Current Attitudes and Practices Around Screening Mammography Among Women in the United States: Results of a National Survey

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INTRODUCTION

The optimal frequency of screening mammography (SM) is controversial.^{1–3} Professional societies' clinical practice guidelines differ despite being based on similar research evidence.¹ The USA Preventive Services Task Force (USPSTF) recommends biennial whereas the American Cancer Society recommends annual SM, creating uncertainty about which guidelines to follow.²

To make informed decisions, women should be aware of guidelines and the benefits and risks of pursuing annual vs biennial SM.² In a 2012 national survey,⁴ less than half of women knew that the USPSTF guidelines changed in 2009, and 12% knew that the recommendation changed from annual to biennial screening. No recent study has examined how frequently women in the USA undergo SM or their knowledge regarding guidelines. It is also unclear whether informing women of alternate guidelines would change their screening behaviors. If women are unwilling to adopt a new screening approach despite being informed, changes to guidelines may not actually impact screening practices. We therefore analyzed national survey data to examine current knowledge and use of SM.

METHODS

This is a subgroup analysis of a cross-sectional study assessing USA breast density laws; methods have been previously described.⁵ Briefly, in 2018, we invited women aged 40–59 years with no history of breast cancer and ≥ 1 prior SM to take an online survey which included items assessing frequency of SM use, awareness of biennial SM recommendations, and willingness to change to biennial screening. Figure 1 details the survey questions and responses.

We used multivariable logistic regression to estimate the association between awareness of biennial SM recommendations and willingness to change to biennial

SM, controlling for sociodemographic factors and history of increased breast density. We used poststratification weights to account for oversampling of women with dense breasts and to generate nationally representative estimates.

RESULTS

Of the 10,112 women invited to participate in the main study,⁵ 6898 (68%) completed the screener; we included responses from 2289 women who completed the full survey and had > 1 SM in this subgroup analysis (Fig. 1). Respondents were 51 years old on average, mostly white, and mostly college educated (Table 1). The majority reported undergoing SM annually (65%) whereas 23% reported biennial SM use (Fig. 1).

Of the women who reported annual SM use, 51% were aware that some guidelines also recommend biennial SM as an option. Approximately 43% were unwilling to switch to biennial SM, even if physician recommended. There was no association between awareness of biennial SM recommendations and willingness to change to biennial SM (adjusted OR 0.80 [95% CI 0.59, 1.09]). The most common reason for unwillingness to adopt biennial SM was belief that annual SM is superior at detecting breast cancer (46% of respondents) (Fig. 1).

DISCUSSION

Our national survey showed that 65% of women age 40–59 years who undergo SM did so annually. About half of these women were unaware that biennial screening is an alternative strategy, demonstrating that awareness of biennial SM recommendations may not have improved since last assessed in 2012.⁴ We found no association between awareness of these guideline recommendations and willingness to change to biennial SM, suggesting that promulgation of alternate and acceptable screening strategies alone may not change screening practices.

Many of the women who were unwilling to adopt biennial SM stated a concern about increased risk associated with this choice. However, it is unclear if these responses represent informed choices.³ Prior literature

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suggests that both women and physicians may not accurately understand the benefits and harms of annual vs biennial SM, impairing informed decision-making.⁶ Therefore, guidelines alone may not impact screening practices unless the benefits and risks of annual vs biennial SM are presented clearly to both patients and physicians.³ Since professional societies' screening recommendations vary, a greater emphasis on harmonizing guidelines might facilitate informed decision-making.

Our study has several limitations, including potential recall and social desirability bias and limited ability to infer causality from correlations. Additionally, the self-reported behavior in our study may differ from actual SM use. Finally, unmeasured confounding factors may have affected preference for annual screening, such as history of abnormal mammography.

In conclusion, most women who undergo SM in the USA report doing so annually. Only half of women were aware of biennial SM recommendations; even those who were aware were no more likely to change to biennial mammography.

Frequencies might not add up perfectly due to weighting; proportions may not add up to 100 due to rounding.

Fig. 1 Flow chart of survey questions, and responses. SM = routine, screening mammography/mammogram; PCP = primary care provider. All numbers are reported as weighted frequencies and may not add up perfectly due to rounding. *Paragraph mark*, The main study assessed knowledge of breast density reporting laws in the USA. The main study included women with only 1 prior SM or who reported undergoing SM, but did not report a clear screening interval. However, we excluded responses from these women in this subgroup analysis. Full details on the sample selection and reasons for excluding responses from the analysis are reported in the main study.⁵ *Capital letter O with stroke*, This is a subgroup analysis of a cross-sectional study assessing breast density laws in the USA. *Asterisk*, Due to the nature of survey skip logic, only those women who selected “yearly” (n = 1474) were invited to answer the subsequent questions about awareness and willingness to change SM use. The remaining women (n = 11) selected “other” but provided an answer consistent with annual SM use. *Dagger*, Respondents could select more than one answer to this question. *Double dagger*, these responses were not included in the multivariable logistic regression.

Table 1 Characteristics of the Study Participants

Characteristics	Percent
Mean (standard deviation) age	50.6 years (5.6 years)
Race and ethnicity	
White	65
Black	12
Hispanic	15
Other	9
Education	
< High school	8
High school	25
Some college or associate's degree	32
Bachelor's degree	21
Graduate (master's or doctorate) degree	14
Insurance	
Public	16
Private/other	79
No insurance	5

Frequencies are reported as weighted proportions and may not add up to 100 due to rounding

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Compliance with Ethical Standards:

Conflict of Interest: Dr. Gross has received research funding through Yale from Johnson & Johnson and Pfizer. In addition, Dr. Gross has received compensation from Flatiron Health for travel and speaking.

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