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1999;2:120-125.*

Screening Mammography Rates by Specialty of the Usual Care Physician

CONTEXT. Although Medicare began paying for screening mammography in 1991, utilization among enrollees has been low.

PRACTICE PATTERN EXAMINED. The relation between the specialty of the usual care physician and the proportion of women 65 years of age and older receiving mammography.

DATA SOURCE. 100% Medicare Part B claims for 186,526 female enrollees residing in Maine, New Hampshire, and Vermont during 1993 and 1994.

RESULTS. Among women of the target screening age (65 to 69 years), 55.4% received mammography during the 2-year period. The highest rates of mammography were observed in women whose usual care physician was a gynecologist (77.9%; 95% CI, 75.8 to 79.9), followed by those treated by an internist (67.1%; CI, 66.5 to 67.7), family practitioner (58.1%; CI, 57.4 to 58.9), general practitioner (47.4%; CI, 45.4 to 49.5), and other specialists (41.3%; CI, 40.1 to 42.5). The lowest rates were observed in women who had no physician visits during the 2-year period (9.5%; CI, 8.7 to 10.4). Although screening rates were lower in women aged 70 years and older, a similar pattern was observed.

CONCLUSIONS. The probability of a Medicare enrollee's receiving screening mammography is strongly influenced by the specialty of her usual care physician. Covering a preventive service does not guarantee its use.

Few screening tests have been as thoroughly studied as mammography. In the past 30 years, nearly one-half million women have participated in randomized trials designed to quantify the mortality benefit. The findings in these studies have been consistent: Mammography in women over the age of 50 reduces breast cancer mortality.^{1,2}

Translating the benefits of screening mammography to clinical practice depends on women having access to the test and that it be offered to them. In 1991, Medicare began coverage of mammography for breast cancer screening on a biennial schedule. Despite this fact, recent studies of women over the age of 65 have shown low rates of screening and substantial variability by geographic area, age, race, education, income level, access to supplemental insurance, and access to a regular source of care.³⁻⁷ Although a recent national survey has reported differences in mammography rates by specialty of physician,⁸⁻¹⁰ we examined actual physician specialty differences in the use of screening mammography in a population-based study of female Medicare beneficiaries in northern New England.

Methods

Study Population

Mammography data were obtained from the Health Care Financing Administration's (HCFA) Medicare Part B file (physician billing) for all female beneficiaries residing in Maine, New Hampshire, or Vermont during 1993 and 1994. Denominator data were

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obtained from HCFA's denominator file. Because Medicare only pays for screening mammography every other year, our study was restricted to women 65 years of age and older who were alive and eligible for Part B coverage throughout the 2-year period ($n = 186,526$ women).

Assignment of the Usual Care Physician

Using HCFA Common Procedure Coding System (analogous to Current Procedural Terminology [CPT] codes¹¹) evaluation and management codes 99201 to 99205 and 99211 to 99215 (new and established office or outpatient services), women were assigned to a usual care physician according to the following algorithm. Using the Unique Physician Identification Number and Medicare specialty codes on claims, we assigned women to the primary care physician (defined for this study as general practitioners, family practitioners, internists, or gynecologists) who provided most evaluation and management services during the 2-year period of analysis. Women who had no visits to a primary care physician but who were seen by other specialists were assigned to an "other specialty" category. Beneficiaries with no outpatient visits during the 2-year period were assigned to a "no visit" category. For example, a woman who had 3 visits to a family practitioner, 1 visit to an internist, and 4 visits to a gynecologist would have the gynecologist assigned as the usual care physician. A beneficiary with 12 visits to an orthopedic surgeon and 1 visit to an internist would have the internist assigned as the usual care physician.

Table 1 shows the product of this algorithm. Forty-one percent of the cohort obtained their usual care from internists, 31% from family practitioners, 4% from gen-

eral practitioners, and 2% from gynecologists. Twelve percent of beneficiaries obtained their care from non-primary care physicians. Nearly 10% of women had no outpatient visits during the 2-year period; these women were older than those with a usual source of care.

Because some published data have shown an additive effect of screening rates among patients with a primary care physician who also see a gynecologist, we identified women whose primary care physician was an internist, family practitioner, or general practitioner who also had *any* visit to a gynecologist.⁸ Seven percent of women had at least one visit to a gynecologist.

Outcome Measure

The outcome measure was utilization of screening mammography. Because population-based use of CPT codes for bilateral mammography (76091) and screening mammography (76092) varies widely, we considered either code to indicate screening mammography. This assumption was tested by running analyses restricted to each code as well as one that combined the codes. The results were similar, so only the combined analyses are reported.

Analysis

For each beneficiary, we identified age as of January 1, 1993; specialty of the assigned usual care physician; whether the beneficiary visited a gynecologist; total number of visits (stratified into two groups: visits to primary care physicians and visits to all other specialties combined); and whether the beneficiary received screening mammography. Analysis consisted of calculation of crude mammography rates with 95% CIs by

TABLE 1
Specialty of the Usual Care Physician for 186,526 Female Medicare Beneficiaries in Northern New England during 1993 and 1994

SPECIALTY	PROPORTION OF COHORT	BENEFICIARY CHARACTERISTICS		
		MEAN AGE, yr	MEAN NUMBER OF VISITS	MEAN NUMBER OF PRIMARY CARE VISITS
Internal medicine	41%	74.7	11.9	7.7
Family practice	31%	74.6	11.8	8.1
General practice	4%	74.3	11.9	8.2
Gynecology	2%	72.2	10.8	3.9
Other specialty*	12%	75.4	6.7	0
No physician visit	10%	77	0	0

*Non-primary care physician.

TABLE 2

Cohort Characteristics and Mammography Rates by Age

AGE, yr	PROPORTION OF COHORT	MEAN NUMBER OF VISITS	MEAN NUMBER OF PRIMARY CARE VISITS	MAMMOGRAPHY RATE (DURING THE 2-YEAR PERIOD)
65–69	28%	9.3	5.6	55.4%
70–74	26%	10.4	6.3	49.5%
75–79	20%	11.1	6.7	39.6%
80–84	14%	10.7	6.5	25.8%
85 and older	12%	8	5.1	10.7%

specialty.¹² Adjusted rates according to specialty were calculated by using logistic regression to control for age and number of visits.¹³ Because the results of the crude rates and adjusted rates were virtually identical, only the crude rates are presented. To reflect current screening recommendations, we also stratified the women into two age groups: 65 to 69 years of age (mammography recommended) and 70 years of age and older (no recommendation). Finally, to assess the effect of any gynecologist visit for beneficiaries assigned to the internal medicine, family practice, or general practice groups, a stratified analysis was done. All analyses were performed using SAS Version 6.09 (SAS Institute, Cary, North Carolina).

Results

Forty-one percent of beneficiaries received mammography during the 2-year study period. **Table 2** shows that the rate of screening decreased rapidly with age: from 55% for women aged 65 to 69 years to 11% for women aged 85 years and older.

Use of mammography varied by the specialty of a woman’s usual care physician. Among women 65 to 69 years of age (**Figure 1**)—the group in which there is consensus about screening practices—gynecologists’ patients had the highest screening rates (78%), followed by internists (67%), family practitioners (58%), general practitioners (47%), and other specialists (41%). For women who did not see any physician in the ambulatory setting, the screening rates were low (10%). Similar results were found for women 70 years of age and older (also shown in **Figure 1**). Among women with a nongynecologist primary care physician, any visit to a gynecologist increased screening rates substantially (**Figure 2**). In fact, a visit to a gynecologist almost removed the interspecialty differences among primary care physicians.

Discussion

Medicare has paid for screening mammography since 1991; however, fewer than half of the women in the Medicare cohort we studied received mammography

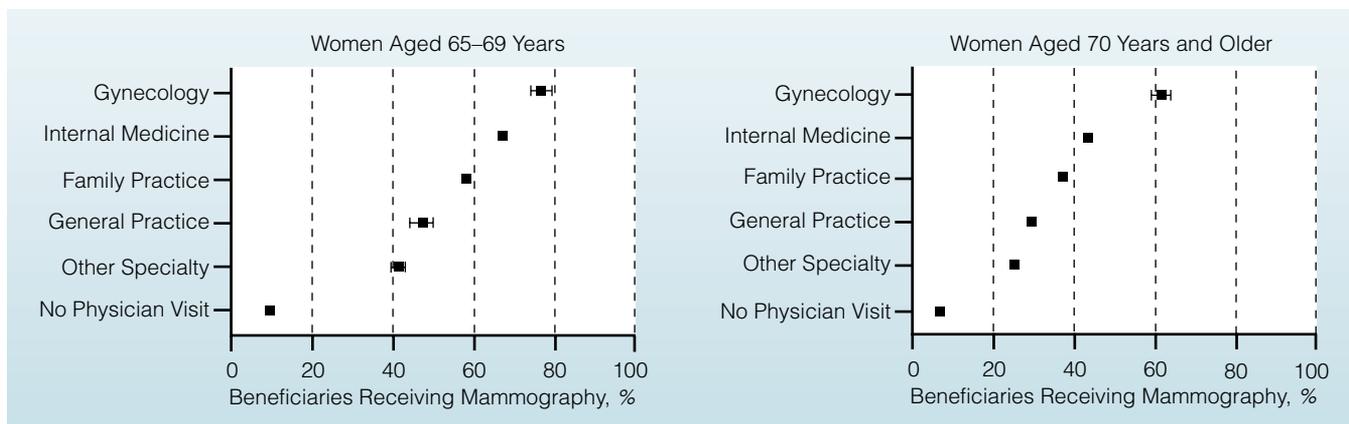


FIGURE 1. Relation between the specialty of the primary physician and the proportion of women receiving mammography among Medicare beneficiaries aged 65 to 69 years (*left*) and women 70 years and older (*right*). (Only 95% CIs greater than $\pm 2\%$ are shown).

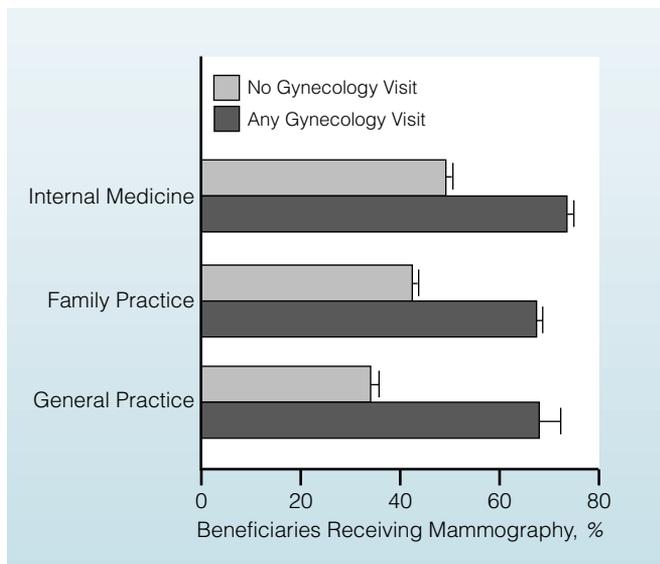


FIGURE 2. Influence of having any visit to a gynecologist and mammography rate for patients cared for by internists, family practitioners, and general practitioners. (Error bars show the high extreme of the 95% CI.)

during the 2-year study period. We found that the probability of obtaining screening mammography was strongly influenced by the specialty of the woman's usual care provider. Screening rates were higher among the 75% of patients seeing primary care physicians than among the 12% of women whose usual care physician was a specialist. Regardless of the specialty of the usual care physician, the probability of receiving mammography was substantially increased by any visit to a gynecologist. Finally, for the 10% of women who did not see a physician, the rate of screening was very low.

The results of this study emphasize the importance of primary care contact.⁴ Given that the effectiveness of mammography in women older than 50 years of age is well established^{1, 2} and that the incidence of breast cancer is highest in the age groups included in this study, women who do not visit a primary care physician are underserved with respect to screening mammography. However, even among women with a primary care physician, the screening rates were substantially below the "optimal" annual rate suggested by the trials and recommended by most specialty societies.¹⁴ Our study also emphasizes the importance of outpatient contact for preventive services. The potential importance of this issue was highlighted by a recent report from the Commonwealth Fund: 76% of people 65 years of age or older who reported having no regular source of care said that they seldom or never got sick.¹⁰ Thus, a group of older patients who potentially stand to benefit the most

from screening by virtue of good health seems less likely to obtain this service.

Our finding of higher utilization rates among patients who visit a gynecologist is similar to self-reported data from both women and physicians.⁸ Roetzheim and colleagues¹⁵ found that although physicians of all types support screening mammography in older women, self-reported rates of referral for mammography varied substantially by specialty, with gynecologists reporting higher screening rates.¹⁶ The fact that any visit to a gynecologist increased the probability of mammography regardless of contact with physicians of any other type suggests that gynecologists are especially sensitive to breast cancer screening. It may be that such increased utilization is related to this specialty's focus on women's health. Because only 7% of women visited a gynecologist during the 2-year study period, high utilization among these practitioners does little to increase the overall population-based rates of mammography.

Although the value of screening mammography in women over 50 years of age is well established, the age at which screening provides diminishing returns is less clear.^{1, 16} In our study, there was a marked decrease in use of mammography with increasing age. Because the primary goal of this test is to reduce mortality, there will be a point at which the potential effectiveness of the technology becomes outweighed by the costs, both in terms of dollars and disutility to those being screened. Unfortunately, only the Swedish randomized trials¹⁷⁻¹⁹ included women aged 70 to 74 years of age (and no trial has included women 75 years of age or older¹), so the age at which mammography is no longer beneficial is not known.

Our study has several limitations. Different specialties may care for a different mix of the Medicare population. Women who seek care from gynecologists may be healthier and request mammography more frequently. Furthermore, some women may have been too sick to benefit from mammography (e.g., a patient with end-stage congestive heart failure). These women might be more likely to visit medical specialists or internists and less likely to visit gynecologists. The fact that our cohort included only women who were alive and eligible for the 2-year period and that specialty differences were found for both younger and older beneficiaries suggest that this potential confounder does not fully explain the differences we found.

Because the definition of screening mammography was not limited to the screening code, misclassification may have occurred. This could account for the higher screening rate among gynecologists if they were

more likely than others to see symptomatic women. However, it is more probable that women with breast symptoms would be referred to a general surgeon rather than to a gynecologist, and two separate runs of a logistic model that used both the screening and non-screening CPT codes independently yielded similar results with both codes combined. Our analysis was unable to distinguish which of several possible physicians ordered mammography; thus, we may have inappropriately attributed mammography to the usual care physician. However, the effect of this “noise” in the analysis would be to decrease between specialty differences. Finally, this cohort was elderly and ethnically homogeneous from a specific geographic region, and the results may not be generalizable to other segments of the population.^{20,21}

Our results suggest that women in the Medicare program are underserved with respect to screening mammography; the group at highest risk are those women without a source of usual care. Because many elderly without a source of usual care perceive that they are in good health, HCFA should consider alternative mechanisms to improve screening rates in these women, perhaps through direct beneficiary contact combined with a self-referral policy for mammography. Women with a usual source of care who visit gynecologists are most likely to obtain screening mammography; however, only a small proportion of the population at risk are seen by these specialists. Because female Medicare beneficiaries obtain care from internists and family practitioners, these physicians must accept the responsibility for improving screening rates and turn their efforts toward facilitating provision of preventive care.^{22,23}

Take-Home Points

- Screening mammography has been shown to reduce breast cancer mortality in women aged 50 to 70 years.
- In northern New England, slightly over half of women aged 65 to 69 received mammography during the 2-year period of 1993 and 1994.
- The proportion of women who received mammography was highest among those whose usual care physicians were gynecologists (78%), followed by internists (67%), family practitioners (58%), general practitioners (47%), and other specialists (41%).
- The probability of a Medicare enrollee's receiving screening mammography is strongly related to the specialty of her usual care physician.
- These differences are unlikely to simply reflect patient preference or general health status.

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Grant Support

Supported in part by a grant from the Agency for Health Care Policy and Research (grant no. 06813).

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