events were suppressed. AANHPI, Asian American, Native Hawaiian, and Pacific Islander; AIAN, American Indian and Alaska Native; CVD: cardiovascular disease; E = Expected; O = Observed; SMR = Standardized Mortality Ratio. | | | | | | | | | | | | | | | | |

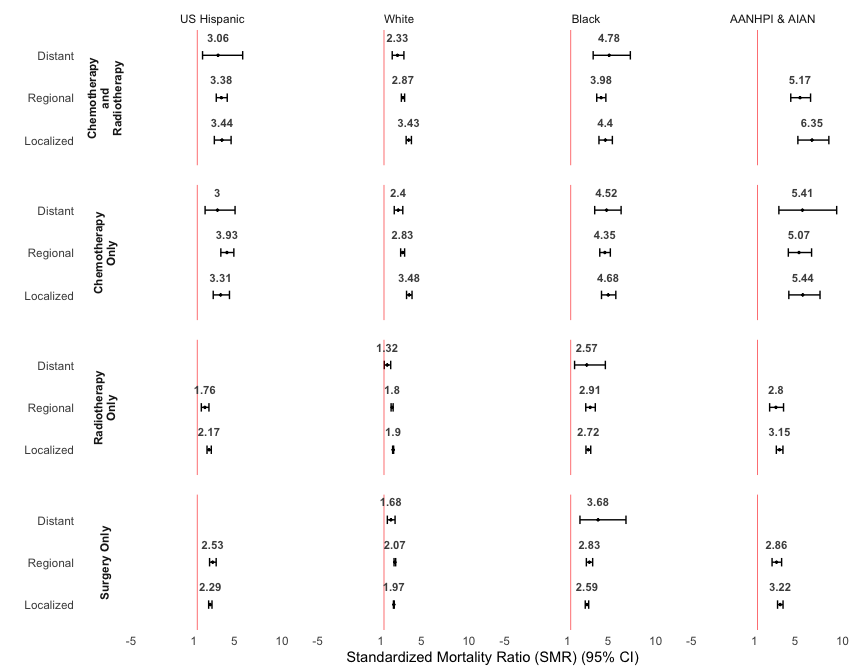
Figure 12 CVD SMRs by Stage and Treatment for BC survivors in PR Hispanic and US Race/Ethnicity Groups Using US population as Referent 

Table 13 CVD SMRs for BC Survivors in PR Hispanic and US Race/Ethnicity Groups Using US population as Referent

|  | **PR Hispanic** | | | | **US Hispanic** | | | | **White** | | | | **Black** | | | | **AANHPI & AIAN** | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Variable | O | E | SMR | 95% CI | O | E | SMR | 95% CI | O | E | SMR | 95% CI | O | E | SMR | 95% CI | O | E | SMR | 95% CI |
| Overall | 470 | 371.4876 | 1.2652 | (1.15 - 1.38) | 2193 | 2657.04 | 0.83 | (0.79 - 0.86) | 23582 | 27275.69 | 0.86 | (0.85 - 0.88) | 3292 | 3192.44 | 1.03 | (1 - 1.07) | 1632 | 1510.29 | 1.08 | (1.03 - 1.13) |
| **Age at Diagnosis** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 18-39 | <10 | - | - | - | 15 | 12.7 | 1.2 | (0.7 - 2.0) | 43 | 42.0 | 1.0 | (0.7 - 1.4) | 40 | 23.1 | 1.7 | (1.2 - 2.4) | 12 | 4.9 | 2.5 | (1.3 - 4.3) |
| 40-49 | 13 | 4.4 | 3.0 | (1.6 - 5.1) | 63 | 97.3 | 0.7 | (0.5 - 0.8) | 299 | 462.2 | 0.7 | (0.6 - 0.7) | 206 | 168.2 | 1.2 | (1.1 - 1.4) | 43 | 42.2 | 1.0 | (0.7 - 1.4) |
| 50-59 | 31 | 17.6 | 1.8 | (1.2 - 2.5) | 189 | 244.4 | 0.8 | (0.7 - 0.9) | 1190 | 1589.2 | 0.8 | (0.7 - 0.8) | 490 | 444.5 | 1.1 | (1.0 - 1.2) | 157 | 123.8 | 1.3 | (1.1 - 1.5) |
| 60-69 | 105 | 57.6 | 1.8 | (1.5 - 2.2) | 493 | 511.4 | 1.0 | (0.9 - 1.0) | 3665 | 4366.5 | 0.8 | (0.8 - 0.9) | 774 | 765.7 | 1.0 | (0.9 - 1.1) | 295 | 293.3 | 1.0 | (0.9 - 1.1) |
| 70-79 | 160 | 157.7 | 1.0 | (0.9 - 1.2) | 710 | 966.0 | 0.7 | (0.7 - 0.8) | 7610 | 9948.4 | 0.8 | (0.8 - 0.8) | 971 | 1008.2 | 1.0 | (0.9 - 1.0) | 541 | 555.4 | 1.0 | (0.9 - 1.1) |
| 80+ | 159 | 133.6 | 1.2 | (1.0 - 1.4) | 723 | 825.3 | 0.9 | (0.8 - 0.9) | 10775 | 10867.4 | 1.0 | (1.0 - 1.0) | 811 | 782.8 | 1.0 | (1.0 - 1.1) | 584 | 490.8 | 1.2 | (1.1 - 1.3) |
| **Stage** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Localized | 300 | 233.6 | 1.3 | (1.1 - 1.4) | 1417 | 1870.4 | 0.8 | (0.7 - 0.8) | 16604 | 20445.7 | 0.8 | (0.8 - 0.8) | 1957 | 2155.1 | 0.9 | (0.9 - 0.9) | 1108 | 1122.3 | 1.0 | (0.9 - 1.0) |
| Regional | 137 | 110.2 | 1.2 | (1.0 - 1.5) | 685 | 699.3 | 1.0 | (0.9 - 1.1) | 6008 | 6055.0 | 1.0 | (1.0 - 1.0) | 1138 | 922.1 | 1.2 | (1.2 - 1.3) | 441 | 345.4 | 1.3 | (1.2 - 1.4) |
| Distant | 10 | 9.8 | 1.0 | (0.5 - 1.9) | 47 | 47.2 | 1.0 | (0.7 - 1.3) | 516 | 410.7 | 1.3 | (1.1 - 1.4) | 131 | 60.8 | 2.2 | (1.8 - 2.6) | 53 | 23.9 | 2.2 | (1.7 - 2.9) |
| Unknown/unstaged | 23 | - | - | - | 44 | - | - | - | 454 | - | - | - | 66 | - | - | - | 30 | - | - | - |
| **Treatment** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Surgery Only | 105 | 82.2 | 1.3 | (1.0 - 1.5) | 1015 | 1092.6 | 0.9 | (0.9 - 1.0) | 11353 | 11378.0 | 1.0 | (1.0 - 1.0) | 1287 | 1131.9 | 1.1 | (1.1 - 1.2) | 724 | 645.8 | 1.1 | (1.0 - 1.2) |
| Chemotherapy Only | 23 | 17.4 | 1.3 | (0.8 - 2.0) | 245 | 290.7 | 0.8 | (0.7 - 1.0) | 1621 | 1889.0 | 0.9 | (0.8 - 0.9) | 512 | 437.0 | 1.2 | (1.1 - 1.3) | 151 | 147.5 | 1.0 | (0.9 - 1.2) |
| Radiotherapy Only | 80 | 77.2 | 1.0 | (0.8 - 1.3) | 513 | 822.5 | 0.6 | (0.6 - 0.7) | 6961 | 10191.8 | 0.7 | (0.7 - 0.7) | 707 | 878.3 | 0.8 | (0.8 - 0.9) | 440 | 492.1 | 0.9 | (0.8 - 1.0) |
| Chemotherapy and Radiotherapy | 74 | 53.0 | 1.4 | (1.1 - 1.8) | 245 | 331.3 | 0.7 | (0.7 - 0.8) | 1957 | 2744.1 | 0.7 | (0.7 - 0.8) | 522 | 578.0 | 0.9 | (0.8 - 1.0) | 191 | 171.5 | 1.1 | (1.0 - 1.3) |
| Other | 188 | 141.7 | 1.3 | (1.1 - 1.5) | 175 | 120.0 | 1.5 | (1.2 - 1.7) | 1690 | 1072.6 | 1.6 | (1.5 - 1.6) | 264 | 167.2 | 1.6 | (1.4 - 1.8) | 126 | 53.4 | 2.4 | (2.0 - 2.8) |
| **Year of Diagnosis** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 2004-2009 | 255 | 229.3 | 1.1 | (1.0 - 1.3) | 1221 | 1435.6 | 0.9 | (0.8 - 0.9) | 14446 | 16075.0 | 0.9 | (0.9 - 0.9) | 1796 | 1667.2 | 1.1 | (1.0 - 1.1) | 924 | 823.9 | 1.1 | (1.1 - 1.2) |
| 2010-2015 | 159 | 119.3 | 1.3 | (1.1 - 1.6) | 786 | 954.5 | 0.8 | (0.8 - 0.9) | 7448 | 8988.0 | 0.8 | (0.8 - 0.8) | 1144 | 1177.4 | 1.0 | (0.9 - 1.0) | 574 | 535.7 | 1.1 | (1.0 - 1.2) |
| 2016-2021 | 56 | 22.8 | 2.5 | (1.9 - 3.2) | 186 | 266.9 | 0.7 | (0.6 - 0.8) | 1688 | 2212.7 | 0.8 | (0.7 - 0.8) | 352 | 347.9 | 1.0 | (0.9 - 1.1) | 134 | 150.7 | 0.9 | (0.8 - 1.1) |
| **Year of Death** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 2005-2010 | 57 | 77.4 | 0.7 | (0.6 - 1.0) | 255 | 46.0 | 5.5 | (4.9 - 6.3) | 3093 | 663.6 | 4.7 | (4.5 - 4.8) | 427 | 72.4 | 5.9 | (5.4 - 6.5) | 192 | 18.5 | 10.4 | (9.0 - 11.9) |
| 2011-2016 | 172 | 177.5 | 1.0 | (0.8 - 1.1) | 737 | 266.8 | 2.8 | (2.6 - 3.0) | 8916 | 3788.8 | 2.4 | (2.3 - 2.4) | 1181 | 346.1 | 3.4 | (3.2 - 3.6) | 546 | 133.5 | 4.1 | (3.8 - 4.4) |
| 2017-2021 | 241 | 116.6 | 2.1 | (1.8 - 2.3) | 1201 | 589.1 | 2.0 | (1.9 - 2.2) | 11573 | 6908.0 | 1.7 | (1.6 - 1.7) | 1684 | 671.2 | 2.5 | (2.4 - 2.6) | 894 | 315.5 | 2.8 | (2.7 - 3.0) |
| SMRs were calculated as the observed number of cardiovascular disease deaths among breast cancer patients divided by the expected number of cardiovascular disease deaths in the race- and ethnic-matched general female U.S. population. SMR calculations for results with <10 events were suppressed. AANHPI, Asian American, Native Hawaiian, and Pacific Islander; AIAN, American Indian and Alaska Native; CVD: cardiovascular disease; E = Expected; O = Observed; SMR = Standardized Mortality Ratio. | | | | | | | | | | | | | | | | | | | | |

# Details

Figure legends should be an in-depth explanation of each figure, including a figure TITLE, and a CAPTION that includes the purpose of the figure, and brief method, results, and discussion statements pertaining to the figure. All abbreviations used in the figure should be identified either after their first mention in the legend or in alphabetical order at the end of each legend. All symbols used (arrows, circles, etc.) must be explained. Target length should be 50-100 words per figure.

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* Figures should be cited in numerical order in the text.
* Supplemental figures should be cited as “Online Figure 1, Online Figure 2,” etc.
* Figure titles should be short and followed by a 2 to 3 sentence caption.

# Figures

* Figures and graphs should be provided in EPS or TIF format.
* Color images must be at least 300 DPI. Gray scale images should be at least 300 DPI.
* All abbreviations used in the figure should be identified in an alphabetical order at the end of each legend.
* All symbols used (arrows, circles, etc.) must be explained.
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Each table should be on a separate page, with the table number and title centered above the table and explanatory notes below the table. Use Arabic numbers. Table numbers must correspond with the order cited in the text. Tables should be self-explanatory, and the data presented in them should not be duplicated in the text or figures.

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* Abbreviations should be listed in a footnote under the table in alphabetical order.
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