

BREAST CANCER SCREENING IN UNDERSERVED WOMEN IN THE BRONX

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This article reports the results of mammography screening among socioeconomically disadvantaged women in Bronx, NY using a federally funded low-cost or no-cost cancer screening service. The New York State Department of Health provided funds for the uninsured through the Bronx Breast Health Partnership. All women ≤ 40 years underwent screening mammography using both a mobile van unit and hospital-based mammographic x-ray unit, both American College of Radiology (ACR) accredited. Return visits were coordinated by a follow-up clinic at Montefiore Medical Center using a patient navigator who acted as an advocate for patients with abnormal screening findings. The overall detection rate of 12.9 per 1000 women screened was significantly higher than the New York State detection rate of 6 per 1000 and 5.1 per 1000 nationally. Availability of a patient navigator was an essential factor in the effectiveness of the work-up of problem cases. Low-cost or no-cost breast cancer screening programs can improve the availability, accessibility, acceptability, and utilization of mammography among underserved and uninsured women who are least likely to be screened otherwise. (*J Natl Med Assoc.* 1999;91:195-200.)

Key words: mammography screening
◆ African-American women ◆ breast cancer

A number of studies have shown that breast cancer incidence and mortality rates vary among racial and ethnic groups.¹⁻⁴ Over all ages combined, white women are more likely to develop breast cancer than African-American women.⁵ The incidence rate for white women is 113.1 cases per 100,000 women and 101 for African-American women. However, in women aged <45 , the mortality among African-American women (31.2) is higher compared with white women (26) per 100,000.⁶

In 1984, the US government made minority health status a national priority. A government task force commissioned to investigate and document the health status of

minorities found a significant disparity between the health of minority populations and the health of white Americans.⁷ Additionally, the relationship between socioeconomic characteristics of a population and its general health status has been reviewed, and those below the poverty level are more likely to be in relatively poor health.⁸⁻¹¹ Therefore, it is significant that the percentage of Bronx households in poverty is 150% of the citywide value.¹²

All major medical groups as well as the National Cancer Institute support regular screening with mammography for breast cancer.¹³ Specific health objectives to be accomplished by the year 2000, as expressed by the US Department of Health and Human Services, include increasing mammography screening by all women, especially African-American and Hispanic women.¹⁴

Breast cancer is a serious health problem in New York, with approximately 12,000 new cases and 4000 deaths reported each year. According to the New York State Department of Health (NYSDOH), a disproportionate number of these deaths occur among low-income women and minorities who, even when they understand that early detection is beneficial, do not have access to

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screening services.¹⁵ In addressing this problem, the NYSDOH, since 1988, developed a breast cancer screening program for underserved and uninsured or underinsured women.

Twelve projects representing 10 major urban and two multicounty rural areas have been funded through the National Breast and Cervical Cancer Early Detection Program (NBCCEDP) and administered by the Centers for Disease Control and Prevention (CDC). The goal was to make mammography screening available to socioeconomically disadvantaged women in New York.¹⁵ Together, these projects have screened more than 40,000 women in 5 years, with 60% of the women >50 years. Nearly 51% had never had a mammogram before, and an additional 28% had not had one in more than one year. More than 30% of the women screened had no health insurance. These findings suggested the need for a variety of outreach strategies and the participation of a wide array of health-care facilities and providers.

The Bronx Breast Health Partnership has been one of the 12 urban centers funded by the CDC since 1994. The Bronx is ethnically diverse, with the majority of the women being of African-American or Hispanic origin. According to the 1990 census, there were 215,120 women aged ≥ 45 in the Bronx. Of the 215,120 women, 33% (70,377) reported that they were black (their choices being black, white, or all other) and 30% (63,525) reported that they were Hispanic (given the choice of Hispanic or non-Hispanic).¹⁶

As one facility out of 20 providing health services in the Bronx and as a member of the Bronx Breast Health Partnership, Montefiore Medical Center (MMC) designed and implemented a screening mammography program and a follow-up clinic to address screening-detected problems. This article discusses that experience as MMC united forces with another Bronx partnership member, the Women's Outreach Network (WON).

MATERIALS AND METHODS

In May 1994, WON, an active participant in the Bronx Breast Health Partnership, provided low-cost and convenient breast care, which included breast self-examination instruction, breast palpation, and mammography on board mobile van units throughout the Bronx. By December 1994, an alliance developed between WON and the on-site facility at MMC in an effort to broaden screening activity and to better facilitate the follow-up of women screened by WON after the discovery of an abnormal finding by mammography or a clinical breast examination. A follow-up clinic was developed at MMC using the patient navigator system to help patients cir-

cumnavigate the hospital and human services bureaucracies to diagnose an abnormal finding on cancer screening tests, conduct the follow-up, and treat the cancer.¹⁰ The follow-up clinic played a crucial role in providing appropriate referrals for patients who required further care but did not have referring physicians.

Advertising was undertaken by WON and MMC in both Spanish and English languages using radio, television, newspapers, pamphlets, and word of mouth. Age recommendation for screening followed recommended American Cancer Society guidelines. To qualify for the program, women had to be aged >40, asymptomatic, low income, uninsured, or underinsured. Special cases were considered for women aged <40 if a first-degree relative (mother, sister, or daughter) had been diagnosed with breast cancer before menopause. In addition, women enrolled had to be in one of the following categories: never screened, screened but not in the last two years, or screened appropriately in the last two years elsewhere but unable to continue with their previous source of care because of a change in personal circumstances (financial or insurance). All women were pre-registered if possible. However, walk-ins also were screened or given an appointment for a later date. Clinical breast examination was performed by a trained health professional. Information on how to perform breast self-examination was distributed, and individual instruction was given to all of the women.

Screening was performed onsite at MMC using standard mammographic equipment. Two General Electric units, GE 500T and GE 600T (General Electric Co, Parsippany, NJ), and a Lorad III System (Lorad Medical System, Danbury, CT) were used. The WON used two 33-foot mobile mammography vans, each equipped with Mammair DC (Allied Radiographics, Deer Park, NY). The vans included a registration area, two changing rooms, a mammography room, and darkroom facilities for changing film in cassettes. Each facility had American College of Radiology (ACR) accreditation.

Two views (mediolateral and craniocaudal) were performed on each breast. All films were batch-processed daily at the WON headquarters and interpreted the following day. Reports were generated from a list of report options, and a computer-generated letter outlining the results was sent to the referring physician and each woman. Recall letters were sent to women who needed special views, sonograms, or biopsies. A total of 1962 women were screened in 16 months.

Follow-up/Patient Navigator

Beginning in January 1995, all patients screened by

both the WON and MMC who needed follow-up because of a significant abnormality were referred to the follow-up clinic at MMC. Women with abnormal findings were assigned a patient navigator who personally contacted them by telephone and, in some instances, by telegram. The navigator helped to ensure adequate follow-up. As a result, when biopsy was recommended, the compliance rate was 100%. The patient navigator functioned in the following capacities:

- contacted all women with significant screening abnormalities by telephone,
- served as a liaison between the physician and clinics, ensuring timely appointments,
- “walked” each woman through diagnostic testing, found missing mammogram films, helped with any financial clearance problems, and assisted with filing Medicaid applications,
- ensured follow-up on all referrals from other departments, and
- checked to see if women kept their various appointments and rescheduled any missed appointments, providing assistance where needed.

Although the services of a patient navigator added an additional expense to MMC's screening program, it was essential to adequately follow poor and medically high-risk, underserved women from the Bronx. For those women diagnosed with a malignancy, referral to a program surgeon was made and a pathology report was obtained, which included the results of axillary node dissections, if performed.

Medicaid Pending Status

Funding from the NBCCEDP provided reimbursement for all diagnostic screening services, but did not cover any costs related to treatment. This created a serious problem in our system since current financial policies would not allow these uninsured patients (at least 45% of women screened) to be admitted to the ambulatory surgery unit or to the hospital as an inpatient. This would have created a delay in necessary treatment for all uninsured women diagnosed with breast cancer because there is a required two-month waiting period after making an application for Medicaid. Such a delay also would potentially increase the anxiety of the women who had been informed of their diagnosis and denied treatment. To enable the Medicaid-pending women to be treated in a timely fashion, the administrative offices at our hospital proceeded with a pilot program that allowed Medicaid-pending women diagnosed

Table 1. Characteristics of the Screened Population

Characteristic	Frequency (%)
All women	1935* (100)
Age	
<40 years	78 (4)
40-49 years	705 (36.4)
50-64 years	671 (34.7)
≥65 years	468 (24.2)
Race and ethnicity	
White	782 (40.4)
Black	404 (20.9)
Hispanic	654 (33.8)
Asian	53 (2.7)
American Indian	2 (0.1)
Other	27 (1.5)
No response	13 (0.6)
Educational status	
<High school	207 (10.7)
Some high school	336 (17.4)
High school graduate/GED	1070 (55.3)
>High school/college	282 (14.2)
No response	40 (2.1)
Insurance status	
None	882 (45.6)
Medicaid	165 (8.5)
Medicare	416 (21.6)
Private	465 (24.0)
No response	7 (0.3)

*A total of 1944 mammograms were performed. However, specific data were not supplied on nine women because of incorrect data entry from the intake forms provided.

with breast cancer to receive the necessary treatment after having applied for Medicaid. Therefore, no women went untreated because of an inability to pay.

RESULTS

Between May 31, 1994 and September 30, 1995, 1962 women were screened for breast cancer, with 1944 mammograms performed. Eighteen patients did not qualify for a screening mammogram because of an abnormal clinical breast examination or were <40 years with no prior family history of breast cancer. Twenty-five cancers were diagnosed. The overall cancer detection rate in this population was 12.9 per 1000 women screened. The age, race, educational background, and insurance status of the screened population are shown in Table 1. Close to 50% of the screened population had no insurance.

Table 2. Mammogram Results

Findings	BI-RADS	Frequency (%)
Negative	1	1575 (81.40)
Benign	2	64 (3.30)
Probably benign	3	139 (7.20)
Abnormality suspected	4	35 (1.80)
Highly suggestive	5	1 (0.05)
Assessment incomplete*	0	103 (5.30)
Not indicated†		1 (0.05)
Not performed‡		17 (0.90)
Total		1935 (100.00)

*Assessment incomplete represented category that needed special views and/or ultrasound study because of questionable abnormality noted on the initial screening examination.
†Obvious malignancy, no mammogram performed.
‡Only CBE performed since age recommendation was not met by guidelines (18 mammograms were not performed).
BI-RADS=Breast Imaging Reporting and Data System (ACR lexicon).

Mammogram Results

Results of the mammogram screening studies are shown in Table 2. Mammography findings were categorized using the ACR Breast Imaging Reporting and Data System (BI-RADS). Of these studies, 81% (n=1575) were normal. Of the remaining 360 studies, 311 resulted in a benign finding after subsequent views or sonograms were taken and comparisons were made with previous films. Biopsies were performed on 49 women, and 25 cancers were diagnosed, for a positive predictive value (based on biopsy recommendation) of 51%.

Cancers Detected (Histology)

The histologic type of all 25 cancers are shown in Table 3. Seventeen cancers were diagnosed at MMC and eight cancers were diagnosed by the women's private personal physician. Of the 25 cancers detected, four were pure intraductal (16%) and two were intraductal with microinvasion (8%). Another 15 women had infiltrating ductal carcinoma (60%), which ranged in greatest diameter from 0.6 cm to 4 cm. Four women had invasive cancer with evidence of axillary lymph node metastases (16%).

Stages and Ages of Women with Cancer

The stages of cancers detected are shown in Table 4 as well as the stages detected by age. Sixteen percent (n=4) of all cancers detected were intraductal carcinoma (median age: 68.5 years), 36% (n=9) were stage I (median age: 56 years), 40% (n=10) were stage II

Table 3. Cancer by Race and Histology

Characteristic	Frequency (%)
Race/Ethnicity	
White/NonHispanic	17 (68)
Black/NonHispanic	6 (24)
Hispanic	2 (8)
Total	25 (100)
Histology	
Intraductal	4 (16)
Infiltrating ductal carcinoma/node negative (0.2–4 cm)	17 (68)
Invasive cancer with positive axillary lymph node mets	4 (16)
Total	25 (100)

(median age: 57.3 years), 0% were stage III, and 8% (n=2) were stage IV (median age: 52 years).

Insurance Status of Women with Cancer

Five (20%) of the women who had cancer were uninsured. Since the Bronx Breast Health Partnership does not cover treatment, Medicaid applications were made, and a "Medicaid pending" status was granted to all five applicants who were treated. However, only four of the five treated women were subsequently approved. (One woman was denied because of her part-time employment and home ownership.)

DISCUSSION

The success of low-cost or no-cost screening mammography for poor and uninsured women depends on the availability, accessibility, and acceptability of the service. Nonparticipation by women in low-cost or no-cost screening programs has been linked to patient-related barriers such as education, cultural beliefs, and attitudes.¹⁷ Rimer et al¹⁸ found that noncompliant women reported more barriers than compliant women and were more likely to believe that mammography is unnecessary in the absence of symptoms. Others have reported that age, health behavior, sense of well-being, locus of control, and breast cancer experience helped differentiate between women who underwent mammography and those who had not.¹⁹ Awareness of and sensitivity to these complex social and educational barriers are likely to improve compliance with the outreach efforts to recruit women for initial and continued breast cancer screening. In addition, use of a mobile facility provides significant flexibility and convenience, thereby increasing access to the service.

Self-referral allows women to obtain mammograms

without having to visit a physician, which may streamline the process and make it less expensive. Additional medical and legal considerations become apparent when accepting self-referred women. There must be assurances that the results of the mammograms will be communicated adequately and that appropriate follow-up and referrals are made.²⁰ In this program, since most women were self-referred, MMC established a follow-up clinic using the patient navigator concept.

Funding of screening programs effectively deals with the cost of mammography by providing federal dollars to pay for the uninsured through diagnosis only. One serious limitation of the existing screening program is the absence of funding for treatment of cancers detected. In this program, the creation of a "Medicaid pending" status enabled the institution to provide needed care without delay. Treating patients with no insurance can be taxing to an academic institution that uses its financial resources to support enhanced patient and community services on a break-even or deficit-financed basis.

Although white women have a higher breast cancer incidence than African-American women, review of the literature reveals that the mortality rates for the two groups are comparable.^{6,8} In our study, 17 (68%) of 25 cancers were diagnosed in white women, who comprised 40% of the screened population. While recent reports indicate that breast cancer in African-American women is detected at a later stage and therefore has a lower survival rate,^{11,21} this was not borne out in our small patient population.

CONCLUSION

The cost of treating breast cancer at an early stage is far less than at a later stage of diagnosis.²² The advantage of screening is reinforced by the results of our study, which found that 92% of the cancers were diagnosed in stages I and II. In this small population, the prevalent cancer detection rate of 12.9 per 1000 women screened is considerably higher than the recently published data by May et al²³ of 5.1 per 1000. The reason for this difference is not clear but may be related to a regional incidence of high rates of breast cancer, which needs to be studied further.

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Table 4. Characteristics of Breast Cancer Detected by Age and Stage

Cancer	Total (%)	Age (years)		
		40-49	50-64	≥65
Total no.	25 (100)	6	10	9
DCIS	4 (16)	0	2	2
AJCC stage I	9 (36)	1	4	4
AJCC stage II	10 (40)	4	3	3
AJCC stage III	0 (0)	0	0	0
AJCC stage IV	2 (8)	1	1	0

AJCC=American Joint Committee on Cancer;
DCIS=ductal carcinoma in situ.

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