

ORIGINAL RESEARCH

What Do Hospitalists Think About Inpatient Mammography for Hospitalized Women Who Are Overdue for Their Breast Cancer Screening?

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BACKGROUND: A recent study showed that many hospitalized women are nonadherent with breast cancer screening recommendations, and that a majority of these women would be amenable to inpatient screening if it were offered.

OBJECTIVE: Explore hospitalists' views about the appropriateness of inpatient breast cancer screening and their concerns about related matters.

METHODS: A cross-sectional study was conducted among 4 hospitalist groups affiliated with Johns Hopkins Medical Institution. χ^2 and *t*-test statistics were used to identify hospitalist characteristics that were associated with being supportive of inpatient screening mammography.

RESULTS: The response rate was 92%. Sixty-two percent of respondents believed that hospitalists should not be involved in breast cancer screening. In response to clinical scenarios describing hospitalized women who were overdue for screening, only one-third of hospitalists said that they would order a screening mammogram. Lack of follow-up on screening mammography results was cited as the most common concern related to ordering the test.

CONCLUSIONS: Future studies are needed to evaluate the feasibility and potential barriers associated with inpatient screening mammography. *Journal of Hospital Medicine* 2015;10:242–245. © 2015 Society of Hospital Medicine

Testing for breast cancer is traditionally offered in outpatient settings, and screening mammography rates have plateaued since 2000.¹ Current data suggest that the mammography utilization gap by race has narrowed; however, disparity remains among low-income, uninsured, and underinsured populations.^{2,3} The lowest compliance with screening mammography recommendations have been reported among women with low income (63.2%), uninsured (50.4%), and those without a usual source of healthcare (43.6%).⁴ Although socioeconomic status, access to the healthcare system, and awareness about screening benefits can all influence women's willingness to have screening, the most common reason that women report for not having mammograms were that no one recommended the test.^{5,6} These findings support previous reports that physicians' recommendations about the need for screening mammography is an influential factor in determining women's decisions related to compliance.⁷ Hence, the role of healthcare providers in all clinical care settings is pivotal in reducing mammography utilization disparities.

A recent study evaluating the breast cancer screening adherence among the hospitalized women aged 50 to 75 years noted that many (~60%) were low income (annual household income <\$20,000), 39% were nonadherent, and 35% were at high risk of developing breast cancer.⁸ Further, a majority of these hospitalized women were amenable to inpatient screening mammography if due and offered during the hospital stay.⁸ As a follow-up, the purpose of the current study was to explore how hospitalists feel about getting involved in breast cancer screening and ordering screening mammograms for hospitalized women. We hypothesized that a greater proportion of hospitalists would order mammography for hospitalized women who were both overdue for screening and at high risk for developing breast cancer if they fundamentally believe that they have a role in breast cancer screening. This study also explored anticipated barriers that may be of concern to hospitalists when ordering inpatient screening mammography.

METHODS

Study Design and Sample

All hospitalist providers within 4 groups affiliated with Johns Hopkins Medical Institution (Johns Hopkins Hospital, Johns Hopkins Bayview Medical Center, Howard County General Hospital, and Suburban Hospital) were approached for participation in this cross sectional study. The hospitalists included physicians, nurse practitioners, and physician assistants. All hospitalists were eligible to participate in the study, and there was no monetary incentive attached to the study participation. A total of 110 hospitalists were

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Additional Supporting Information may be found in the online version of this article.

Received: July 19, 2014; Revised: November 11, 2014; Accepted: December 21, 2014

2015 Society of Hospital Medicine DOI 10.1002/jhm.2322

Published online in Wiley Online Library (Wileyonlinelibrary.com).

approached for study participation. Of these, 4 hospitalists (3.5%) declined to participate, leaving a study population of 106 hospitalists.

Data Collection and Measures

Participants were sent the survey via email using SurveyMonkey. The survey included questions regarding demographic information such as age, gender, race, and clinical experience in hospital medicine. To evaluate for potential personal sources of bias related to mammography, study participants were asked if they have had a family member diagnosed with breast cancer.

A central question asked whether respondents agreed with the following: “I believe that hospitalists should be involved in breast cancer screening.” The questionnaire also evaluated hospitalists’ practical approaches to 2 clinical scenarios by soliciting decision about whether they would order an inpatient screening mammogram. These clinical scenarios were designed using the Gail risk prediction score for probability of developing breast cancer within the next 5 years according to the National Cancer Institute Breast Cancer Risk Tool.⁹ Study participants were not provided with the Gail scores and had to infer the risk from the clinical information provided in scenarios. One case described a woman at high risk, and the other with a lower-risk profile. The first question was: “Would you order screening mammography for a 65-year-old African American female with obesity and family history for breast cancer admitted to the hospital for cellulitis? She has never had a mammogram and is willing to have it while in hospital.” Based on the information provided in the scenario, the 5-year risk prediction for developing breast cancer using the Gail risk model was high ($\geq 2.1\%$). The second scenario asked: “Would you order a screening mammography for a 62-year-old healthy Hispanic female admitted for presyncope? Patient is uninsured and requests a screening mammogram while in hospital [assume that personal and family histories for breast cancer are negative].” Based on the information provided in the scenario, the 5-year risk prediction for developing breast cancer using the Gail risk model was low ($\sim 0.6\%$).

Several questions regarding potential barriers to inpatient screening mammography were also asked. Some of these questions were based on barriers mentioned in our earlier study of patients,⁸ whereas others emerged from a review of the literature and during focus group discussions with hospitalist providers. Pilot testing of the survey was conducted on hospitalists outside the study sample to enhance question clarity. This study was approved by our institutional review board.

Statistical Methods

Respondent characteristics are presented as proportions and means. Unpaired *t* tests and χ^2 tests were

TABLE 1. Characteristics of the Hospitalist Providers

Characteristics*	All Participants (n = 98)
Age, y, mean (SD)	37.6 (5.5)
Female, n (%)	54 (55)
Race, n (%)	
Caucasian	35 (36)
African American	12 (12)
Asian	32 (33)
Other	13 (13)
Hospitalist experience, y, mean (SD)	4.6 (3.5)
Full time, n (%)	82 (84)
Family history of breast cancer, n (%)†	30 (30)
Faculty physician, n (%)	58 (59)
Believe that hospitalists should be involved in breast cancer screening, n (%)	35 (38)

NOTE: Abbreviations: SD, standard deviation. *In some categories, the sums of responses do not add up to the total because of participants choosing not to answer the question. †Family history of breast cancer was defined as breast cancer in first-degree relatives (namely: mother, sisters, and daughters).

used to look for associations between demographic characteristics and responses to the question about whether they believe that they should be involved in breast cancer screening. The survey data were analyzed using the Stata statistical software package version 12.1 (StataCorp, College Station, TX).

RESULTS

Out of 106 study subjects willing to participate, 8 did not respond, yielding a response rate of 92%. The mean age of the study participants was 37.6 years, and 55% were female. Almost two-thirds of study participants (59%) were faculty physicians at an academic hospital, and the average clinical experience as a hospitalist was 4.6 years. Study participants were diverse with respect to ethnicity, and only 30% reported having a family member with breast cancer (Table 1). Because breast cancer is a disease that affects primarily women, stratified analysis by gender showed that most of these characteristic were similar across genders, except fewer women were full time (76% vs 93%, $P = 0.04$) and on the faculty (44% vs 77%, $P = 0.003$).

Only 38% believed that hospitalists should be involved with breast cancer screening. The most commonly cited concern related to ordering an inpatient screening mammography was “follow-up of the results of the mammography,” followed by “the test may not be covered by patient’s insurance.” As shown in Table 2, these concerns were not perceived differently among providers who believed that hospitalists should be involved in breast cancer screening as compared to those who do not. Demographic variables from Table 1 failed to discern any significant associations related to believing that hospitalists should be involved with breast cancer screening or with concerns about the barriers to screening presented in Table 2 (data not shown). As shown in Table 2,

TABLE 2. Hospitalists' Concerns and Response to Clinical Scenarios About Inpatient Screening Mammography

Concern About Screening*	Believe That Hospitalists Should Be Involved in Breast Cancer Screening (n = 35)	Do Not Believe That Hospitalists Should Be Involved in Breast Cancer Screening (n = 58)	P Value†
Result follow-up, agree/strongly agree, n (%)	34 (97)	51 (88)	0.25
Interference with patient care, agree/strongly agree, n (%)	23 (67)	27 (47)	0.07
Cost, agree/strongly agree, n (%)	23 (66)	28 (48)	0.10
Concern that the test will not be covered by patient's insurance, agree/strongly agree, n (%)	23 (66)	34 (59)	0.50
Not my responsibility to do cancer prevention, agree/strongly agree, n (%)	7 (20)	16 (28)	0.57
Response to clinical scenarios‡			
Would order a screening mammogram in the hospital for a high-risk woman [scenario 1: Gail risk model: $\geq 2.1\%$], n (%)	23 (66)	6 (10)	0.0001
Would order a screening mammography in the hospital for a low-risk woman [scenario 2: Gail risk model: $\sim 0.6\%$], n (%)	18 (51)	13 (22)	0.004

NOTE: *In some categories, the sums of responses do not add up to the total because of participants choosing not to answer the question. † χ^2 with Yates-corrected P value where at least 20% of frequencies were <5.

overall, 32% hospitalists were willing to order a screening mammography during a hospital stay for the scenario of the woman at high risk for developing breast cancer (5-year risk prediction using Gail model $\geq 2.1\%$) and 33% for the low-risk scenario (5-year risk prediction using Gail model $\sim 0.6\%$).

DISCUSSION

Our study suggests that most hospitalists do not believe that they should be involved in breast cancer screening for their hospitalized patients. This perspective was not influenced by either the physician gender, family history for breast cancer, or by the patient's level of risk for developing breast cancer. When patients are in the hospital, both the setting and the acute illness are known to promote reflection and consideration of self-care.¹⁰ With major healthcare system changes on the horizon and the passing of the Affordable Care Act, we are becoming teams of providers who are collectively responsible for optimal care delivery. It may be possible to increase breast cancer screening rates by educating our patients and offering inpatient screening mammography while they are in the hospital, particularly to those who are at high risk of developing breast cancer.

Physician recommendations for preventive health and screening have consistently been found to be among the strongest predictors of screening utilization.¹¹ This is the first study to our knowledge that has attempted to understand hospitalists' views and concerns about ordering screening tests to detect occult malignancy. Although addressing preventive care during a hospitalization may seem complex and difficult, helping these women understand their personal risk profile (eg, family history of breast cancer, use of estrogen, race, age, and genetic risk factors) may be what is needed for beginning to influence perspective that might ultimately translate into a willingness to undergo screening.¹²⁻¹⁴ Such delivery of patient-centered care is built on a foundation of

shared decision-making, which takes into account the patient's preferences, values, and wishes.¹⁵

Ordering screening mammography for hospitalized patients will require a deeper understanding of hospitalists' attitudes, because the way that these physicians feel about the tests utility will dramatically influence the way that this opportunity is presented to patients, and ultimately the patients' preference to have or forego testing. Our study results are consistent with another publication that highlighted incongruence between physicians' views and patients' preferences for screening practices.^{8,11} Concerns cited, such as "interference with patient's acute care," deserve attention, because it may be possible to carry out the screening in ways and at times that do not interfere with treatment or prolong length of stay. Exploring this with a feasibility study will be necessary. Such an approach has been advocated by Trimble et al. for inpatient cervical cancer screening as an efficient strategy to target high-risk, nonadherent women.¹⁶

The inpatient setting allows for the elimination of major barriers to screening (like transportation and remembering to get to screening appointments),⁸ thereby actively facilitating this needed service. Costs associated with inpatient screening mammography may deter both hospitalists and patients from screening; however, some insurers and Medicare pay for the full cost of screening tests, irrespective of the clinical setting.¹⁷ Further, as hospitals or accountable care organizations become responsible for total cost per beneficiary, screening costs will be preferable when compared with the expenses associated with later detection of pathology and caring for advanced disease states.

One might question whether the mortality benefit of screening mammography is comparable among hospitalized women (who are theoretically sicker and with shorter life expectancy) and those cared for in outpatient practices. Unfortunately, we do not yet know the answer to this question, because data for

inpatient screening mammography are nonexistent, and currently this is not considered as a standard of care. However, one can expect the benefits to be similar, if not greater, when performed in the outpatient setting, if preliminary efforts are directed at those who are both nonadherent and at high risk for breast cancer. According to 1 study, increasing mammography utilization by 5% in our country would prevent 560 deaths from breast cancer each year.¹⁸

Several limitations of this study should be considered. First, this cross-sectional study was conducted at hospitals associated with a single institution and the results may not be generalizable. Second, although physicians' concerns were explored in this study, we did not solicit input about the potential impact of prevention and screening on the nursing staff. Third, there may be concerns about the hypothetical nature of anchoring and possible framing effects with the 2 clinical scenarios. Finally, it is possible that the hospitalists' response may have been subject to social desirability bias. That said, the response to the key question "Do you think hospitalists should be involved in breast cancer screening?" do not support a socially desirable bias.

Given the current policy emphasis on reducing disparities in cancer screening, it may be reasonable to expand the role of all healthcare providers and healthcare facilities in screening high-risk populations. Screening tests that may seem difficult to coordinate in hospitals currently may become easier as our hospitals evolve to become more patient centered. Future studies are needed to evaluate the feasibility and potential barriers to inpatient screening mammography.

Disclosures: Dr. Wright is a Miller-Coulson Family Scholar, and this support comes from Hopkins Center for Innovative Medicine. This work was made possible in part by the Maryland Cigarette Restitution Fund Research Grant at Johns Hopkins. The authors report no conflicts of interest.

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