Guest Editorial

Are You Dense?

Kathryn Evers, MD, FACR

Reporting of mammographic breast density to patients has been mandated by at least 19 states and is currently being considered by Congress as an additional requirement under Mammography Quality Services Act (MQSA). This has occurred because breast density is considered to be a risk factor for the development of breast cancer and because dense breast tissue can mask significant pathology in the breast. In the Breast Imaging Reporting and Data System (BI-RADS) system (1), there are four different categories of breast density: fatty, scattered densities, heterogeneously dense, and extremely dense. The two latter categories are considered to represent dense breasts. These two categories included 40%–50% of the women screened. Supplemental imaging (including screening ultrasound and breast magnetic resonance imaging [MRI]) is at least considered for women in these two density categories regardless of other risk factors. Although it is straightforward to decide which breasts are fatty and which are dense, this is less clear when distinguishing between scattered densities (BI-RADS category B) and heterogeneously dense (BI-RADS category C). There is a degree of subjectivity involved in this determination which is of some import as breasts described as scattered densities do not, in the absence of other risk factors, receive a recommendation for additional imaging.

In this issue, Gur et al. (2) have examined radiologist’s attitudes toward the Pennsylvania Breast Density Law which took effect on February 1, 2014, and evaluated changes in the percentages of patients in the scattered density and heterogeneously dense groups. The radiologists whose behavior was studied were asked whether they predicted that they would change their assessments of breast density on the basis of the newly instituted law. Half the radiologists predicted that their behavior would change their assessments of breast density regardless of other risk factors.

When evaluating what actually happened to the reporting of breast density after passage of the law, it is not surprising that the percentages of fatty and extremely dense breasts did not change significantly. However, there was a significant increase in the number of patients reported as scattered densities (BI-RADS 2) with a concomitant decrease in the number of patients reported as heterogeneously dense (BI-RADS 3). The shift toward reporting density as scattered densities rather than as heterogeneously dense was seen across the board, regardless of what the radiologists predicted.

The reason for the shift in reporting was not studied. There are multiple reasons why this could occur. However, regardless of the reasons, a change in reporting can have a major impact on recommendations for additional testing and potentially on both biopsy rates and cancer detection. What is at least as interesting as the reported change is the fact that at least some radiologists were unaware of the changes in their behavior.

Regulatory actions such as the requirement for reporting breast density frequently have unanticipated results. In this case, the mandate to report breast density seems (at least in the practice studied) to have shifted the line between categories B and C so that fewer women are reported as having dense breasts. Given the subjectivity of this assessment, it is possible that the change is due to radiologists actually giving more thought to this assessment since the law was passed. It is impossible to know whether breast densities have been routinely, although not consciously, been reported as denser than they actually are. Automated systems exist that attempt to measure breast density in a more objective and hopefully reproducible fashion (3). These are not universally available or used. Additionally, these suffer from the problem of attempting to evaluate a three-dimensional, compressible structure using two-dimensional tools (4). Three-dimensional tools such as MRI and breast computed tomography provide a more accurate assessment of the actual amount of dense tissue in the breasts. However, almost all the research on breast density and risk of breast cancer has used mammograms, and it is not certain that these data are transferrable.

The impetus for the institution of these regulations is to make women more confident that a negative mammogram report truly means that no cancer is present. Additionally, having women who are educated and well informed about their health is a worthy goal. Unfortunately, it is far from clear what the next step in evaluation should be. This responsibility has in many states been given to primary care physicians who may or may not be comfortable with the topic of breast density.

Since the institution of laws requiring the reporting of breast density, there have been considerable discussion of this topic, and numerous articles have been published evaluating what the correct additional imaging examination(s) should be (5,6). For women who are at increased risk for the development of breast carcinoma based on family
history or other risk factors, breast MRI is the examination of choice. However, insurance will rarely pay for breast MRI for patients with an average risk. Many of these patients are evaluated with screening breast ultrasound. This will discover additional breast cancers but is also associated with a high false-positive rate, leading to many biopsies with benign results and short interval follow-up examinations. This increases both costs and patient anxiety. Breast imaging has been severely criticized for costs associated with false-positive mammograms and the anxiety that patients experience as a result of these. It is hard to imagine that patients will experience reduced anxiety when an additional level of testing is performed. Other currently available imaging examinations including digital breast tomosynthesis, “FAST” MRI, and molecular breast imaging (breast-specific gamma imaging) are currently being investigated as supplemental examinations for women with dense breasts.

The driving force behind the breast density legislation is women who have been told that they have normal mammograms and who present with interval cancers that may be advanced at the time of diagnosis. This quest for more information is both understandable and admirable. However, not only are our tools imperfect but is the relatively high degree of subjectivity in assessing breast density problematic. Awareness of the change in reporting of breast densities as shown in the research by Dr. Gur may help to make radiologists more aware of this problem and strive to be more reproducible in their assessments. For now, in answer to the question posed by advocates of the reporting of breast density, Are You Dense? The answer can unfortunately only be “maybe.”

REFERENCES