Patient Awareness of Breast Density and Interest in Supplemental Screening Tests: Comparison of an Academic Facility and a County Hospital

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Abstract

Purpose: The aim of this study was to measure women's knowledge of breast density and their attitudes toward supplemental screening tests in the setting of the California Breast Density Notification Law at an academic facility and a county hospital, serving women with higher and lower socioeconomic status, respectively.

Methods: Institutional review board exemptions were obtained. A survey was administered during screening mammography at two facilities, assessing women's awareness of and interest in knowing their breast density and interest in and willingness to pay for supplemental whole breast ultrasound and contrast-enhanced spectral mammography (CEMG). The results were compared by using Fisher exact tests between groups.

Results: A total of 105 of 130 and 132 of 153 women responded to the survey at the academic and county facilities, respectively. Among respondents at the academic and county facilities, 23% and 5% were aware of their breast density, and 94% and 79% wanted to know their density. A majority were interested in supplemental ultrasonography and CEMG at both sites; however, fewer women had a willingness to pay for the supplemental tests at the county hospital compared with those at the academic facility (22% and 70%, respectively, for ultrasound, $P < .0001$; 20% and 65%, respectively, for CEMG, $P < .0001$).

Conclusions: Both groups of women were interested in knowing their breast density and in supplemental screening tests. However, women at the county hospital were less willing to incur out-of-pocket expenses, suggesting a potential for a disparity in health care access for women of lower socioeconomic status after the enactment of breast density notification legislation.

Key Words: Breast density notification law, breast cancer, mammography, supplement screening tests, socioeconomic status

J Am Coll Radiol 2015;12:249-255. © 2015 Published by Elsevier on behalf of American College of Radiology

INTRODUCTION

Mammography is currently the gold standard for breast cancer screening in women ≥40 years of age and has been shown to decrease breast cancer mortality [1-4]. It is estimated that almost half of American women have dense breast tissue [5]. Dense tissue decreases the sensitivity of mammography because of overlapping fibroglandular tissue and increases the likelihood of obscuring breast cancer [6-9]. In addition, dense breast tissue is an independent risk factor for breast cancer [10-13]. Breast density legislation mandates the disclosure of dense breast information to women who are found to have dense or heterogeneously dense breasts on screening mammography. Some state legislation also includes information regarding supplemental screening tests. Since Connecticut first enacted a federal law (Public Act 09-41) requiring mandatory breast density reporting in 2009, similar bills have passed into law in 15 states as of April 2014. At a national level, the Breast Density and Mammography Reporting Act (HR 3404) have been introduced in Congress [14].

In California, the California Breast Density Notification Law, California State Senate Bill 1538, took effect on April 1, 2013. The law mandates that radiologists inform women with heterogeneously dense or dense breasts that they have dense breast tissue, which can make it harder to detect cancer

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This study was presented at the annual meeting of the RSNA, November 30 to December 5, 2013, in Chicago, Illinois.

1546-1440/15/$36.00 ■ http://dx.doi.org/10.1016/j.jacr.2014.10.027

and is associated with increased breast cancer risk. The notification letter suggests that women discuss screening options with their physicians. However, this legislation does not provide guidance regarding supplemental screening decision making or funding for supplemental screening options for women with dense breasts. Currently, the National Comprehensive Cancer Network and the American Cancer Society do not recommend supplemental screening for women with dense breasts who are not at high risk on the basis of family history (≥20% lifetime risk) [1,2,15].

Given the lack of evidence-based guidance and financial support for supplementary screening tests for women with dense breasts, the outcome of the current California legislation may depend on an individual woman's motivation and her financial capability to undergo supplemental screening. According to previous literature regarding the impact of screening mammography, women with low socioeconomic status (SES) or who belong to minority ethnic groups receive limited benefits from mammography because there is an association with difficulty understanding the results of mammography [16-18]. Furthermore, SES factors can influence the willingness to pay for diagnostic tests [19]. Therefore, the impact of this new density notification may vary depending on women's SES.

In this study, we conducted a survey to measure women's knowledge of breast density and their attitudes toward supplemental screening tests in the setting of the new breast density notification law at two medical facilities serving patients of different SES. We performed between-group difference analyses to identify characteristics in the survey responses according to the groups. This study was performed before the implementation of the California Breast Density Notification Law.

METHODS

Survey Collection

The survey was performed at two medical facilities in California: an academic medical center (Stanford Hospital and Clinics, Stanford, California) and a county hospital (Santa Clara Valley Medical Center, San Jose, California).

The academic facility is located in an affluent area, as shown in the census tract [20], and performs approximately 5,000 screening mammographic examinations yearly. The demographics of the women undergoing screening mammography at this facility are shown in Table 1.

The county hospital serves an indigent population and performs 15,000 screening mammographic studies per year. The demographics for women at this facility were obtained during this survey.

An institutional review board exemption was obtained at both facilities. The survey was performed in asymptomatic women undergoing routine screening mammography. The same survey collection methodology was used at both sites, with a few exceptions: the timing of the survey distribution and the availability of different translations of the surveys at the county hospital. At the academic facility, a 1-page survey was distributed to 130 women after their screening mammography appointments over a 9-day period in March 2012. Because the majority of the patients spoke English at the academic facility, those who did not speak English were excluded from the survey. A resident physician was available to answer questions prompted by the survey, including those regarding breast density and different screening modalities. At the county hospital, the survey was given to 153 women before their screening mammography appointments over a 3-month period between December 2012 and February 2013. Surveys were available in English, Spanish, and Vietnamese. Radiology residents fluent in English and either Spanish or Vietnamese distributed the surveys and were available to answer questions.

Table 1. Ethnicity of women at the academic facility

Ethnicity	Percentage
White	69
Asian American	15
Hispanic	8
African American	3
Other or mixed race	5

Survey Contents

The same survey was distributed at both sites, but more detailed demographic information was collected at the county hospital. A printed 9-question survey was distributed by a resident radiologist at both sites (Table 2). The first question was about demographics (question 1). At the academic facility, women were asked only for their ages. At the county facility, women were asked to provide their ages, ethnicities, primary languages, highest levels of education, and ZIP codes. With the exception of demographics, the remainder of the survey questions were identical at both sites. The second part of the survey evaluated patients' awareness of breast density. Women were initially asked if they already knew their breast density (question 2) or were interested in knowing their breast density (question 3). They were then informed about the association between dense breast tissue and cancer risk and the decreased sensitivity of mammography in patients with dense breast tissue, and they were asked if this information changed their desire to know (question 4). In the third part of the survey, women's attitudes toward supplemental screening tests were assessed. They were asked if they had dense breasts, whether they would have an interest in and willingness to pay for supplemental screening tests, including whole-breast ultrasound and contrast-enhanced spectral mammography (CEMG) (questions 5–8). Ultrasound and CEMG were chosen because they were similar in cost. CEMG is a less expensive alternative to contrast-enhanced