The Costs and Effects of Cervical and Breast Cancer Screening in a Public Hospital Emergency Room

ABSTRACT

Objectives. This study assessed the cost-effectiveness of cervix and breast cancer screening in a public hospital emergency room.

Methods. Age-eligible women with nonurgent conditions and without recent screening were offered screening by a nurse. A decision analysis compared the costs and outcomes of emergency room screening and standard hospital screening efforts.

Results. The undiscounted cost-effectiveness results for establishing new programs were $4050 (cervical cancer), $403 203 (breast cancer), and $4375 (joint cervix and breast cancer) per year of life saved. If screening is added to an existing program, results are more favorable ($429, $21 324, and $479 per year of life saved for cervix, breast, and joint screening, respectively). Results were most sensitive to volume and probability of receiving treatment after an abnormal screen.

Conclusions. Emergency room screening was cost-effective for cervical cancer; breast cancer screening was relatively expensive given the low number of women reached. More intensive recruitment and follow-up strategies are needed to maximize the cost-effectiveness of such programs. (*Am J Public Health.* 1997;87:1182–1189)

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Introduction

Minority women and women of low socioeconomic status are often not reached by traditional cancer screening programs[1,2]; many of these women lack regular access to health care providers and tend to rely on emergency rooms for their primary care.[3–9] As a result, the emergency department has recently served as a site for a variety of prevention activities targeted to high-risk groups.[10–16] Thus far, the costs and yields of such demonstration programs have not been evaluated. We report the results of implementing cervical and breast cancer screening in an urban public hospital emergency room serving a low-income minority population.

Methods

The costs and effects of opportunistic emergency room screening for cervical and/or breast cancer during visits for nonurgent conditions were compared with those seen in routine hospital screening efforts. A major objective was to evaluate the feasibility and costs of implementing similar emergency room programs in other public hospitals. Thus, the analyses considered the costs and outcomes from the perspective of the city health budget.[17]

Decision trees[18,19] were used to evaluate five possible decisions involved in emergency room screening: providing cervical cancer screening alone, adding cervical cancer screening services to an already established emergency room cancer screening program (i.e., excluding the costs of establishing the screening program in the emergency room), providing breast cancer screening alone, adding breast cancer screening to an existing program, and providing joint breast and cervix cancer screening. The results were discounted to reflect the different time frames of the expenditures relative to the benefits of lifesaving.

Screening Program

This project, funded by the National Cancer Institute and approved by the Institutional Review Board, offered screening from September 1, 1990, to July 31, 1992. Age eligibility followed the guidelines of the American Cancer Society during the study period (Pap smears: 18 years or older; mammography and clinical

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breast examination: 40 to 49 years biannually and annually thereafter).[20] Within age categories, patients never having had the examination or having had it more than 1 year prior were eligible. Screening was performed by a trained nurse. Mammography was scheduled for a future date.

Decision Trees

The decision tree shown in Figure 1 was used to compare emergency room screening with routine hospital program screening (in primary care clinics and two designated screening clinics) for all five models. On the basis of program experience, diagnostic evaluation of some women with abnormal Pap smears included treating an infection and repeating the smear. Women treated for screen-detected cancers were assumed to have an "early diagnosis." Women who did not complete diagnostic follow-up were assumed to present with symptoms and to have an "interval diagnosis," as were women with false-negative results. Since the overall level of hospital screening is low, we assumed that, for women with cancer, the disease would progress and that they would have a diagnostic evaluation 1 year later ("late diagnosis"). To the extent that data for these women included cases arising from screening in other hospital programs, their distributions of stage would be better than those derived from totally unscreened populations, biasing our results toward the detection of no difference between screening strategies. In all cases, women with local and regional cancer have surgery and incur a risk for operative death.

Probability Values

Probability values assigned to each node are summarized in Table 1. The selection of probability values was based on actual experience and an extensive review of the literature for the best quality data applicable to the study population.

Screening test characteristics. For Pap smears, we assumed a sensitivity of 75% and a specificity of 95%.[21–25] We also assumed, based on program experience, that 30% of women would require treatment for a condition diagnosed by Pap smear, followed by a repeat test. We assumed a 75% sensitivity and a 90% specificity for screening using mammography combined with clinical breast examination.[26–29] Breast and cervical biopsies were assumed to be the gold standard for diagnosis, with a sensitivity and specificity of 100%. We assumed that nonpalpable mammographically detected lesions would be evaluated by biopsy done under localization.

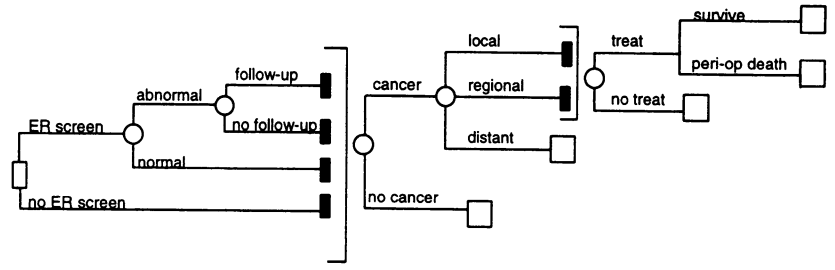

FIGURE 1—Simplified decision tree comparing the strategy of cervical and/or breast cancer screening in the emergency room (ER) with a strategy of screening integrated into routine hospital services.

Risk of strategies. On the basis of clinical experience, we assumed no occurrence of biopsy-associated mortality; the risks of perioperative death (death within 30 days of surgery) for mastectomy and hysterectomy were estimated as the maximum reported (2% and 1%, respectively).[23,30,31]

Incidence and staging of cancer. Cancer incidence data were taken from the National Cancer Institute's Surveillance, Epidemiology, and End Results (SEER) program.[32] The SEER program collects population-based cancer incidence and survival data from nine geographic regions drawn to be representative of the US population. Age-specific data for Black women were standardized to the age distribution of the target population, in 5-year groups, to calculate an age-adjusted rate for each cancer site. Cancer stage was broken down into three groups—local, regional, and distant—corresponding to SEER categories. Since SEER does not collect data on cervical cancer precursor lesions, data from clinical estimates and studies involving Black women[23,32] were used to estimate the proportion of cases in each stage of cervical neoplasia among emergency-room-screened women (early diagnosis). These proportions were assumed to be 75% for preinvasive lesions and 25% for invasive lesions. Among preinvasive lesions, 80% were assumed to be squamous intraepithelial lesions (including intraepithelial neoplasia), and 20% were assumed to represent carcinoma in situ. Among invasive lesions, 75% were assumed to be localized, and 25% were assumed to be regional (none were assumed to be distant). For interval diagnosis of cervical cancer among falsely negative women, it was assumed that 50% of cases would be preinvasive and that 50% would involve low-grade lesions (intraepithelial neoplasia). Invasive disease was assumed to be diagnosed in local stages in 50%, regional stages in 49%, and distant stages in 1%. By means of hospital tumor registry data, the average stage distribution of cases diagnosed during the study period was used to approximate stage distribution of women diagnosed outside of the emergency room program (late diagnosis). In late diagnosis, all cases are detected as invasive lesions (39% localized, 47% regional, and 14% distant).

The stage distribution of emergency-room-screened breast cancer cases was estimated from clinical trials and SEER data for Black women[28,32,33–35]; stage distributions for non–emergency room cases were derived from hospital tumor registry data (as described earlier). Early diagnosis was assumed to involve local disease in 80% of cases, regional disease in 19%, and distant disease in 1%. Cases detected as interval diagnoses were assumed to be distributed as 75% local, 24% regional, and 1% distant. Late diagnosis involved the following assumptions: local, 49%; regional, 37%; and distant, 14%.

Outcomes. Our measures of outcome were life expectancy and costs associated with each strategy. Patient-specific life expectancies were calculated via the method of declining exponential approximation of life expectancy.[36,37] Values for life expectancy at the median point for three age categories (less than 50 years, 50 to 65 years, 65 years or more) were calculated from US vital statistics data for Black women.[38] Life expectancy values

TABLE 1—Values Used in the Decision Trees to Assess the Value of Emergency Room Screening

	Cervical Cancer	Breast Cancer	Reference
Incidence rate (age adjusted, Blacks per 100 000)			
Invasive	20.67	185.50	2
Preinvasive[a]	387.60		2, 35
Five-year survival by cancer stage, %[b]			SEER[e]
Local, age, y			
<50	88.0	80.6	
50–64	90.6	83.5	
≥65	73.0	89.5	
Regional, age, y			
<50	43.7	52.9	
50–64	47.6	59.7	
≥65	41.9	60.7	
Distant, age, y			
<50	20.3	16.7	
50–64	13.5	10.6	
≥65	9.4	5.4	
Life expectancy with cancer, age adjusted, y[c]			47–49
Local	18.1	12.7	
Regional	5.0	6.4	
Distant	2.7	2.1	
Cancer stage distribution, %[d]			2, 35, 40, 44–46
ER-screened positive (early)			
Preinvasive	75	...	
Intraepithelial neoplasia	80	...	
Carcinoma in situ	20	...	
Invasive	25	...	
Local	75	80	
Regional	25	19	
Distant	0	1	
ER-screened false negative (interval)			
Preinvasive	50	...	
Intraepithelial neoplasia	50	...	
Carcinoma in situ	50	...	
Invasive	50	...	
Local	50	75	
Regional	49	24	
Distant	1	1	
Standard care (late)			
Preinvasive	0	...	
Invasive	100	...	
Local	39	49	
Regional	47	37	
Distant	14	14	
Perioperative death rate, %	1	2	35, 42, 43
Test sensitivity, %	75	75	33–41
Test specificity, %	95	90	33–41

Note. ER = emergency room.
[a]Includes the incidence of cervical intraepithelial neoplasia and carcinoma in situ (currently referred to as squamous cell intraepithelial lesions, low and high grade, respectively).
[b]Five-year survival from the cancer, excluding non–breast cancer mortality (i.e., noncompounded survival).
[c]Derived from the equation Life Expectancy = $1/(U_{asr} + U_c)$. U_{asr} is the age-, race-, and sex-specific population mortality rate; U_c is the excess disease mortality from breast cancer. U_c is derived with the equation $U_c = -1/t \ln S$, where t is the time period and S is the survival; 5-year noncompounded survival figures are used for excess deaths due to breast cancer.
[d]Figures are rounded.
[e]L. Ries, written communication, May 1993

were then standardized to the age distribution of the target population to yield age-adjusted life expectancies. Women who experience operative mortality were assumed to have the following life expectancies: early diagnosis, 0 years; interval diagnosis, 6 months; and late diagnosis, 1 year.

Cancer survival. Age group (less than 50 years, 50 to 65 years, or 65 years or more) and stage-specific excess mortality attributable to each cancer site for Black women were obtained from the National Cancer Institute, based on 1975 to 1987 survival rates observed in the SEER program (L. Ries, written communication, May 1993). These data were used to calculate age-adjusted, stage-specific life expectancy. Survival was assumed to be the same for all women, regardless of screening arm.

Costs of screening. The costs associated with the program were obtained from the hospital finance department (J. Howell, Harlem Hospital Center, written communication, September 1993) and are summarized in Table 2. Costs for inpatient procedures were estimated via the daily room charge ($876) and the average length of stay for the procedure. Treatment algorithms reflected hospital standards of care. Costs involved with research personnel were excluded.

Women screening positive for cervical cancer (true and false positives) incur costs for a colposcopy, cervical biopsy, repeat Pap smear, and follow-up visit; a proportion (30%) also require treatment for an infection and a repeat Pap smear. Staff time needed to recall patients who miss appointments was included as a diagnostic cost. Women diagnosed with low-grade lesions (intraepithelial neoplasia) incur costs for treatment with either cryosurgery or laser; 5% require a cone biopsy. Women with high-grade lesions (carcinoma in situ) require cone biopsies or laser excision; a small proportion have a hysterectomy. Staging of invasive disease includes examination under anesthesia, chest x-ray, computerized axial tomography scan, and evaluation of the kidneys, bladder, and rectum. Women with local cancer incur costs for a radical hysterectomy (60%) or intracavitary radiation (40%); those with regional disease have a hysterectomy and external pelvic radiation. Distant-stage patients receive supportive care, including two hospitalizations.

Women with abnormal breast cancer screening results (true and false positives) have a biopsy. Women with cancer complete a staging evaluation consisting

of a specialty office visit, chest x-ray, and blood chemistries. Patients with local cancer receive a lumpectomy followed by radiotherapy (50%) or mastectomy (50%); of those with regional disease, 25% undergo lumpectomy and 75% undergo a simple mastectomy. Regional-stage patients receive chemotherapy and/or radiotherapy. Distant-stage patients have a simple mastectomy to debulk the cancer and are admitted for terminal care. Continuing care after initial treatment is not considered for either cancer.

At the time of this study, neither costs nor cost-to-charge ratios were available; costs were approximated by charges. To the extent that charges exceed costs, our estimates overestimate program costs.

Sensitivity Analysis

In the base case, we assumed that all screen-detected women receive diagnostic evaluation and treatment. One-way sensitivity analyses tested the marginal effects on the results of varying individual variables over reasonable ranges. Estimates were varied for proportions of women completing diagnostic evaluation or treatment and for stage distribution (i.e., disease progression to the next most advanced stage distributions after false-negative results). For cervical cancer, the impact of changing the percentage of women requiring treatment and a repeat Pap smear was assessed. For breast cancer, a range of program productivity was examined.

Data Analysis

The decision analysis software program SmlTree (version 2.9) was used in all calculations. To calculate 3% discounted future costs and effects, we developed a nonstationary Markov model (using transition matrices programmed in SAS/IML) to estimate the expected costs and life-years for screened and unscreened women. The population was allowed to age more than 20 years (i.e., using age-specific incidence and mortality rates) to allow for sufficient time for the evolution of cervical neoplasia.

Results

The demographic and clinical characteristics of the eligible target population are summarized in Table 3. There was substantial variation in cost-effectiveness results by cancer site and program design (Table 4).

TABLE 2—Values Used to Estimate Costs for Emergency Room Cancer Screening

Category	Cost, $[a] Cervix	Cost, $[a] Breast
Program costs (prorated for 23 months)		
Nurse examiner (salary & fringe)	101 758	
Nurse's aide	47 900	
Examination room ($40 per square foot)	9 101	
Equipment	2 549	
Screening, diagnosis, and treatment costs		
Pap smear and interpretation	17	. . .
Treatment and repeat Pap smear visits	180	. . .
Colposcopy and cervical biopsy	298	. . .
Treatment		
Intraepithelial neoplasia	178	. . .
Carcinoma in situ	1 718	. . .
Local stage	10 162	10 548
Regional stage	17 616	14 982
Distant stage	19 272	25 404
Mammogram	. . .	42
Breast biopsy	. . .	657
Staging evaluation	452	138

Note. Program costs apply to both cervix and breast screening.
[a]1992 costs and charges.

TABLE 3—Demographic and Clinical Characteristics of the Population Participating in the Emergency Room Cancer Screening Program

	Cervical Screening (n = 2361)	Breast Examination (n = 5581)	Mammogram (n = 2586)
Age, y, %			
<40	58.9	62.0	28.3
40–49	17.2	16.8	32.0
50–64	13.6	12.4	23.7
≥65	10.3	8.7	16.0
Race, %			
Black	82.9	83.6	78.6
Hispanic	14.8	15.5	20.1
White	0.2	0.1	0.6
Other	2.1	0.8	0.7
Education, y, %[a]			
<10	14.7	13.5	19.5
10–11	26.5	25.3	24.3
12	40.8	42.6	40.8
>12	18.0	18.6	15.3
Completed exams, %[b]	27.0	14.0	6.0
Abnormal results, %[c]	3.0	. . .	. . .
Lost to follow-up, %	50.0	. . .	80.0

[a]Data missing for 50% of patients as a result of emergency room staff overload unrelated to the project.
[b]Of 1850 eligible women, 116 completed both breast exam and mammogram.
[c]Abnormal results are defined as suspicious or positive status on Pap, or American College of Radiology categories 3, 4, and 5 (probably benign, but follow up in less than 6 months; suspicious or positive for malignancy on mammography). All women with abnormal breast exams underwent mammography. Two of 20 Pap tests (10%) and 1 of 10 mammograms (10%) were falsely positive.

TABLE 4—Emergency Room Cancer Screening Program Cost-Effectiveness Results

Program	Life-Years (per Woman)		Costs, $ (per Woman)		Cost-Effectiveness Ratio (Cost per Year of Life Gained)	Discounted Cost-Effectiveness Ratio (3%)
	Total	Incremental	Total	Incremental		
Cervical cancer						
Routine care	40.27	. . .	64	. . .	. . .	. . .
De novo screening[a]	40.37	.0909	432	368	4 050	. . .
Screening added to existing program[b]	40.37	.0909	103	39	429	1 481
Breast cancer						
Routine care	26.46	. . .	31	. . .	. . .	. . .
De novo screening	26.47	.0048	1 962	1 931	403 203	. . .
Screening added to existing program[b]	26.47	.0048	133	102	21 324	45 811
Joint cervix and breast cancer						
Routine care	. . .	. . .	95	. . .	. . .	. . .
De novo screening[c]	. . .	.096	420	325	3 385	. . .
Screening added to existing program[c]	. . .	.096	141	46	479	. . .

Note. Values are in 1992 dollars; some rounding errors occurred.
[a]The costs of a de novo program include staff, space, and supplies, as well as screening, diagnostic, and treatment costs.
[b]Relative to routine care; costs reflect screening, diagnostic, and treatment costs.
[c]Sum of life-years saved and costs from both breast and cervix screening, assuming independence of diseases and screening.

Cervical Cancer

The cost of establishing a dedicated cervical cancer screening program, including staff, space, office equipment, and supplies, was $212 187 (1992 dollars), or $329 per woman screened in the program. As can be seen in Table 4, the undiscounted incremental cost-effectiveness of a program designed solely to screen for cervical cancer was $4050 per year of life saved in comparison with routine care; if screening is considered as an additional cost to an existing emergency room program (i.e., excluding costs of establishing the program), the incremental cost was $424 per year of life saved. In terms of cancer detection, the costs were $547 per abnormal screening test and $1369 per case of neoplasia detected. The discounted cost was $1481 per year of life saved.

Breast Cancer

The costs of establishing a de novo breast cancer emergency room screening program were the same as those just described for cervical cancer. Since the program screened only 116 women for breast cancer, the average program cost was high: $1829 per patient. The undiscounted incremental cost-effectiveness of a program designed solely to screen for breast cancer was high—$403 203 (minor discrepancies in figures are due to rounding)—per year of life saved; if screening is considered as an incremental cost of an existing emergency room cancer screening program, the cost was $21 324 per year of life saved. The costs per abnormal screen and cancer detected by adding breast screening to an existing program were $487 and $4872, respectively. The discounted cost was $45 811 per year of life saved.

Joint Cervical and Breast Cancer Screening

If a program screens each woman for both cancers, the cost of establishing the program remains the same: $212 187. If the observed screening examinations were independent, 760 women would have been examined by the staff, for a per patient cost of $279 ($212 187/[644 + 116]); if, hypothetically, 50% of the women screened for cervix cancer were also screened for breast cancer, the program cost would have been $484 ($212 187/[322 + 116]). Screening, diagnostic, and treatment costs were $141 ($39 + $102). Increases in life expectancy accruing to the emergency room–screened women, compared with women in standard care, total 34.95 days (.096 years). Thus, the incremental cost-effectiveness of a de novo joint screening program would be $3385 under conditions of test independence, as compared with $6510 with a 50% overlap in eligibility.

Sensitivity Analysis

The results were most sensitive to the number of women screened and the probability of treatment. Follow-up rates, the proportion of women needing treatment and a repeat Pap smear (for cervical cancer), and stage distribution assumptions had less of an effect on the results. Given the high costs of establishing a screening program, maximizing the use of these resources would yield the most favorable cost-effectiveness ratios. In the case of breast cancer, for example, if 11 women received clinical examinations and mammography daily over the 23-month screening program, the overall cost-effectiveness would decrease markedly, from $403 203 to $30 184 per year of life saved (Figure 2); in contrast, our program screened only 1.3 women per week as a result of the high no-show rates for mammography.

If a woman with screen-detected cancer fails to receive timely treatment, most of the benefit of early detection, in terms of gains in life expectancy, will not be realized; however, the costs of screening and diagnosis are still incurred. For example, if only 50% of screen-detected women with cervical neoplasia delay treatment until they have progressed to the next most severe stage distribution of disease (i.e., from early to interval diagnosis), the cost-effectiveness ratio increases from $4050 to $5383 per year of life

saved; if 100% delay treatment, the cost-effectiveness nearly doubles to $7826 per year of life saved.

The magnitude of the effect of diagnostic follow-up rates after abnormal screening test results is small. While both costs and lives saved decrease as follow-up decreases, screening costs are still incurred, decreasing costs to a lesser extent than lives saved. Consequently, the cost-effectiveness ratios increase somewhat as follow-up rates decrease.

In our base analysis, we assumed that 30% of women would require treatment for an infectious or inflammatory condition followed by a repeat Pap smear. If only 10% require such action, the cost per year of life saved decreases to $3674; if as many as 50% are treated, the results increase to $4425 per year of life saved.

One danger of screening is that women who have false-negative results will be falsely reassured and will not return for further evaluation. To test the effect of this possibility, we varied the stage distribution of the women with false-negative screening results from interval detection to the distribution seen in the absence of emergency room screening (late detection). Under these conditions, the cost-effectiveness of cervical cancer screening increases to $5058 per year of life saved, from the base case result of $4050. For breast cancer screening, costs increase by approximately $6000 over the base result per year of life saved.

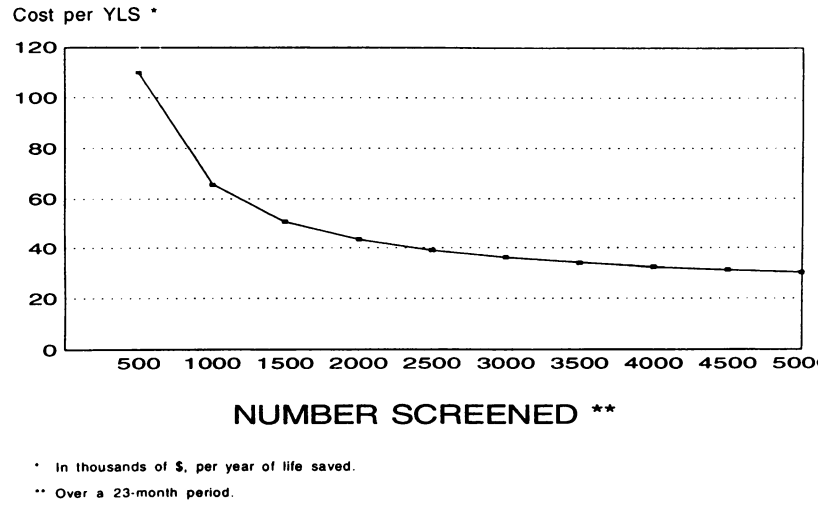

FIGURE 2—Cost-effectiveness ratio (costs per year of life saved [YLS]) by number of women screened for breast cancer over a 23-month screening program.

Discussion

This study evaluated the decision to offer emergency room screening for cervical and/or breast cancer in a public hospital caring for a low-income, minority population. The results demonstrate that emergency room cancer screening, in comparison with routine hospital care, was cost-effective for cervical cancer and joint cervical and breast cancer screening; breast cancer screening was expensive given the low number of women reached. The cost-effectiveness results were most influenced by the numbers of women screened and rates of completion of treatment after an abnormal screening test. While not having an impact on cost-effectiveness results, follow-up rates for diagnostic evaluation have an important impact on morbidity and mortality.

Our cost-effectiveness results are similar to those observed in other settings and populations. For example, evaluations of the cost-effectiveness of triennial cervical cancer screening have noted estimates ranging from $1453 for elderly women[23] to $13 331 for women 20 to 65 years of age.[39] Estimates for breast cancer screening costs have ranged from $9563[40,41] to $144 704,[42] with a median of approximately $30 000 per year of life saved.[40]

Our cost-effectiveness ratios for cervical cancer and joint cervical and breast cancer screening are also reasonable in the context of current medical spending for preventive services.[43–45] For example, for the elderly, pneumococcal vaccinations cost $3415 per year of life saved,[44] and biannual mammography costs between $12 000 and $20 000 per year of life saved.[45]

The costs of breast cancer screening were extremely high in this setting, reflecting the fact that the results are most sensitive to productivity and compliance with timely treatment and, to a lesser extent, diagnostic follow-up rates. Low numbers of women screened may reflect the fact that women had to return at a later date for mammography; the numbers may also reflect the difficulty of screening while women are attending to acute, albeit nonurgent, illness.

Clearly, if a woman with a screen-detected cancer fails to receive timely treatment, most of the benefit of early detection will not be realized; however, the costs of screening and diagnosis will have been incurred. Similarly, diagnostic follow-up is an important component of a screening program. Cost-effectiveness changes minimally as follow-up rates decrease; as a result of decreases in costs as well as life expectancy, however, individual benefits are not realized. In non–emergency room settings, rates of follow-up of breast cancer screening results have been reported to be as high as 85%[46]; cervical cancer follow-up rates have been noted to be approximately 50%.[47–52] In another emergency room cervical cancer screening program, follow-up was achieved for 70% of women after intensive efforts.[14] Our program used a routine low-intensity follow-up mechanism consisting of telephone calls and notification letters. Others have noted difficulty in transferring care for emergency-room-detected noncancer conditions to a primary care setting, with high numbers of patients lost to follow-up.[13,53–55] One group has suggested that "one-stop," same-day screening and diagnosis will be the most cost-efficient approach for under-served populations.[56]

Several caveats should be observed when interpreting the results of analyses such as this one, including the use of decision analysis, the impact of discounting, the perspective of the analyses, potential effects of screening biases, lack of quality adjustments, and the generalizability of the results. Decision trees, which examine a limited time period, are useful for clinical and administrative decision making.[19] More complex models, such as Markov models[57] or the CAN*TROL program,[45] can be used to model effects (and costs) over longer

periods of time and may be more useful for policy analysts.

Data from analyses conducted from the societal perspective are considered the most relevant for policy decisions. However, the perspective of our analysis (a hospital in a large publicly funded system with a defined budget) closely reflects a social perspective, albeit on a local level. Analyses conducted from a larger societal perspective would differ from ours only by including nonmedical costs (i.e., lost wages, travel time, child care, and caregiver costs) and using cost rather than charge data, although charges closely reflect the public budget. A societal perspective would lead to conclusions even more favorable than our results as a consequence of two factors: (1) the nonmedical costs associated with later stage diagnosis are generally greater than those for early stage cancer, and (2) charges, which are greater for more advanced cancer, generally exceed costs.

Next, length and lead-time biases may appear to prolong survival among screened groups[58]; we could not address this issue in our analyses. Also, we did not test the effects of adjusting for changes in quality of life. Finally, this study was conducted in a unique setting, a public hospital serving a medically underserved population. Studies conducted in other settings may yield varying results.

This research demonstrates the feasibility of screening for cervical and breast cancer in a public hospital emergency room setting. Providing preventive services, such as cancer screening, in emergency rooms has the potential to reach populations that may not have regular access to primary care services[13] at reasonable health care expenditures. More intensive recruitment and follow-up strategies may be needed to fully realize this potential. □

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