

Patterns of Breast and Cervical Cancer Screening at Three Public Health Centers in an Inner-City Urban Area

ABSTRACT

In an effort to examine breast and cervical cancer screening patterns among poor African-American urban women, medical records were abstracted at three public health centers located in the inner city of Chicago. The proportions of eligible women at these three centers who received Pap smears, breast examinations, and mammograms were computed. These proportions were notably low and differed significantly among the three centers. Because the literature is now suggesting that an appropriate sequence best defines adequate screening, sequences of screenings were also determined and were found to be lacking. All of these screening histories fall far below the screening objectives set by the National Cancer Institute for the year 2000. This information suggests that interventions are needed that will help health centers serving poor women to deliver more frequent cancer screening. (*Am J Public Health*. 1991;81:1651-1653)

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Introduction

African-American women have a higher incidence of cervical cancer and higher mortality rates and lower survival rates than White women.¹ Furthermore, although White women have a higher incidence of breast cancer, the prognosis for African-American women is worse. For example, the ratio of breast cancer mortality to incidence is higher for African-American women (38%) than for White women (32%). Five-year survival rates (63% vs 75%) demonstrate a similar difference.² These differences appear to be due in large part to the fact that African-American women with breast cancer are diagnosed at a considerably later stage, even when relevant variables are stratified.^{3,4} Such racial differences are particularly troublesome because it now is generally accepted that appropriate screening can reduce mortality from breast and cervical cancer.⁵⁻⁸

There are only a few published reports documenting breast and cervical cancer screening patterns in the United States. We have not been able to locate any study that presents specific information on screening patterns for poor urban African-American women. To present such information is our purpose in this paper. We use data from Chicago Department of Health centers to derive the percentages of women who receive Pap smears, breast examinations, and mammograms for selected time intervals and sequences of screens. We then compare our findings with those in the literature and discuss the policy implications that result from this comparison.

Methods

Setting

The data were taken from three public health centers located on the south side of Chicago in very poor neighborhoods consisting almost entirely of African-American people. Virtually all of the pa-

tients attending these centers are African-American and about 75% are female.

Data Collection

We abstracted data from medical records to examine the screening histories of African-American women who attended these clinics between February and April 1989. A code manual and code sheet were produced for this purpose and thoroughly pretested. Charts were abstracted for all eligible African-American women who had made an appointment (even if it was not kept) or who walked in and were seen (even if there was no appointment) during the clinic session prior to coding.

The definitions of eligibility, for the purposes of this study, were as follows:

Pap smear	age 40 or over with no hysterectomy
Breast examination	age 40 or over
Mammogram	age 50 or over

Each chart that was reviewed could thus contain information about a woman eligible for no screens, one screen, two screens, or three screens. We were interested not only in when a woman had received her last screening examination, but in what the sequence of screens had been.

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TABLE 1—Percentage of Eligible African-American Women Who Received Screening Examinations at Three Health Centers (A,B,C), by Interval of Screening (ns in parentheses)

Interval, y	Center			Significance ^a		
	A	B	C	A,B	A,C	B,C
Pap smear						
1	12 (284)	39 (189)	33 (211)	<.001	<.001	NS
2	23 (263)	68 (168)	68 (209)	<.001	<.001	NS
5	59 (189)	81 (115)	83 (159)	<.001	<.001	NS
10	81 (74)	84 (56)		NS	—	—
Breast examination						
1	6 (454)	36 (352)	12 (369)	<.001	<.005	<.001
2	13 (415)	71 (311)	40 (367)	<.001	<.001	<.001
5	40 (290)	84 (212)	72 (272)	<.001	<.001	<.005
10	76 (121)	87 (101)		<.05	—	—
Mammogram						
1	3 (394)	17 (303)	24 (337)	<.001	<.001	<.05
2	6 (367)	32 (269)	46 (336)	<.001	<.001	<.001
5	12 (262)	54 (189)	60 (257)	<.001	<.001	NS
10	12 (113)	48 (91)		<.001	—	—

Note. Eligible women were defined as follows: for Pap smear, age 40 or over, with no hysterectomy; for breast examination, age 40 or over; for mammogram, age 50 or over.
^aNS = not significant.

TABLE 2—Percentage of Eligible African-American Women Who Received Screening Examinations at Three Health Centers (A,B,C), by Number Received within Previous 5 Years

Number of Exams	Center			Significance ^a		
	A	B	C	A,B	A,C	B,C
Pap Smear						
	(n = 192)	(n = 141)	(n = 163)			
<2	72	29	47			
2	12	20	22			
>2	16	51	31	<.001	<.001	<.005
Breast Examination						
	(n = 291)	(n = 211)	(n = 272)			
<2	87	37	64			
2	7	26	24			
>2	6	37	12	<.001	<.001	<.001
Mammogram						
	(n = 262)	(n = 188)	(n = 257)			
<2	98	84	77			
2	2	12	16			
>2	<1	4	7	<.001	<.001	NS

Note. Eligible women were defined as follows: for Pap smear, age 40 or over, with no hysterectomy; for breast examination, age 40 or over; for mammogram, age 50 or over.
^aSignificance results were computed only for percentages for >2 screens. NS = not significant.

We therefore abstracted data for the previous 10 years at Centers A and B, and the previous 5 years at Center C depending on how long the woman had been attending the clinic. Coding was conducted for 6 days at each of the centers. Sample sizes for Pap smears are smaller than for breast examinations or mammograms because so many women (over 40%) at these centers had had a hysterectomy.

Data Analysis

All analyses are based on comparisons of proportions of women screened. A two-tailed *t* test of proportions was used, along with a significance level of 5%.

Results

Table 1 presents the percentage of

women screened at each of the three centers and the corresponding sample sizes. Only 12% of eligible women at Center A had received a Pap smear within the previous year, compared with 39% at Center B and 33% at Center C. The percentages for Centers B and C do not significantly differ (*P* > .05), but both centers performed a significantly larger percentage of Pap smears (*P* < .001) than Center A. Percentages of women who had had a Pap smear within the previous 2 years, 5 years, and 10 years are also shown in Table 1, along with the corresponding significance results. About 18% of the women at Centers A and B had not had a Pap smear within the past 10 years. Table 1 also presents results for breast examinations and mammograms. The patterns for these two screening procedures are similar to those for Pap smears.

We also analyzed the sequence of screening. Table 2 shows the percentage of women who had been attending these clinics for at least 5 years and who had had fewer than two, two, and more than two Pap smears, breast examinations, and mammograms during the previous 5 years. Most recommendations for these procedures for women in these age groups suggest annual screening.⁹⁻¹¹ Thus, let us conservatively define “appropriate screening” as more than two screens in the past 5 years. Using such a definition, only 16% of the women at Center A were being appropriately screened for cervical cancer, compared with 51% at Center B

and 31% at Center C. As indicated in Table 2, all of these percentages differ significantly from one another. Similar patterns exist for breast examinations and mammograms, also presented in Table 2.

Discussion

Most of the observed differences in the percentages of eligible women receiving a screen in a given interval or a sequence of screens in a given interval are statistically significant. Although we performed many significance tests, thus somewhat altering the true significance levels of the tests, the trends are unmistakable. Center A was screening women at a far lower rate than Centers B and C; to a lesser extent, Center C was doing significantly worse than Center B. We do not yet have an adequate explanation for such differences.

In order to try to understand the causes of these differences, we examined the demographic characteristics of the clinics. In another study, we found that the women served by Centers A and B were remarkably well matched on virtually all demographic characteristics, as well as on factors related to knowledge and attitudes.¹² Center C was not part of the latter investigation, but we know from unpublished data that the women served by this Center are demographically well matched with the women served by Centers A and B.

There is now some excellent literature, almost all of it from Europe, that suggests that the hallmark of good screening is a sequence of multiple negative tests within a "short interval."^{6,8,13} Much of this literature is methodologically sound and presents convincing evidence that effective screening depends on such a sequence. Unfortunately, these studies present varying results with respect to what this optimal number may be and how long this "short interval" is. We can see from Table 2 that a very large percentage of the women at these centers are not receiving "appropriate" cancer screening for cervical cancer, when this definition is based on a standard of more than two screens in 5 years. The results are even more sobering for breast examinations and mammograms.

These results take on additional importance in light of the average number of clinic visits for the women in our sample (Table 3). The women attending Centers A and B averaged 5 visits per year, while

	Center A	Center B	Center C
Average number of visits	35.6	35.7	26.9
Average number of years attending	7.1	7.2	7.5
Average number of visits per year	5.0	5.0	3.6

Note. Eligible women were defined as follows: for Pap smear, age 40 or over, with no hysterectomy; for breast examination, age 40 or over; for mammogram, age 50 or over.

the women attending Center C averaged 3.6 visits per year. These women have frequent access to health care resources, yet still do not receive adequate cancer screening.

The National Cancer Institute has set as a goal for the year 2000 that 80% to 90% of women will have Pap smears every 3 years and that 80% of women between the ages of 50 and 70 will receive annual breast examinations and mammograms.¹⁴ The data presented in Tables 1 and 2 suggest that these goals are not even being approximated for the women attending the health centers in our study.

To our knowledge, this is the first study that presents an image of breast and cervical cancer screening derived from medical records for poor African-American women who most need cancer screening.^{15,16} It also appears to be the first study from the United States that presents sequences of such screenings. Based on these findings, we conclude that the women in our sample, all of whom were attending public sector clinics, are not receiving appropriate cancer screening. This is a situation that demands remediation. □

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