

EVIDENCE OF EFFECTIVE SCREENING MAMMOGRAPHY AMONG RHODE ISLAND WOMEN: TRENDS BY SOCIOECONOMIC STATUS

JOHN P. FULTON, PHD, LEANNE C. CHIAVERINI, AND DOROTHY DARCY

PURPOSE

The Rhode Island Cancer Registry (managed collaboratively by the Rhode Island Department of Health and the Hospital Association of Rhode Island) was asked by the Women's Cancer Screening Program of Rhode Island (WCSP) to explore evidence of effective screening mammography among low-income Rhode Island women between 1987 and the present.

BACKGROUND

THE WOMEN'S CANCER SCREENING PROGRAM OF RHODE ISLAND

The WCSP was established by a grant from the Centers for Disease Control and Prevention in 1993 to provide free screening and diagnostic services for cancers of the cervix and breast to uninsured and underinsured women throughout the state. It began paying for tests and services in late 1995, after two planning years. The program was reorganized in 1997, strengthening partnerships with community health centers and other participating health care providers. In 2001, program services were expanded to include Medicaid enrollment for all eligible women who require treatment for cancers of the cervix or breast.

The WCSP provides free clinical breast exams and mammograms for eligible women primarily between the ages of 40 and 64, with a special focus on women ages 50-64. Since inception, the WCSP has provided for approximately 13,000 screening mammograms, aiding in the detection of 120 breast cancers.

USE OF MAMMOGRAPHY IN THE UNITED STATES AND RHODE ISLAND

Despite the demonstrated effectiveness of mammography screening in reducing breast cancer mortality among women ages 50-69, many U.S. women do not receive mammograms.¹⁻² Among those who do receive mammograms, disparities exist by socioeconomic status, age, and race.¹ Mammography rates are lowest among low-income women, underinsured and uninsured women, older women, African American women, and Hispanic women.³⁻⁶ Similar disadvantages are present among Rhode Island women.

According to 2002 data from the Behavioral Risk Factor Surveillance System, Rhode Island women of lower income (82%) were less likely than women of higher income (87%) to have had a mammogram within the past 2 years.⁷

This disadvantage was present across all age groups (40-49, 50-64, 65-74, 75+). Women ages 40-49 and those over age 75 were less likely to have received a mammogram. For example, among lower income women, 77% of those ages 40-49 and 80% of those age 75 and over had recently received a mammogram, compared with 86% of women ages 50-64 and 87% of women ages 65-74. This pattern was also seen among women of higher income.

EVIDENCE OF EFFECTIVE SCREENING MAMMOGRAPHY

Among several ways to develop evidence of effective screening mammography, one of the simplest and least problematic is to compute the proportion of breast cancers diagnosed *in situ* (confined to the epithelium of the mammary ducts). *In situ* tumors are so small that *they may only be detected radiographically*, they are "curable" with excision and adjuvant therapy, and they allow for the use of breast-conserving surgery. In this study, the relative frequency of tumors diagnosed *in situ* is used to assess the progress and comprehensiveness of breast cancer screening and early detection activities.

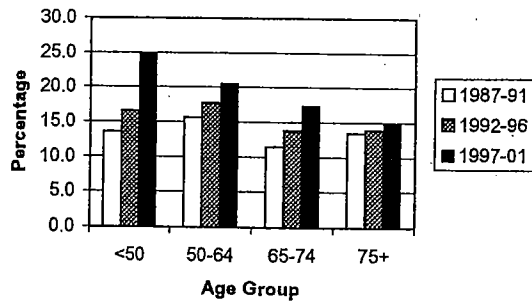
METHODS

Under the General Laws of Rhode Island, all newly diagnosed cases of breast cancer among Rhode Island residents (male or female) must be reported to the Rhode Island Cancer Registry (RICR) within 180 days of the date of diagnosis. The RICR began collecting case reports from health care agencies, health care providers, and health care laboratories on October 1, 1986.

All case reports of breast cancer diagnosed among Rhode Island women between January 1, 1987 and December 31, 2001 were identified and pulled electronically for analysis. The 13,336 case reports were sorted by stage of diagnosis, year of diagnosis, age at diagnosis, and the relative socioeconomic ranking (SES) of the census tract of residence at diagnosis. (Most cases reported to the RICR, with the exception of a small percentage of cases derived from laboratory reports only, have the cancer patient's full residence address at the time of diagnosis. This information is used to locate and code the cancer patient's census tract of residence.) Using data from the 2000 United States Census, Rhode Island's 233 census tracts were sorted into three ranked groups, as follows:

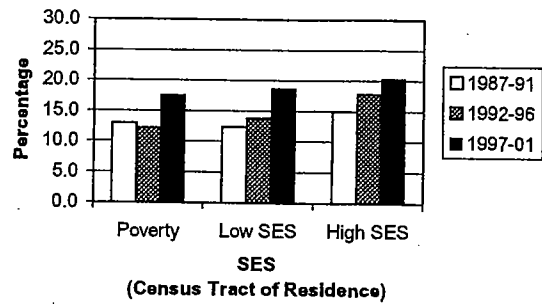
- In *poverty* census tracts, 20% or more of residents have family incomes at or below 100% of the poverty level.

Fig 1. % Female Breast Cancers Staged In Situ by Age and Date of Diagnosis



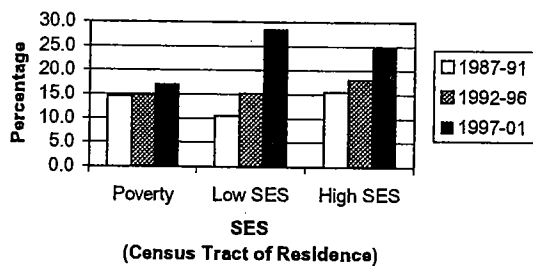
The percentage of *in situ* breast cancers increased over time for women of all ages, especially for women under age 75. Increases were greater in 1997-01 than earlier.

Fig 2. % Female Breast Cancers Staged In Situ by Residence SES and Date of Diagnosis



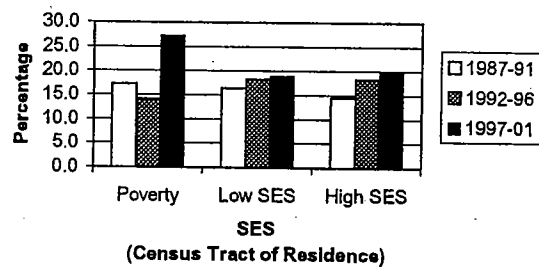
The percentage of *in situ* breast cancers increased over time for women of all SES levels. Women from poverty and low SES census tracts made gains later than others.

Fig 3. % Female Breast Cancers Staged In Situ by Residence SES and Date of Diagnosis Ages < 50



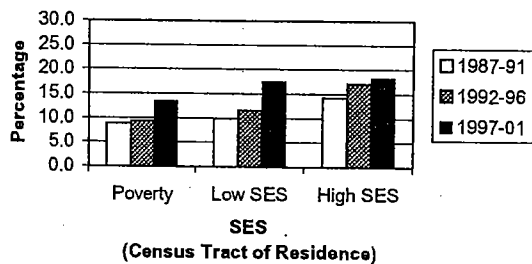
Of women under age 50, those in non-poverty census tracts made the greatest progress over time.

Fig 4. % Female Breast Cancers Staged In Situ by Residence SES and Date of Diagnosis Ages 50-64



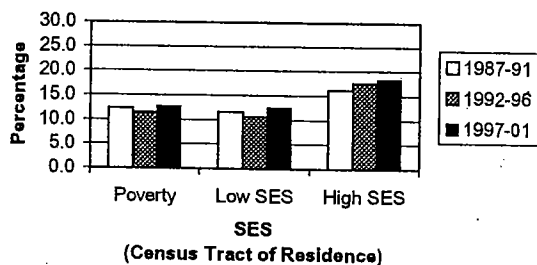
Of women ages 50-64, those in poverty census tracts made the greatest progress over time (concentrated in 1997-01).

Fig 5. % Female Breast Cancers Staged In Situ by Residence SES and Date of Diagnosis Ages 65-74



Women ages 65-74 made some progress over time.

Fig 6. % Female Breast Cancers Staged In Situ by Residence SES and Date of Diagnosis Ages 75+



Women ages 75 and over made little progress over time.

- In *low SES* census tracts, 20% or more of residents have family incomes at or below 200 percent of the poverty level, but less than 20% residents have family incomes at or below 100% of the poverty level.
- In *high SES* census tracts, less than 20% of residents

have family incomes at or below 200% of the poverty level.

Differentials by race were also explored. Because of the small number of breast cancer cases diagnosed among

black women between 1987 and 2001 (282 of 13,336 cases), racial disparities were evaluated for the entire period, as opposed to sub-periods.

RESULTS

In Figures 1-6, the proportion of Rhode Island female breast cancer cases diagnosed *in situ* are categorized and displayed by year of diagnosis, age at diagnosis, and SES of residence census tract. The percentage of *in situ* breast cancers increased over time for women of all ages, especially for women under age 75. (Figure 1) Increases were greater in 1997-01 than earlier. (Figure 1) The percentage of *in situ* breast cancers increased over time for women of all SES levels. (Figure 2) Women from poverty and low SES census tracts made gains later than others. (Figure 2) The most dramatic gains were made by women under age 50 residing in non-poverty census tracts (Figure 3) and by women ages 50-64 residing in poverty census tracts. (Figure 4)

Additionally, black women were less likely to have breast cancer diagnosed *in situ* than white women. Between 1987 and 2001, the proportion of breast cancers diagnosed *in situ* was 12% among black women and 16% among white women.

DISCUSSION

Apparently, screening mammography was effective among low-income Rhode Island women between 1987 and the present. Women residing in poverty and low SES census tracts experienced gains in the percentage of breast cancers diagnosed *in situ*. Most of these gains were made in the 1997-01 period, at a time when the WCSP was expanding rapidly, and gains among women residing in poverty and low SES census tracts were greatest in the age groups served by the Program, <50 and 50-64. This apparent relationship between program activity and improvement in the stage distribution of breast cancers diagnosed among women living in low income areas will be tested further by looking carefully at the 120 breast cancers diagnosed among women served by the WCSP.

In Rhode Island, black women were less likely to have benefited from mammography than white women between 1987 and 2001. However, because the number of cases among black women was too small to examine trends, improvements in the percentage of breast cancers diagnosed *in situ* could not be assessed. Despite this limitation, the observed racial disparity deserves further exploration; and the WCSP may want to emphasize minorities as a target population for their program.

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John P. Fulton, PhD, is Associate Director, Disease Prevention and Control, Rhode Island Department of Health, and Clinical Associate Professor of Community Health, Brown Medical School.

Leanne C. Chiaverini is Epidemiologist, Rhode Island Cancer Registry, Rhode Island Department of Health.

Dorothy Darcy is Director, Cancer Information Systems, Hospital Association of Rhode Island.



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