



**PHILIPS**

Ultrasound

Customer story

# Meeting the increasing demands of breast imaging

EPIQ ultrasound system

“Breast imagers are doing more breast ultrasound exams on women with dense tissue.”

**Marcela Böhm-Vélez, MD,  
FACR, FSRU, FAIUM**  
Weinstein Imaging Associates  
Pittsburgh, PA, USA

The science of ultrasound continues to evolve with technical innovations that work together to improve image quality and achieve exceptional levels of clinical performance. The Philips EPIQ ultrasound system incorporates these advances to allow clinicians to diagnose with enhanced confidence.



“With 3D mammography, which can detect 40% more cancers than 2D mammography, there is an even greater need for better ultrasound imaging to be able to identify and characterize smaller tumors. If the sonographic morphology is not completely benign, biopsy can be done under ultrasound guidance.”

Marcela Böhm-Vélez, MD, FACR, FSRU, FAIUM

## Complementing mammography

Dr. Marcela Böhm-Vélez is president of three imaging centers focused on women’s health, with state-of-the-art equipment for mammography and ultrasound. Throughout her career, she has witnessed many changes in ultrasound for breast imaging, including improved resolution which has allowed detection of smaller lesions, better differentiation of benign from malignant masses, and facilitated guidance for procedures. She uses the Philips EPIQ ultrasound system as a complement to mammography in the diagnostic work-up, and views it as particularly well-suited for imaging patients with dense breast tissue. She notes, “Studies have shown that screening breast ultrasound in dense tissue will detect additional cancers.”

One of the trends she has observed is an increase in the public’s awareness of breast cancer. “Women are more informed of the importance of early detection of breast cancer. Annual mammograms are finding smaller cancers, giving patients more treatment options and decreasing mortality.”

## Improved patient work-up

An essential component of providing her patients with the highest quality of care is the use of the latest breast ultrasound technology. “With the help of advanced imaging, our practice has evolved, enabling us to perform a more comprehensive work-up of the patient. We now can perform the mammogram, breast ultrasound, and ultrasound core biopsy during the same visit, which decreases the woman’s anxiety.”

## Excellent resolution and optimization

Dr. Böhm-Vélez says, “The EPIQ system is ideal for breast imaging because it improves the characterization of masses, helping to differentiate between normal fat lobules and hypoechoic masses, as well as aiding me in detecting calcifications seen by mammography. The improved resolution has also played an important role in the visualization of abnormalities seen on MRI or molecular breast imaging.”

“EPIQ’s excellent resolution in the near field, as well as in the far field, minimizes the scanning time required to optimize the image quality, enhancing our diagnostic confidence,” says Dr. Böhm-Vélez.

## Advantages imaging technically difficult patients

She notes the advantages of using EPIQ with patients who are technically difficult to image: “By making optimization easy, our scanning time is reduced in many types of breast tissue and workflow is streamlined.”

Such progress is due to the Philips exclusive tissue aberration correction, which compensates for changes in speed of sound to display detailed images of breast anatomy. Philips linear transducers, including the L18-5, are optimized with tissue aberration correction to provide superb imaging performance for many breast patient types.

# Case studies

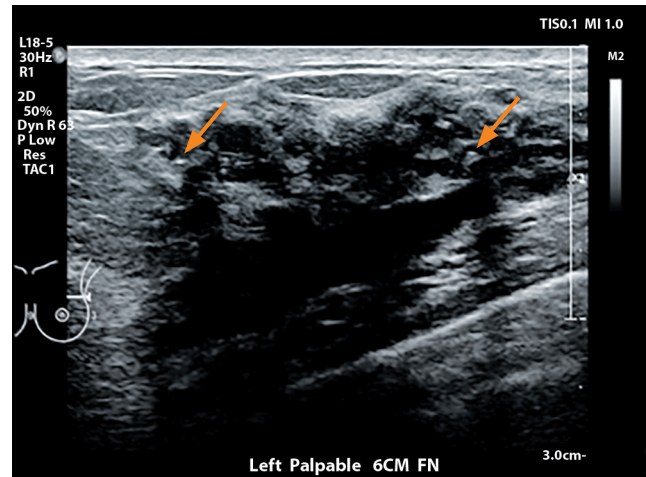
## Case study 1

A 60-year-old woman presents with a tender palpable area in the upper outer quadrant of the left breast. She had a history of cysts and a mother diagnosed with breast cancer at age 70.

Mammography showed a new asymmetry in the upper outer quadrant of the left breast associated with extensive malignant type microcalcifications that extend to the subareolar region.

In the area of mammographic and clinical concern, ultrasound showed two irregular hypoechoic masses with echogenic foci (calcifications) seen both within and outside the masses.

Dr. Bohm-Velez notes, “In the past, calcifications were only seen on ultrasound when they were within a mass. Therefore suspicious calcifications not within a mass required a stereotactic core biopsy. Now, in my experience with the EPIQ ultrasound system, we are starting to identify



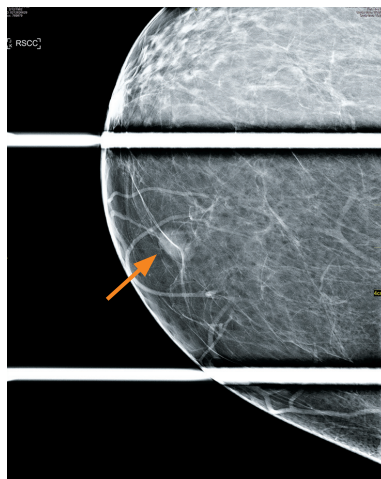
**L18-5 imaging with TAC (tissue attenuation control) provides excellent visualization of echogenic foci (calcifications) within and outside (arrows) the breast masses, thereby allowing for core biopsy under ultrasound guidance.**

calcifications even when they are not associated with a mass, therefore allowing us to biopsy them with ultrasound guidance. This quicker and less expensive approach reduces patient anxiety compared to the stereotactic technique.”

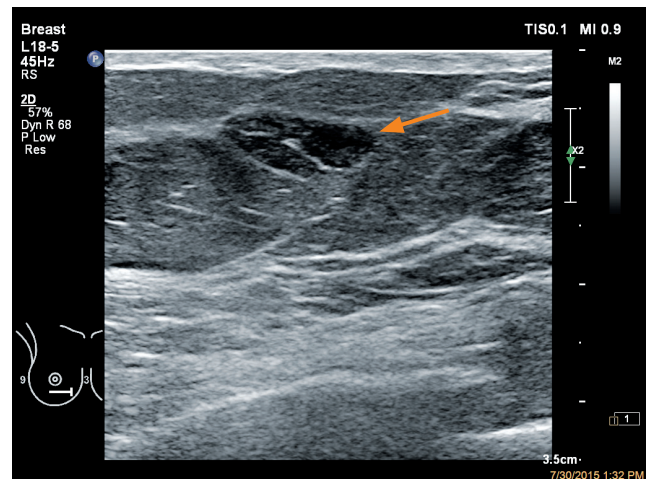
## Case study 2

A 53-year-old woman presents for a baseline mammogram, which shows a mass in the right breast at five o'clock, best seen in the spot compression views.

Initial ultrasound imaging showed no abnormality in that area. Scanning with the EPIQ system showed a circumscribed oval benign-appearing mass corresponding to the mammographic finding.



**Spot compression in 90° projection shows a mass within the right breast.**



**The excellent resolution of the EPIQ L18-5 transducer demonstrates a benign appearing mass not seen on a different ultrasound system. A BI-RADS 2 was assigned which obviated the need for a stereotactic biopsy procedure and the patient was recommended to return in a year.**

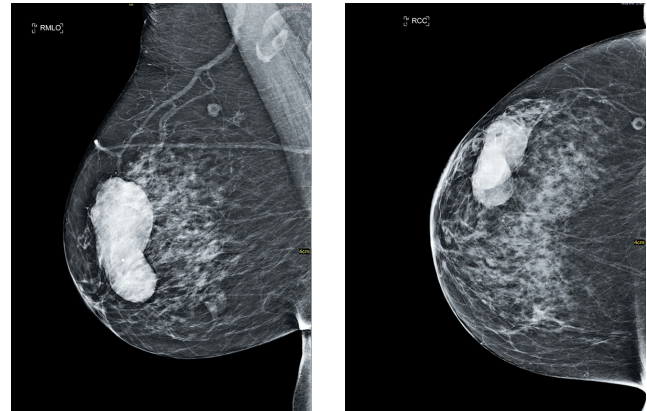
## Case study 3

A 72-year-old woman presents with a new palpable mass in the upper outer quadrant of the right breast. Her previous mammogram was eight years ago.

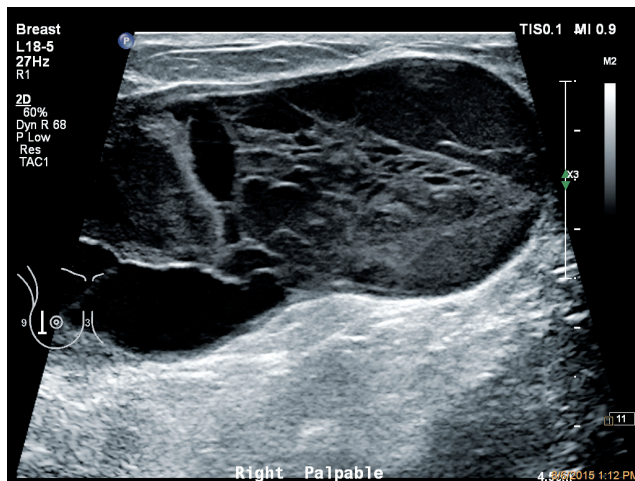
Mammography showed a 7.7 x 6.8 x 3.7 cm dense lobulated, circumscribed mass in the upper outer right breast corresponding to the palpable mass.

Ultrasound of the upper outer quadrant of the right breast showed a large debris-containing cystic mass corresponding to the mammographic and palpable abnormality. Marked vascularity with color flow Doppler was identified in the periphery of the mass confirming a solid component, increasing our concern and therefore requiring an ultrasound-guided core biopsy to be done.

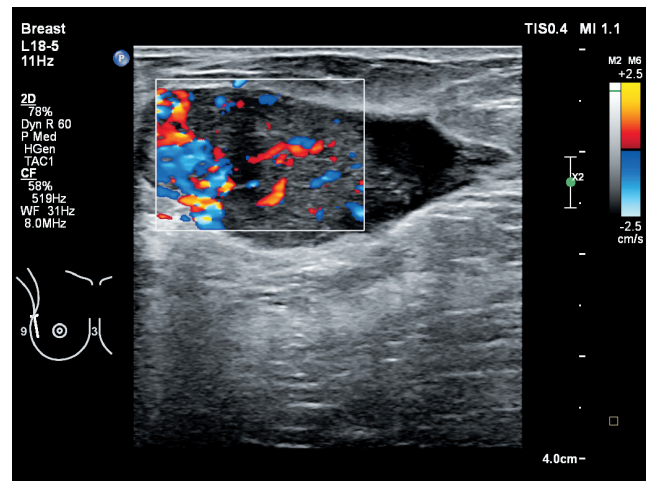
Ultrasound-guided core biopsy showed intracystic papillary carcinoma, which was confirmed by surgical excision.



**Right breast mammogram demonstrates a large lobulated mass within fatty tissue.**



**The L18-5 demonstrates excellent resolution of a debris-containing cyst corresponding to the palpable and mammographic mass.**



**Color flow Doppler showed chaotic vascularity in the periphery of the mass, confirming a solid component, and raising suspicion, therefore changing the work-up of this patient to include ultrasound-guided core biopsy.**

### About Dr. Böhm-Vélez

Dr. Marcela Böhm-Vélez is president of Weinstein Imaging Associates, western Pennsylvania's premier ultrasound and breast imaging centers. Her areas of expertise include breast imaging, as well as gynecological, obstetrical, interventional, and vascular ultrasound.

She is one of the authors for *Ultrasound BI-RADS Atlas* 2nd edition and is an active participant in ultrasound and

mammography accreditation for the American College of Radiology. She holds a position as Clinical Assistant Professor of Radiology at the University of Pittsburgh, and has served as President of the Pennsylvania Radiological Society. She is also a Diplomate of the American Board of Radiology and a Fellow of the American College of Radiology, Society of Radiologist in Ultrasound, and of the American Institute of Ultrasound in Medicine.

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