Progress in the Control of Female Breast Cancer in Rhode Island, 1987-2000

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PROFILE

In Rhode Island, about 9000 women have been diagnosed with breast cancer (8,922 in 1998), about 1000 women are newly diagnosed with breast cancer each year (1,004 in 2000), and about 200 succumb to the disease annually (180 in 1999). Breast cancer is among the top four most important cancers in the state (and the nation), along with cancers of the lung, colon-rectum, and prostate. In Rhode Island, breast cancer accounted for 16% of all newly diagnosed cancers in 2000 (including male as well as female cases), and 7% of all cancer deaths in 1999.

CONTROL STRATEGY

Although breast cancer has been linked to a variety of risk factors, effective preventives are unknown. A number of clinical trials and clinical-trial-like studies have demonstrated the effectiveness of screening for the reduction of breast cancer mortality, but in recent years, the quality of these studies and the validity of their results have been questioned.[1,2] Despite the recent controversies associated with screening, its aggressive use remains a key control strategy, along with the assurance of multidisciplinary, state-of-the-art treatment. The Rhode Island Cancer Control Plan,[3] published in September, 1998, recommends:

Breast Cancer Screening

- For women without a family history of pre-menopausal breast cancer, a clinical breast exam (CBE) should be performed at the periodic health examination after the age of 30.
- Annual CBE and mammography after age 40.
- For women with a first degree relative diagnosed with pre-menopausal breast cancer, annual mammography should commence 5-10 years prior to the age at which the relative was diagnosed.
- Women with BRCA1 and BRCA2 mutations should commence monthly Breast Self Exam by 20 years of age, and should receive annual or semiannual CBE, and annual mammography, beginning at age 25 to 35 years.

Basic Treatment Infrastructure

- Promote and support the adoption of American College of Surgeons (ACOS)-approved cancer programs in all acute care hospitals in Rhode Island.
- Assure accurate tumor staging with American Joint Committee on Cancer (AJCC) staging methodology.

2010 TARGETS

Healthy People 2010, the most recent set of health objectives for the United States,[4] suggests the following targets for the control of breast cancer:

Screening

By 2010, increase the proportion of women ages 40 years and older who have received a mammogram within the preceding 2 years to 70% (baseline = 67% in 1998).

Mortality

By 2010, reduce the breast cancer death rate to 22.3 deaths per 100,000 females (age-adjusted to the year 2000 standard population of the United States; baseline = 27.9 deaths per 100,000 females in 1998).

Table 1.
- Percent of women ages 40+ who have had a mammogram in the past two years
- Average annual age-adjusted breast cancer incidence rates by summary stage of disease at diagnosis among women of all races
- Percents of cases in RI ACOS-approved treatment programs, of cases with AJCC staging, and of localized cases with recommended treatment
- Average annual breast cancer mortality rates among women of all races

Place	Measure	Source	Year(s) of Observation											
			1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
RI	% Ages 40+ Screened *	[a]	NA	71	71	66	73	NA	72	76	81	80	83	84
U.S.	% Ages 40+ Screened		NA	58	62	63	66	67	69	69	70	72	73	76
RI	Incidence - In Situ **	[b]	14.6	15.2	15.9	16.6	17.3	18.5	19.9	22.2	25.3	28.6		
RI	Incidence - Local	[b]	77.1	77.3	77.5	77.5	78.3	78.7	79.9	81.3	82.1	82.7		
RI	Incidence - Regional	[b]	42.5	41.9	40.8	39.3	38.4	38.0	37.1	36.3	36.3	36.7		
RI	Incidence - Distant	[b]	6.8	6.5	6.3	6.4	6.7	6.9	6.6	6.4	5.9	5.4		
RI	Incidence - Unknown Stage	[b]	6.1	5.9	5.5	5.6	6.4	7.0	7.2	7.2	7.2	6.4		
RI	Incidence - All Invasive ***	[b]	132.6	131.5	130.1	128.8	129.9	130.6	130.8	131.2	131.5	131.1		
U.S.	Incidence - All Invasive	[c]	131.5	131.1	130.7	131.4	131.6	131.6	132.7	135.0	136.6	NA		
RI	% Cases in RI ACOS Tx Pgms	[b]	51	51	50	47	55	57	52	54	62	68	70	82
RI	% Cases with AJCC Staging	[b]	73	74	71	75	90	93	93	94	92	92	92	95
RI	Mortality	[d]	37.2	37.9	36.5	35.6	35.2	34.2	32.2	32.2	31.1	NA		
U.S.	Mortality	[d]	33.0	32.9	32.5	32.1	31.6	31.0	30.4	29.6	28.8	NA		

* Percentage of women ages 40 and over who have had a mammogram in the past two years
** Incidence and mortality rates are based on five years' data (e.g., 1989 = 1987-1991; 1998 = 1997-2000), age adjusted to the 2000 U.S. standard population, expressed as cases per 100,000.
*** Invasive includes the following stages of disease at diagnosis: local, regional, distant, and unknown
[a] Behavioral Risk Factor Surveillance System, Centers for Disease Control and Prevention
[b] Rhode Island Cancer Registry, Rhode Island Department of Health
[c] National Cancer Institute. *SEER Cancer Statistics Review 1973-1999.* Bethesda, MD: National Cancer Institute, 2002.
[d] CDC Wonder, Centers for Disease Control and Prevention
NA Data not available or not applicable

Trends

Screening

The proportion of Rhode Island women ages 40 years and older of all races who had received a mammogram within the preceding 2 years increased from 71% in 1990 to 84% in 2000. Among all the states, in comparison, the median proportion of women ages 40 years and older of all races who had received a mammogram within the preceding 2 years increased from 58% in 1990 to 76% in 2000.

Incidence

The age-adjusted incidence of invasive breast cancer (2000 standard) among Rhode Island women of all races stayed about the same from 1987 to 2000, hovering around 130 cases per 100,000 women (based on five-year moving averages). In contrast, the age-adjusted incidence of invasive breast cancer (2000 standard) among U.S. women of all races increased from about 131 cases per 100,000 women in 1987-1991 to about 137 cases per 100,000 women in 1995-1999.

In Rhode Island, the analogous rates for *in situ* breast cancer doubled over the 1987-2000 period, increasing steadily from 15 cases per 100,000 women in 1987-1991 to 29 cases per 100,000 women in 1996-2000. As well, when age-adjusted incidence rates of invasive cancer are broken down by stage of disease at diagnosis, one may observe an increase in the incidence of local tumors (from 77 per 100,000 women in 1987-1991 to 83 per 100,000 women in 1996-2000), and a decrease in the incidence of regional tumors (from 42 per 100,000 women in 1987-1991 to 37 per 100,000 women in 1996-2000). The age-adjusted incidences of distant tumors and tumors of unknown stage both hovered around 6-7 per 100,000 women for the entire period of observation.

Basic Treatment Infrastructure

From 1989 through 1996, about half of the breast cancer cases newly diagnosed among Rhode Island women were treated under the auspices of six ACOS-approved hospital cancer programs. Another program was approved in 1997, and two more in 2000, bringing the total to nine. With these additions, and with changes in the distribution of breast cancer cases among hospitals, the proportion of newly diagnosed breast cancer cases treated under ACOS-approved programs had increased to 82% by 2000.

Prior to a change in the Rules and Regulations of the Rhode Island Cancer Registry in 1992, only about 75% of the breast cancer cases newly diagnosed among Rhode Island women were staged using the AJCC system, an important basis for choosing appropriate treatments. After the Rules change, the proportion of cases with AJCC staging increased to 90%, and has averaged 93% from 1993 through 2000.

Mortality

The age-adjusted mortality of invasive breast cancer (2000 standard) among Rhode Island women of all races declined from 37 per 100,000 in 1987-1991 to 31 per 100,000 in 1995-1999 (based on five-year moving averages). Similarly, the age-adjusted mortality of invasive breast cancer (2000 standard) among U.S. women of all races declined from 33 in 1987-1991 to 29 in 1995-1999 (based on five-year moving averages). The rates in Rhode Island were higher than the rates in the U.S. as a whole throughout the period of observation.

Assessment

The health care community in Rhode Island has aggressively promoted breast cancer screening since 1986. As a result, Rhode Island is ahead of the nation in breast cancer screening, and by 2000 had already exceeded the *Healthy People 2010* goal by 20%.

Gains have also been made toward the achievement of basic treatment infrastructure goals as set forth in the second (1998) edition of the state's cancer control plan. The proportion of newly diagnosed breast cancer cases treated under the auspices of ACOS-approved hospital cancer programs increased from 51% to 82% during the period of observation, and the proportion of cases staged with AJCC methodology increased from 73% to 95%.

In Rhode Island, increased use of mammography in the 1990s was accompanied by increased incidence of *in situ* and localized breast tumors, decreased incidence of regional and distant breast tumors, and decreased breast cancer mortality. The increased use of mammography may have contributed to the observed trends in breast cancer incidence and mortality, although multiple factors were undoubtedly at play. Advances in treatment, for example, may have contributed substantially to the decrease in breast cancer mortality.

The *Healthy People 2010* goal for breast cancer mortality is very aggressive. Given the current level of breast cancer mortality in Rhode Island and its trend during the 1990s, public health efforts may have to go beyond the continued promotion of screening mammography, whatever its effectiveness in reducing breast cancer mortality, to achieve the *Healthy People 2010* goal. Given that effective preventive measures for breast cancer are unknown, the only remaining strategy with promise for the reduction of breast cancer mortality is the aggressive promotion, use, and evaluation of state-of-the-art breast cancer therapy, including the aggressive enrollment of patients in approved clinical trials.

References

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