



## Review Articles

# The development and implementation of a patient-centered radiology consultation service: a focus on breast density and additional screening options



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## ABSTRACT

Increasingly, states are mandating notification to patients if they are found to have dense breast tissue. Information describes the increased risk of cancer and limitations of mammography for this patient group. Such notification often creates anxiety and results in uncertainty as no evidence-based guidelines for additional screening of dense breasts are available. Through an organized consultation service, patients and physicians were provided consultations with radiologists in order to ensure an appropriate screening plan based on individualized histories and preferences. This manuscript describes our dense breast consultation program, examines initial data, and provides lessons for practices interested in providing similar service.

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## 1. Introduction

Despite recent controversy, screening mammography remains the standard of care for the detection of asymptomatic breast cancer. Based on evidence that early detection leads to decreased mortality rates, the American Cancer Society recommends annual mammography for all women starting at the of age 40 [1]. The sensitivity of mammography has been reported to be 70–90% in the general population. However, this can be decreased to 30–48% in women with dense breast tissue [2–5] due to masking effects that dense tissue can have over underlying cancers. Having dense breast tissue is also an independent risk factor for developing breast cancer as women with dense breast tissue have a relative risk factor two to six times that of women without dense breasts [1]. In addition to increased risk factors, unclear guidelines about additional screening recommendations for women

with dense breast tissue often lead to confusion for patients and healthcare providers.

Despite the lack of evidence-based guidelines for additional screening, patient advocacy has recently led to legislative efforts requiring radiologists to notify patients if they are found to have dense breast tissue. As required by the Mammography Quality Standards Act (MQSA), this information is included in the radiology report sent to referring physicians [6]. However, breast density and the potential implications of such have never been required to be directly communicated to patients. As of the date of this publication, 19 states mandate that radiologists notify patients if they are found to have dense breasts [7]. On a national level, The Breast Density and Mammography Reporting Act of 2014 has also been proposed to make breast density notification a federal standard [8]. In accordance with these laws, lay letters for patients with dense breast tissue must include specific language. For example, the lay letter in New York State (NYS) must read as follows:

*"Your mammogram shows that your breast tissue is dense. Dense breast tissue is very common and is not abnormal. However, dense breast tissue can make it harder to find cancer on a mammogram and may also be associated with an increased risk of breast cancer. This information about the result of your mammogram is given to you to raise your awareness. Use this information to talk to your doctor about your own risks for breast cancer. At that time, ask your doctor if more*

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*screening tests might be useful, based on your risk. A report of your results was sent to your physician."*

[Governor's Press Office, 2012[9]]

This information is given to patients regardless of diagnosis, billing, workflow, or insurance [10]. Currently, only four states require, or plan to require, insurance reimbursement for supplemental screening tests [7].

Since the implementation of breast density legislation, a growing need for patient education around breast density and additional screening has become apparent [11]. Organized consultations are a standard of practice in many fields; however, widespread implementation of consultation activities in radiology has been limited by efficiency concerns around radiologist time. By implementing an organized consultation service with a sustainable and efficient work flow through the use of the Registered Radiologist Assistant (RRA), it is hypothesized that direct radiologist–patient interactions will positively affect patient confidence and perception in the medical decision-making process specifically around breast density and additional screening options. Appendix A outlines information describing the role of the RRA.

The purpose of this manuscript is to outline our initial experience with an organized radiology consultation service that was established as a means to utilize the expertise of breast radiologists to provide patient and physician education. Initial data examined will provide preliminary information on the utilization and potential efficiency gains of consultation services.

## 2. Methods

Weill Cornell Imaging Consultation and Radiologic Expertise (WiCare) is an organized radiology consultation service that was established by the Department of Radiology at NewYork–Presbyterian Hospital to promote patient-centered care and informed decision making between patients and physicians. As part of the activities provided by WiCare, dense breast consultations were offered to patients who had questions regarding their mammogram results and breast density notifications required by the NYS legislation. WiCare was available for consultations beginning January 2013 when the NYS dense breast law was passed; however, contact information was not distributed nor included in the lay letter until March 27, 2013 allowing for a control period. All patients who underwent screening mammography and were found to have extremely dense or heterogeneously dense breast tissue between the dates of March 27, 2013 and March 21, 2014 received a standard lay letter including the language required by NYS law. In addition to the lay letter, these women also received an educational pamphlet on dense breast tissue provided by the American College of Radiology (ACR) and Society of Breast Imaging (SBI). Contact information for WiCare incorporated in the lay letter and printed on the back of the educational pamphlet included the following information:

*"We encourage you to speak with your physician concerning the additional options available to you. If you still have questions, our radiologists are available to discuss dense breast imaging considerations. To speak with a radiologist, please contact WiCare (Weill Cornell Imaging Consultation and Radiologic Expertise) at: xxx-xxx-xxxx or xxx@med.cornell.edu."*

[Governor's Press Office, 2012]

This same information was also provided to referring physicians so that patients could be directed to WiCare in the event that they were contacted first.

Consultations were performed by a single RRA and one of 12 breast radiologists assigned to consultation on a daily basis. The RRA was responsible for fielding all requests, collecting pertinent data, and preparing consultation notes. A standard consultation note documented patient demographics, pertinent history, prior imaging, reason for

consult, as well as a full consultation assessment and plan. All information was provided to the radiologist via email, phone, or through our electronic consultation documentation system prior to the patient–radiologist interaction scheduled and initiated by the RRA. Upon the conclusion of consultation, patients were given the option to complete a survey based on the SURE screening test (Appendix B). Consultation notes were signed off by the RRA and radiologist involved, recording how much time was spent by each. All consultation information was tracked by the RRA including outcomes and follow-up results for quality assurance purposes.

### 2.1. Data collection and analysis

The Institutional Review Board at Weill Cornell Medical College at NewYork–Presbyterian Hospital approved this study. A waiver of informed consent was granted. Through a review of our imaging reports through our coding/NLP software (Datascout, 3MSt.Paul MN), women who underwent screening mammography between the dates of March 27, 2013 and March 21, 2014 were identified. The subgroup with reported extremely dense or heterogeneously dense was determined. Retrospective data analysis was performed on patients who contacted WiCare for consultation. For purposes of this study, the dates of March 27, 2013 and March 21, 2014 were used to evaluate the first full-year experience with dense breast consultations, although WiCare was available for consultation during the control period beginning in January 2013.

The SURE screening test was administered to patients on a volunteer basis at the conclusion of consultation to assess patient confidence with the consultation service and perception of additional screening options. The SURE screening test is a short survey consisting of four yes or no questions that was designed to assess patient decisional conflict in medical decision making [12,13]. SURE was chosen as the survey method of choice since it was proven to indicate a patient's level of comfort with a decision as quickly as possible [12]. Patients were given the option to complete the survey questions by telephone, mail (anonymously), or email with Internet link (anonymously). Based on the SURE screening tool, questions were developed as applicable for the dense breast consultation service. Surveys were scored based on measures set forth by Pararye et al. (2013). For every "yes" answer, a value of 1 was given while "no" answers were given a value of 0. All values were summed. A perfect score of 4 indicated that the patient was comfortable with their decision, while scores of 3 or less demonstrated decisional conflict [12].

## 3. Results

Between the dates of March 27, 2013 and March 21, 2014, a total of 16,132 patients underwent screening mammography with 7131 patients (44.2%) found to have dense breast tissue. A total of 152 consultations were performed with demographics described in Table 1. Of the consultations performed, 138 (90.8%) were initiated by the intended patient population of women with dense breast tissue. The remainder of women contacted WiCare for a consultation to ask general questions about breast density or their own imaging after seeing information displayed on posters, lay letters, or handouts. Utilization of the consultation service increased after contact information was distributed and included in the lay letters with only three patients requesting consultation during the control period. The majority of patients preferred consultations to be performed over the phone with only two patients requesting an appointment in-person. One consultation was initiated by a physician's office. The mean time that radiologists spent on consultations was 5.1 min (range: 0–30 min, median: 2.0 min) compared to the RRA who spent an average of 31.9 min (range: 5–103 min, median: 30.0 min).

Of the 152 patients who underwent consultation, 47 (30.9%) went on to have additional screening with the remainder continuing an

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