



Charlotte Radiology Fort Mill breast center offers a state-of-the-art 3T Siemens MRI suite designed specifically for advanced breast MR imaging, including ABMR.

# Personalized Medicine for Breast Health



Anup  
Parikh, MD  
Charlotte  
Radiology

Breast cancer remains the most common cancer among women, emphasizing the importance of personalized screening and breast health care strategies. With Charlotte's growing population, the demand for specialized breast imaging tailored to individual risks continues to rise, especially for women with dense breast tissue.

## The Importance of Annual Screening Mammograms Starting at Age 40

Routine screening mammograms starting at age 40 significantly reduce breast cancer mortality. Digital Breast Tomosynthesis (DBT), known as 3D mammography, is an advanced screening technology that enhances cancer

detection by up to 25% and reduces unnecessary callbacks by about 15%. The American College of Radiology (ACR) recommends DBT as the gold standard for annual breast cancer screening, as it increases detection of smaller, early-stage cancers and leads to better outcomes.

Regular screenings allow physicians to detect breast cancers at earlier stages, leading to less invasive treatments, improved survival rates, and a higher quality of life for patients. Patient adherence to annual mammograms is critical for maximizing these benefits, making ongoing patient education and engagement essential components of personalized breast care.

## The Challenge of Dense Breast Tissue

Over 40% of women have dense breast tissue. Dense tissue not only reduces mammographic sensitivity—dropping from about 86% in fatty breasts to around 60% in extremely dense breasts—but also increases a woman's risk of developing breast cancer by up to fivefold.

In recognition of this, the FDA implemented a breast density mandate in 2024 requiring healthcare providers to inform patients about their breast density status. This regulatory change emphasizes the importance of supplemental screening methods to adequately manage breast health in women with dense tissue.

## Tailored Screening for High-Risk Patients

For women identified as having dense breasts or a higher lifetime breast cancer risk (20% or higher), additional screenings are crucial:

- **Breast MRI:** Highly sensitive, MRI detects an additional 15-20 cancers per 1,000 women screened. However, standard MRIs are typically reserved for high-risk patients due to cost, procedure duration, and insurance coverage variability. Despite these limitations, breast MRI remains a critical tool for high-risk women.
- **Abbreviated Breast MRI (ABMR):** ABMR provides similar cancer detection rates to standard MRI but offers faster, less expensive scans, typically completed in under 10 minutes. This makes ABMR an excellent option for women with dense breasts who may otherwise avoid screening due to the longer, traditional MRI procedure.
- **Automated Whole Breast Ultrasound Screening (ABUS):** FDA-approved specifically for dense breast screening, ABUS is a non-invasive option that detects 3-4 additional cancers per 1,000 screenings compared to mammography alone. ABUS is ideal for women who cannot undergo MRI due to medical or personal constraints.

## Artificial Intelligence is Enhancing Breast Imaging

Artificial Intelligence (AI) is revolutionizing breast imaging by improving accuracy and efficiency. Technologies such as ProFound® AI (iCAD) increase cancer detection by 6% and reduce unnecessary recall rates by 7%. Additionally, newly FDA-approved AI tools like Clarity offer precise, individualized five-year breast cancer risk assessments directly from mammograms, surpassing traditional risk assessments. These advancements empower radiologists to better identify patients requiring further imaging, significantly personalizing patient care.

AI technology is not intended to replace radiologists but rather to enhance their capabilities, allowing more time and attention to complex diagnostic cases and patient communication. Addressing misconceptions about AI's role is an important educational component of personalized medicine.

## Expanding Community Access

To address growing community needs, Charlotte Radiology opened its 18th breast center location earlier this year in Fort Mill. Combined with mobile mammography, these centers serve over 140,000 women every year in the greater Charlotte area, providing screening and diagnostic mammography, supplemental screening, and other breast health services. The goal is to ensure that advanced breast imaging services are more accessible to women throughout Charlotte and surrounding regions, providing expert care with advanced technology, reducing travel burdens, and improving patient compliance with screening recommendations.

## Collaboration and Education

Effective personalized breast health requires collaboration among primary care providers, OB-GYNs, and radiologists. By employing comprehensive risk assessment tools, healthcare providers can recommend tailored imaging strategies that reflect individual patient risks and preferences. Educating patients about breast density, personal risk factors, and available screening methods is essential to informed decision-making and patient empowerment.

Providing clear, understandable educational resources about supplemental imaging options helps patients navigate their breast health journey, improving compliance and screening outcomes.

## Looking Ahead

Advancing personalized breast care through innovative imaging and AI technologies is transforming breast cancer detection and improving patient outcomes. By continually embracing technology advancements and fostering collaboration among healthcare providers, we can ensure women receive high-quality, tailored breast care for years to come.

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