



Look differently.

# Invenia™ ABUS 2.0

Automated Breast Ultrasound

# The dense breast dilemma

Over 40 percent of women have dense breast tissue,<sup>1</sup> one of the strongest common risk factors for developing breast cancer.<sup>2</sup>

In dense breasts, cancers may be masked on 2D mammography – potentially delaying diagnosis in these women.<sup>3,4</sup> Both dense breast tissue and cancer appear white on a mammogram, creating a dangerous camouflage effect and a dilemma for radiologists whose goal is to find breast cancer as early as possible.

## Personalizing breast care

Breast screening can be personalized using individual risk factors. When dense breast tissue is present, physicians may recommend adjunctive imaging such as ultrasound to help visually differentiate dense tissue from cancer.



**Mammography may miss 1/3 of cancers in dense breasts.**<sup>3</sup>



**Seventy one percent of cancers occur in dense breasts.**<sup>5</sup>

1. Pisano et al. NEJM 2005; 353: 1773.

2. Engmann NJ, et al, JAMA Oncol. 2017;3(9):1228-1236.

3. Mandelson et al. J Natl Cancer Inst 2000; 92:1081-1087.

4. Tagliafico, Massimo Calabrese et al, Journal of Clinical Oncology 2016 34:16, 1882-1888.

5. Arora N, King TA, Jacks LM., Ann Surg Onc, 2010; 17:S211-18.

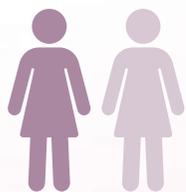
# Detecting more cancer

GE Healthcare offers the only FDA-approved ultrasound supplemental screening technology that is specifically designed for detecting cancer in dense breast tissue. Compared to mammography alone, Invenia ABUS 2.0 imaging looks differently at dense breast tissue, providing a comprehensive view of the breast. This technology has demonstrated a 57% relative increase in invasive cancer detection<sup>7</sup> for these women by keeping a stable recall rate of 2.3%.

## The power of small

Supplemental imaging with Invenia ABUS 2.0 transforms breast care from reactive to proactive. Clinical research studies demonstrate that when used as an adjunct to mammography, small cancers visible only through ABUS were predominantly invasive and node-negative.<sup>6,7</sup> Detecting them at this earlier stage has important prognostic implications and can reduce the cost of care.<sup>8</sup>

When breast cancers are found at Stage 1 and 2,



**70%**  
of patients may avoid  
chemotherapy.<sup>9</sup>

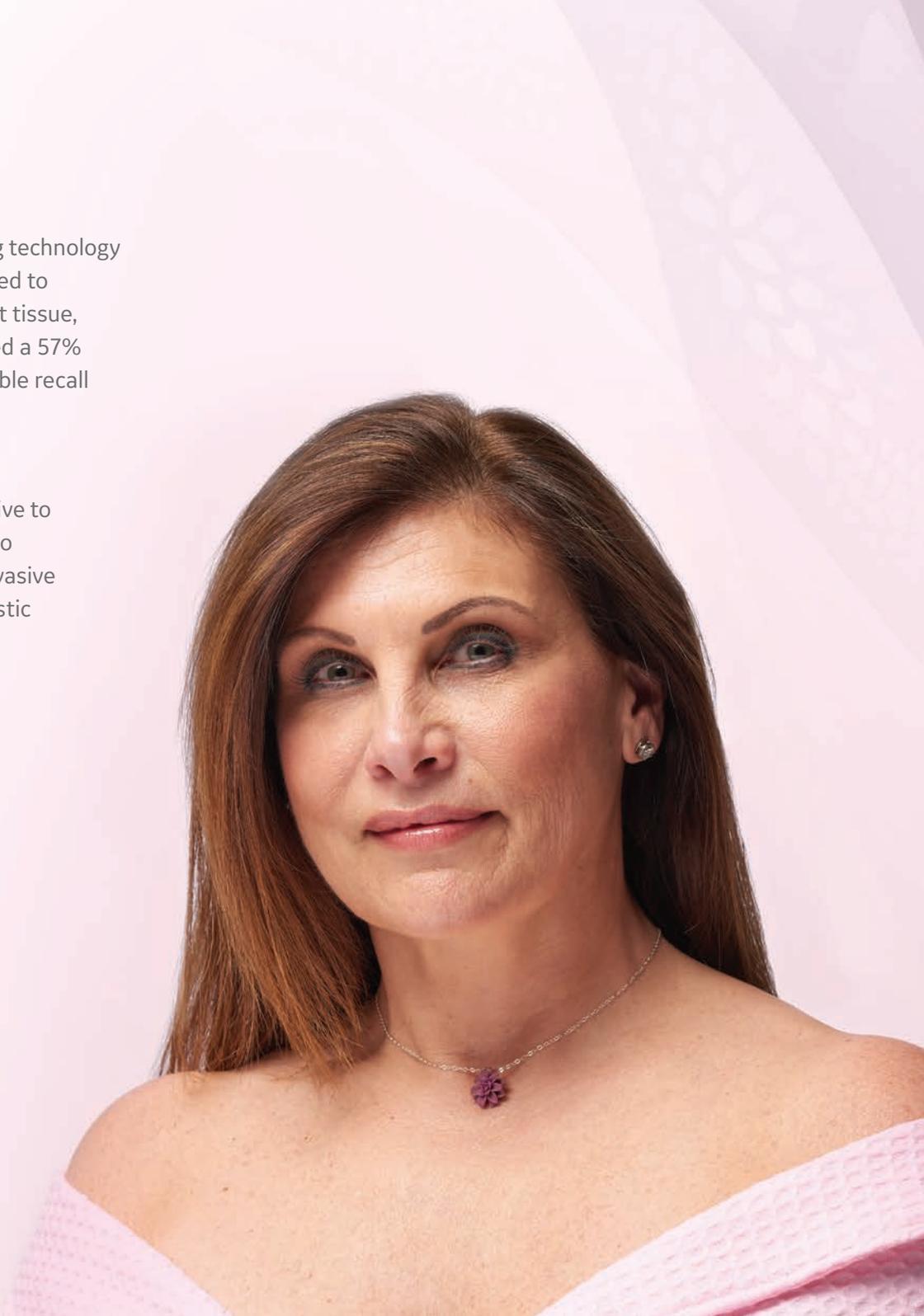
Invenia ABUS 2.0 helps find small cancers when they are more treatable.<sup>6,7</sup>

6. Brem et al, Radiology, March 2015.

7. Wilczek B, European Journal of Radiology (DOI: 10.1016/j.ejrad.2016.06.004).

8. Blumen, et al. Comparison of treatment costs for breast cancer by tumor stage, and type of service.

9. Sparano, JA, et al. N Engl J Med 2018; 379:111-121.



# Efficient, reproducible exams



Invenia ABUS Viewer displays 3D volumes in a patented, 2-mm-thick coronal slice.

Invenia ABUS 2.0 uses the powerful cSound™ Imageformer, a software-based graphics processor, that provides a reproducible and operator-independent acquisition method to achieve consistent, high quality results. cSound imaging allows significantly more data to be collected and used to create every image. Traditional hand-held ultrasound parameters such as focal zones and gain are automatically optimized. Because no image manipulation is required, high image quality is consistent from operator to operator with the touch of a button.

## 3D superior visualization over hand-held

Invenia ABUS Viewer provides the coronal view, which acts as a roadmap for evaluating the entire breast. This global perspective offers better visualization of architectural distortions and multifocal disease. Reconstructed 2-mm-thick coronal slices display constant orientation and location from the nipple, making it easy to evaluate the breast from the skin line to the chest wall. Correlations with other projections and planes are easily achieved.

*“The results of our study show that 3D ABUS yielded comparable results as hand-held in the detection and characterization of breast lesions, and in some patients proved to be superior to hand-held, especially in the detection of architectural distortions identified in the coronal reconstruction plane; a finding highly suspicious for malignancy.”<sup>10</sup>*

10. Vourtsis A, Kachulis, A., European Radiology, 2017. ISSN 0938-7994 Eur Radiol DOI 10.1007/s00330-017-5011-9.



Supplemental imaging of dense breasts with Invenia ABUS 2.0 can help patients avoid delayed diagnosis.

# Comfort for patients and users

The gentle shape of the Reverse Curve™ transducer follows the natural contour of the breast, providing patient comfort, full contact and helping ensure comprehensive coverage. The 15 cm large field-of-view transducer is easy to position and maintains even compression while scanning.

Since no two women are identical, exams can be customized with programmable scan protocols, adjustable scan depths and compression levels. With the touch of a button, the operator can also shorten scan time once breast tissue acquisition is complete.



# Intuitive and streamlined reading

The Invenia ABUS Viewer is designed for fast, efficient workflow for reading and reporting, allowing radiologists to quickly review, interpret and archive patient exams in 3 minutes<sup>10</sup> only, which offers remarkable time saving for physicians compared to hand-held ultrasound.

Based on Windows<sup>®</sup> 10 and powerful processing, the Invenia ABUS Viewer incorporates intuitive user interface icons and multiple viewing and hanging protocols, which can be customized by the user.

- Programmable hot keys enable users to define commonly used functions to help reduce keystrokes
- Three-view layout option displays a synchronized view of multiple acquisitions on a single screen, allowing physicians to efficiently evaluate and cross reference areas of interest from multiple angles and increase diagnostic confidence
- Auto Prior Compare allows physicians to easily compare a region of interest to prior exams

\*The software supports DICOM<sup>®</sup> 3.0, including: Store, Multi-frame, Media Exchange, Query/Retrieve and Structured Reporting.



# Committed to your success

## Implementation support

GE Healthcare takes a holistic approach to helping integrate Invenia ABUS 2.0 into your workflow. Our dedicated support team is available to help you implement your ABUS program and make it a success.

Users receive guidance and best practices from successful ABUS programs. Real-world samples and professionally designed templates are available. Recommendations for educating key audiences, workflow options and marketing strategies help you launch your ABUS program.

## Comprehensive education program

The Mastery Program for physicians is led by experienced and certified European peer educators to help rapidly build confidence to read Invenia ABUS 2.0 images. Technologist training is performed on-site for your convenience by the Advanced Application Team.

## ABUS Club

Users are encouraged to join this online community that offers imaging staff educational resources, as well as marketing tools and best practices from ABUS users, to help implement and grow your program.



## Imagination at work

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