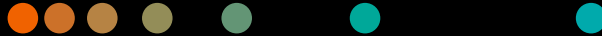


ACUSON Redwood Ultrasound System

# Pushing the boundaries of imaging, performance and value

[siemens-healthineers.com/ultrasound](https://siemens-healthineers.com/ultrasound)

*The clinical overlay is not that of the individual pictured.  
It was modified for better visualization.*



**SIEMENS**  
Healthineers 

# Addressing the needs of an aging population

The good news is that people are living longer – by 2020, the number of people aged 60 years and older will outnumber children younger than 5 years. Between 2015 and 2050, the proportion of the world's population over 60 years will nearly double from 12% to 22%. In 2050, 80% of older people will be living in low- and middle-income countries. Since the pace of population aging is much faster than in the past, all countries face major challenges

to ensure that their health and social systems are ready to make the most of this demographic shift<sup>1</sup>.

The reality of longer life spans includes the possible increased risk of chronic diseases that come with it – diseases that may require frequent monitoring and treatment. Subsequently, the demand for medical imaging services has never been greater – and that comes at a cost.

Healthcare providers are under constant pressure to increase the quality of patient care while keeping costs down. Primary health care centers can meet over 90% of the imaging needs of the population<sup>2</sup>. Enabling access to premium imaging services at the primary care level can improve continuity of care. Ultrasound, considered by physicians to be the imaging modality of choice for delivering excellent, cost-effective patient care<sup>3</sup>, needs to be able to meet the intense demand of a growing aging population.

## People are living longer

559 million people are 65+ years old



**+8.0%**  
by 2020

Increased risk of chronic disease and health management costs

## The Ever-growing Burden

38 million people die each year of chronic diseases



**+37%**  
by 2030

Healthcare need to strengthen early detection and timely treatment

## The Growing Demand

\$34 billion spent in 2019 on medical diagnostic imaging<sup>4</sup>



**+5.3%**  
by 2021

Need for affordable, more accurate and timely diagnostic solutions

## The Rising Star

516 million ultrasound scans in 2018 with up to \$7 billion spent on ultrasound equipment<sup>4</sup>



**+5%**  
by 2021

Increased demand for advanced imaging applications, portable, wireless

# The imaging demands of chronic diseases

It has been projected that, by 2020, chronic diseases will account for almost three-quarters of all deaths worldwide. 71% of these deaths will be due to cardiovascular disease<sup>5</sup>, creating an ever-increasing need for premium imaging services to be accessible and affordable for this aging population. Community-based healthcare providers need to be able to manage this increased patient load – primarily available from tertiary referral centers – cost-effectively while delivering high-quality imaging capability.

Users are tasked to work quickly and efficiently to enable timely diagnosis and better treatment for these chronic diseases. They need premium, portable imaging that is comparable to the quality of a radiology department right at the patient's bedside and all other care environments to provide easier local access for patients. And most of all, they need to be confident in the accuracy of the images that have been acquired.



# Introducing the ACUSON Redwood Ultrasound System

Pushing the boundaries of imaging, performance and value

There's finally an equalizer in the ongoing struggle for better clinical outcomes against the restraints of tight budgets. ACUSON Redwood is an ultrasound system that delivers on both. You get premium image quality, exceptional performance, greater workflow efficiency – and the bottom-line value your organization needs.

Managing the costs of treating the chronic diseases of a growing aging population requires an ultrasound system that delivers on all fronts.

## **Every idea starts with a challenge. Ours was this: transforming care delivery**

A new vision for medical imaging, ACUSON Redwood was developed by a team of focused innovators determined to make instantaneous imaging and early diagnosis more affordable and accessible to everyone. Good value that's good for patients and healthcare professionals globally.

## **Exceptional imaging with motion suppression**

Don't let patient and probe motion compromise image quality. Get superior color sensitivity, including at deeper depths<sup>6</sup>, from the reduction of flash artifact caused by motion. Siemens Healthineers patented Auto Flash Suppression Technology provides excellent contrast and detail resolution across a wide range of applications.

## **Greater efficiency**

Cut exam time with AI-powered tools including eSie Measure, eSie OB and eSie Left Heart, so users can focus on assisting their patients' needs and the continuity of quality care.

## **Accessibility**

Bring precision imaging to more patients – beyond the radiology department – with its lightweight portability, a highly functional, rear-handle system that is easy to move around.

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## **More value**

- **More use** – Efficient workflow can help boost your team's ability to provide quality imaging for more patients, faster.
  - **Fewer tests** – Potentially reduce the number of additional tests ordered due to inconclusive images while maintaining clinical confidence.
  - **Real-time service** – Maintain system integrity with regular updates and the latest cybersecurity protection utilizing DeviceGuard.
-

### Shared Service Cardiology

- Customizable measurement package
- Stress Echo
- Cardiac strain
- 2D TEE transducer
- Adult and pediatric imaging

### UltraArt Universal Image Processing

- Ultrasound the way you want – simple intuitive quad view for image effects

### Service Delivering Optimal Care

- Advanced Diagnostics Dashboard
- System and transducer diagnostic tests and reports
- Fast recovery with software partition
- Real-time customer support with eSieLink

### Portability

- Lightweight (87 kg, 191 lbs)
- Quiet operation
- Hibernate and quick boot functionality without the need for a battery



### 21.5" LCD Monitor

- High-resolution LCD flat panel ideal for flexibility
- Optimized for exceptional performance, gray scale utilization and auto calibration

### Harmonized User Interface

- Control panel and workflow alignment with ACUSON Sequoia platform embracing Siemens Healthineers User Interface (SHUI) design methodologies

### Virtual Touch Modes

- Strain, pSWE and 2D shear wave technologies

### Contrast Enhanced Ultrasound

- General Imaging and LVO applications
- Bubble longevity and sensitivity
- Increased ultrasound utilization

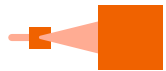
### Interchangeable Transducers

- Shared transducer portfolio with ACUSON Sequoia platform

# Imaging that inspires confidence

Image quality and better clinical outcomes have a direct correlation. Yet attaining high-performance and precision imaging are often in *direct conflict* with tight operational budgets. But now there's the ACUSON Redwood ultrasound system.

From the improved sensitivity<sup>7</sup> of our latest single-crystal transducer technology, to our next generation of coherent image formation (CIF) that highlights subtle tissue contrast differences, ACUSON Redwood delivers imaging with confidence.



## Coherent Image Formation (CIF) for Harmonic image

Using both Phase and Amplitude information to form an image, its improved alignment enables high resolution, high frame rate when compared to conventional<sup>6</sup> ultrasound systems.



## Single-crystal piezoelectric transducers for more sensitivity

Piezoelectric material is at the heart of any transducer. Single-crystal designs provide improved sensitivity and bandwidth where it's needed most in clinical applications for both abdominal and cardiac transducers. Wider bandwidths yield better harmonic imaging, axial resolution and greater sensitivity for deeper penetration and clearer imaging.



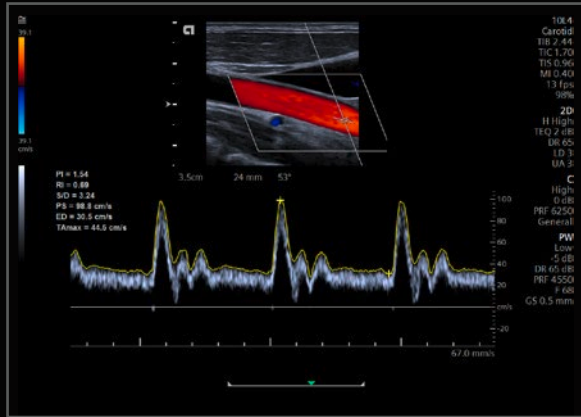
## UltraArt for greater sensitivity and quad display

Siemens Healthineers exclusive UltraArt Universal Image Processing brings you ultrasound the way you want it. Select your imaging preferences at the touch of a button using a real-time quad display. Improve the contrast resolution of different anatomical structures. Increase exam quality and consistency across different users by avoiding improper combinations of individual post-processing parameters.

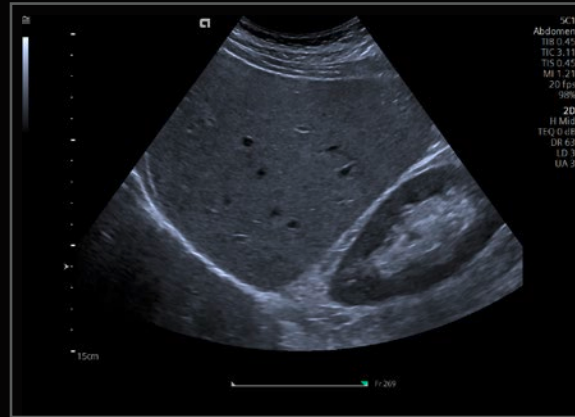


## Reduce your Burden with AutoTEQ

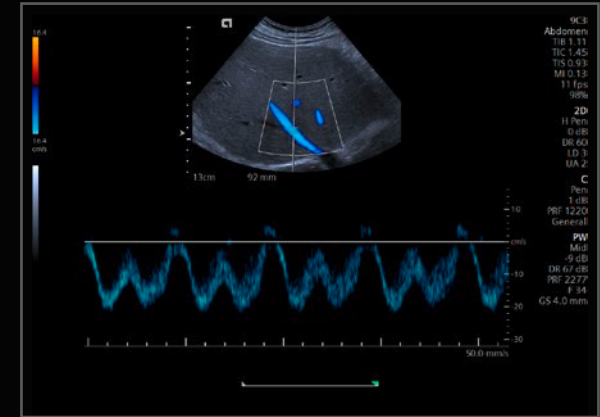
AutoTEQ tissue equalization technology automatically optimizes relevant parameters so that operator adjustments are kept to a minimum. Several acquisition parameters are available, in both B-mode and pulse wave imaging modes such as gain, velocity scale, and wall filter.



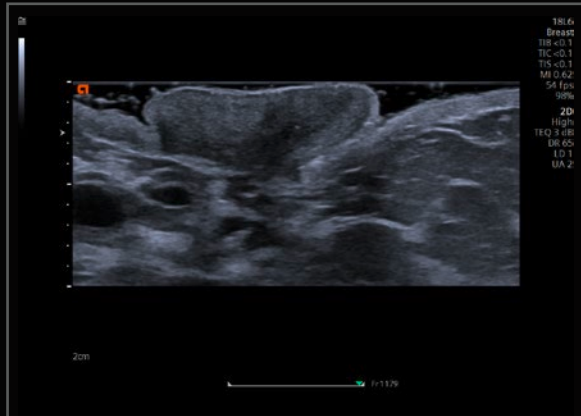
Color and Spectral Doppler image of the common carotid artery using the 10L4 transducer demonstrating the use of color flash suppression and Auto Measure. These technologies may help improve image quality and reduce exam time, resulting in increased diagnostic confidence.



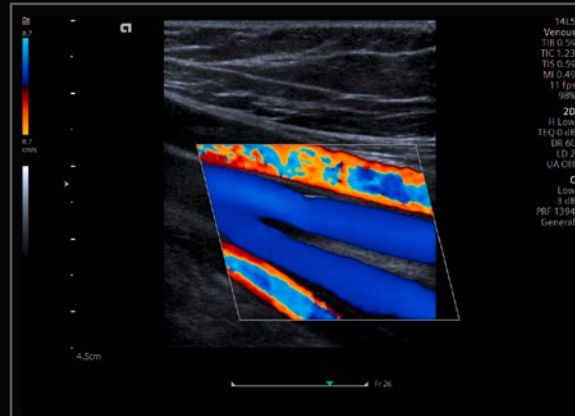
Sagittal image of the liver and right kidney utilizing the 9C3 transducer demonstrating excellent penetration, spatial and contrast resolution, as well as image uniformity from the near to the far field.



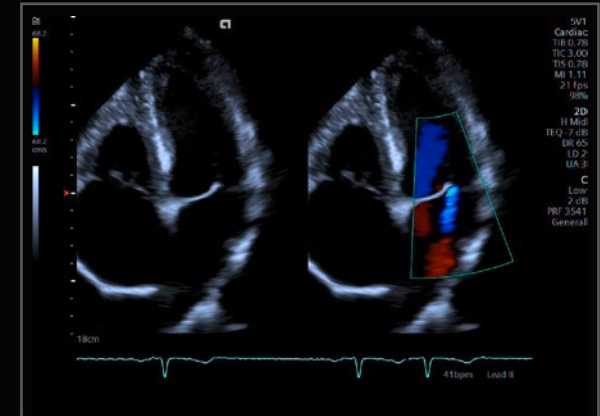
A transverse image of one hepatic vein showing exquisite color. Spectral Doppler may allow for greater diagnostic confidence and patient satisfaction due to decreased exam time.



18L6 transducer demonstrating excellent penetration without losing information behind the nipple.



14L5 sagittal image of the superficial and deep femoral veins as they form the common femoral vein. Exceptional spatial resolution and hemodynamic color flow are demonstrated.



Apical 4 chamber view with color flash suppression technology adjusts persistence relative to operator motion by reducing the amount of extraneous color speckle.

Data on file for all clinical applications

# Smart workflow for greater efficiency

The ACUSON Redwood system has an intuitive and efficient workflow that streamlines the scanning process so users can spend more time with their patients' diagnoses and treatments.

The ACUSON Redwood system was developed and refined from the input of hundreds of users globally with 170 workshop sessions and 600 Ultrasound users – and it shows. Its workflow is an orchestrated efficiency study – from those who know it best.

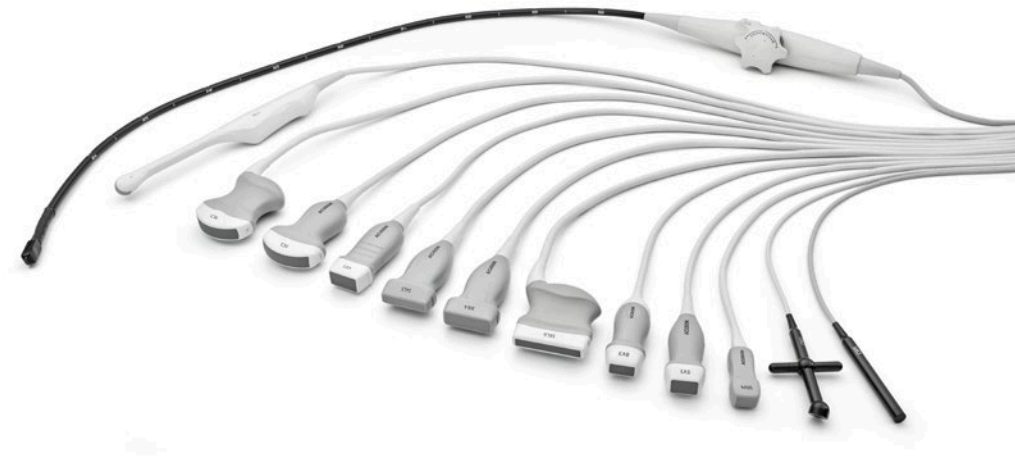
Also, with 1-Click Registration, the correct transducer and exam type is automatically selected for each patient, which further streamlines your workflow.

Tools powered by artificial intelligence (AI) may improve workflow efficiency, by removing manual processes, reducing the burden of mundane routine measurement, and could save examination time.

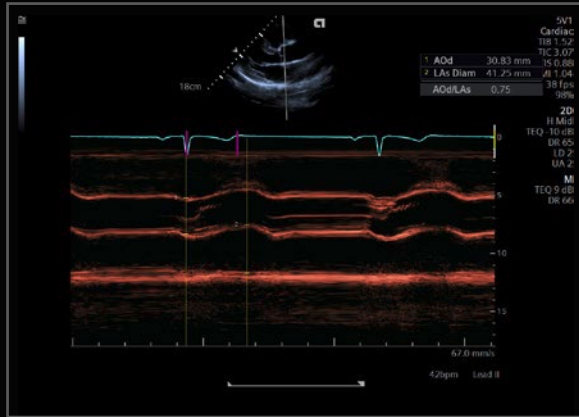
## Comprehensive Suite of Transducers

The ACUSON Redwood machine has a comprehensive suite of over 13 transducers supporting a diverse range of clinical applications.

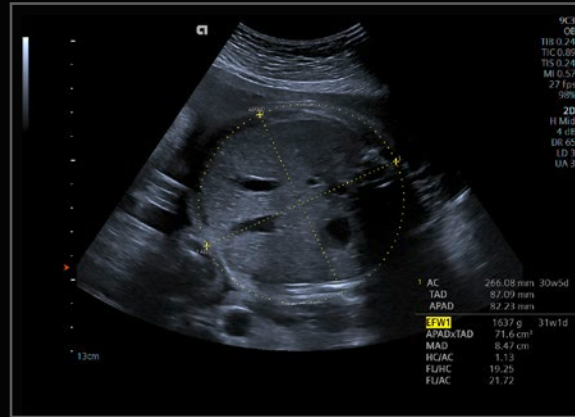
- **Complete Abdominal Solution** – Delivers diagnostic quality 2D, color and Doppler imaging superficially, at depth and everywhere in between
- **Comprehensive Cardiac Solution** – Addresses a full range of patient size, age and approaches
- **Compatibility and shared transducers with the ACUSON Sequoia ultrasound system** – Increases value and cost-effectiveness



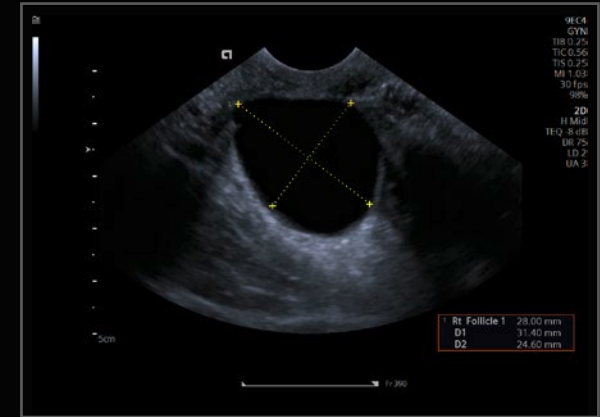




AI-Powered eSie Measure workflow package enables 1-click cardiac measurements for 2D, M-mode, and Doppler providing increased consistency and reproducibility while minimizing keystrokes.



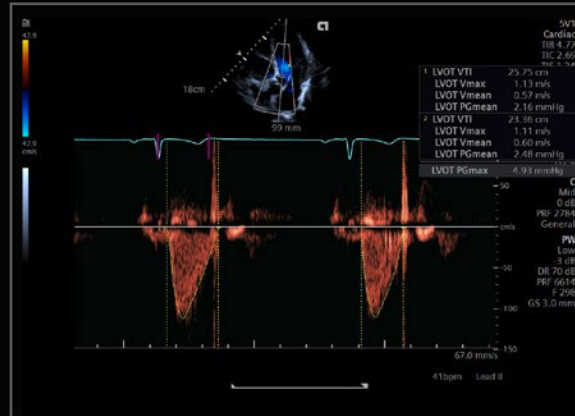
eSie OB provides automated biometric measurements for obstetric scanning. While this technology reduces scan time and keystrokes, it also increases exam consistency.



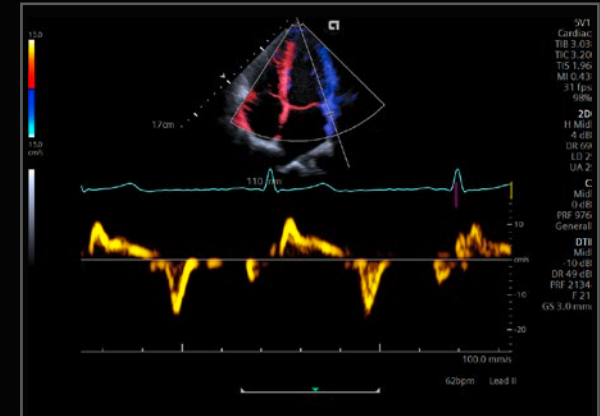
eSie Follicle automates measurement of follicles for fast and accurate assessment which may help reduce scan time and increase department consistency.



Using AI-powered technology, eSie Left Heart identifies and automatically contours the left ventricle and left atrium while improving consistency and reproducibility of left ventricular and left atrial quantification.



Spectral pulsed wave (PW) Doppler interrogation of the left ventricular outflow tract using eSie Measure one touch quantification reduces keystrokes and increases quantification reproducibility.



Color and Spectral Doppler Tissue Imaging (DTI) permits the assessment of myocardial motion using Doppler ultrasound imaging.

Data on file for all clinical applications

# Advanced applications for greater clinical confidence

Meeting the demand for early detection, diagnosis and timely treatment of a variety of chronic diseases is tremendously challenging for a physician. Ultrasound imaging must enable answers to a breadth of important clinical questions – fast. To do that in the most accurate and reproducible way, the ACUSON Redwood system offers a comprehensive suite of advanced applications.

## **Point Shear Wave (pSWE)**

Reproducible, reliable and detailed tissue stiffness information supporting liver assessment can be quickly and easily obtained using our one-touch point shear wave technology.

## **2D Shear Wave (SWE)**

Add another dimension to quantitative shear wave imaging with color-coded shear wave maps for the 10L4 transducer in the breast and thyroid.

## **Strain Elastography**

Virtual Touch strain elastography provides a simple and qualitative measure of lesion stiffness relative to the surrounding tissues.

## **Contrast-Enhanced Ultrasound (CEUS)**

Contrast Pulse Sequencing (CPS) and flash sequencing technologies enable greater diagnostic confidence in the characterization of focal liver lesions.

## ***syngo* Velocity Vector Imaging (VVI)**

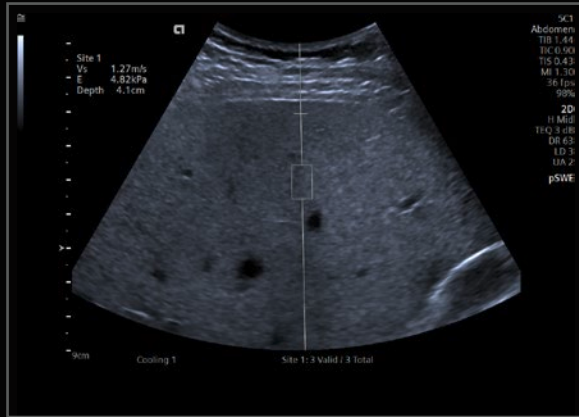
To address the increased use of speckle-tracking echocardiography, physicians need to non-invasively assess myocardial motion and mechanics.

## **Stress Echo**

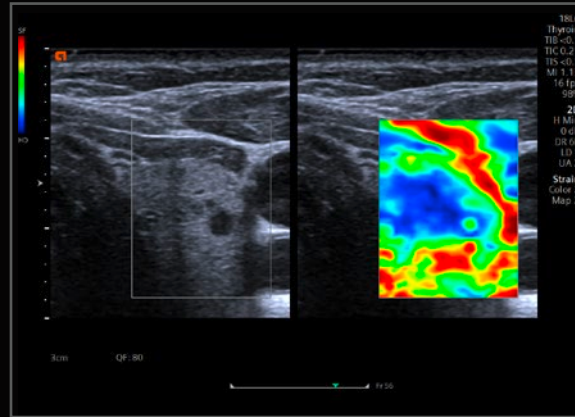
Comprehensive and flexible stress echo package includes configurable stress echo protocols and wall-motion scoring features.

## **Left Ventricular Opacification (LVO)**

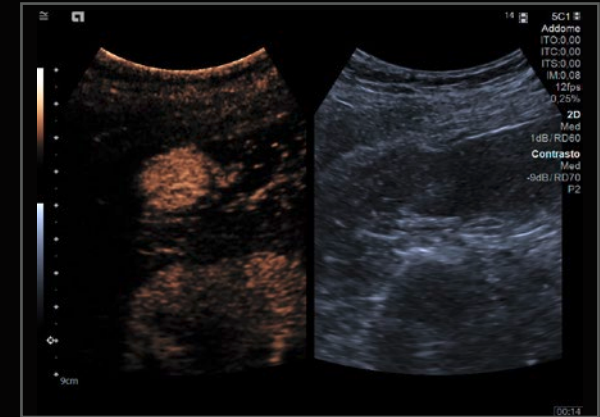
Confidently perform LVO studies. The intuitive touch-screen layout has been streamlined to only include the functions necessary for these cardiac studies. No visual clutter – users can focus on images, not interfaces.



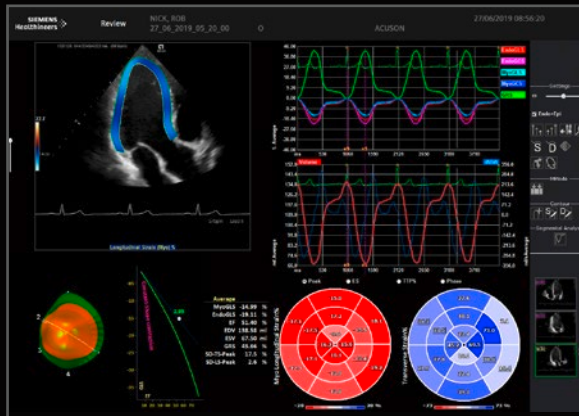
With Point Shear Wave Elastography (pSWE) it is easy to quickly obtain reliable, detailed and reproducible tissue stiffness information.



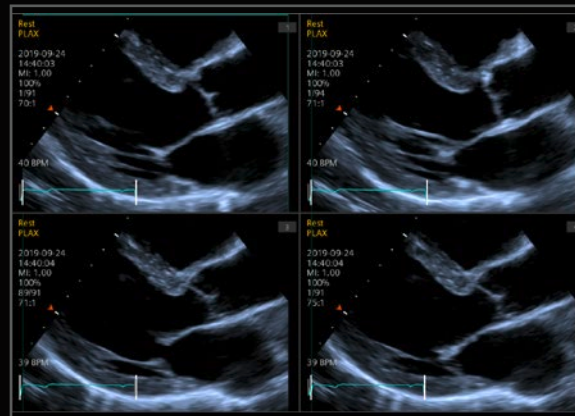
Virtual Touch Strain Elastography provides a simple and qualitative representation of lesion stiffness, relative to the surrounding tissue.



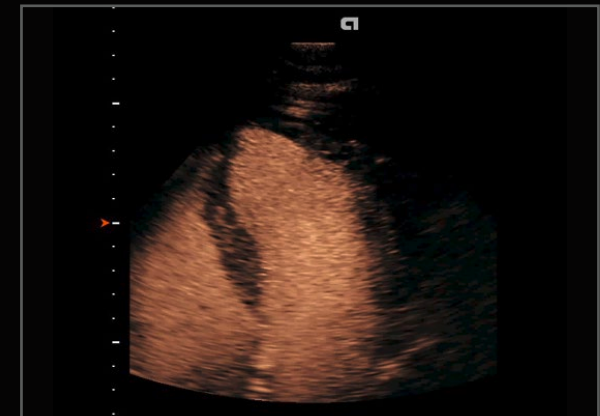
CEUS (contrast enhanced ultrasound) shows increased blood flow in the arterial phase. This technology may help physicians determine if a mass is malignant or benign.



syngo VVI is a non-invasive method to assess myocardial motion and mechanics that quantifies Global Longitudinal Strain (GLS), Global Radial Strain (GRS), and Global Circumferential Strain (GCS).



Stress Echo supports six user-definable factory default protocols and allows for prospective, retrospective and continuous image acquisition.



LVO technology consists of a variation of system output, or mechanical index (MI), improving signal-to-noise ratio and better penetration. LVO lowers the MI providing longer contrast duration.

Data on file for all clinical applications

# Committed to your unique service needs



SRS

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PEPConnect

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LifeNet

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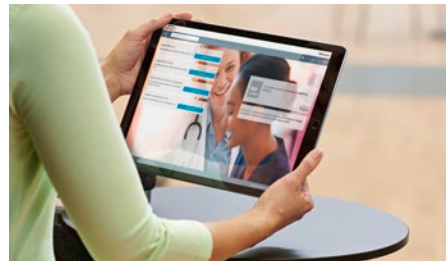
Our Customer Services portfolio is designed with flexibility in mind to meet your support needs throughout your system's lifecycle. Service offerings can be scaled to meet your specific performance, education and budget requirements. Your Siemens Healthineers team is committed and well connected to help you deliver exceptional patient care.

## **Protect your patients. Protect your investment.**

With cybersecurity on everyone's radar, maintaining the integrity of your system is paramount. That's why we provide regular, seamless service updates to your system to keep your assets secure over the entire lifecycle.

To reduce system downtime, Siemens Healthineers provides a robust set of remote platforms and services designed to help you maximize system performance, stay secure and enhance uptime.

## Real-time ultrasound needs real-time support



**Smart Remote Services (SRS)**, powered by eSieLink, is your rapid, secure connection to technical and clinical support.

- Communicate in real-time with experts from Siemens Healthineers when you need proactive and interactive services
- Diagnose and repair remotely with fast support to optimize your operational efficiency
- Receive software updates to protect against cyber threats

Remote technical support



Remote Assist



Remote software updates



**PEPConnect<sup>8</sup>** is your smarter connection to knowledge – designed to increase staff competency, efficiency and productivity.

- Engage in learning activities such as e-learnings, webinars, job aids, videos, virtual instructor-led events and more
- Create your own learning experience with an individual profile, plan and transcript to record your education
- Connect, communicate, and be part of social learning groups

Education experience



**LifeNet<sup>8</sup>** is your faster connection to insights. It is an online portal that allows you to manage the performance and maintenance of your Siemens Healthineers equipment, 24/7.

- Monitor efficiently by knowing the status of your equipment and service tickets at a glance
- Plan ahead and maximize your productivity by scheduling upcoming upgrades, maintenance and training
- Manage effectively with access to in-depth service and equipment reports

Manage effectively



Plan ahead



Monitor efficiently



# Ultrasound serving the greater good and your bottom line

With the tremendous growth of our aging population comes a pressing need to manage the accompanying chronic diseases that come with it.

More patients than ever need access to the best services for early detection, diagnosis and timely treatment. The cost to provide that care can be prohibitive for budget-constrained health systems, that's why we've created an ultrasound system that delivers on all fronts – without compromise.

ACUSON Redwood provides an affordable, portable, high-performance ultrasound system that produces premium imaging with every scan – from bedside to exam room to Radiology. Get the clinical confidence you need for better outcomes. Get the improved efficiency and utilization you need in the fight against shrinking budgets and rising healthcare costs.

At Siemens Healthineers, we're in it together to help you manage giving the best care possible to this growing aging population. May we all be lucky enough to join it.



The products / features mentioned in this document may not be commercially available in all countries. Due to regulatory reasons their future availability cannot be guaranteed. Please contact your local Siemens Healthineers organization for further details.

Stand-alone clinical images may have been cropped to better visualize pathology.

ACUSON Redwood, ACUSON S3000, ACUSON Sequoia, Auto TEQ, Doppler tissue imaging capability (DTI) eSie Left Heart, eSieLink, eSie Measure, UltraArt, Velocity Vector Imaging technology (VVI) and Virtual Touch are trademarks of Siemens Medical Solutions USA, Inc.

DEVICE GUARD is a trademark of Microsoft Corporation.

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At Siemens Healthineers, our purpose is to enable healthcare providers to increase value by empowering them on their journey towards expanding precision medicine, transforming care delivery, and improving patient experience, all enabled by digitalizing healthcare.

An estimated 5 million patients globally everyday benefit from our innovative technologies and services in the areas of diagnostic and therapeutic imaging, laboratory diagnostics and molecular medicine, as well as digital health and enterprise services.

We are a leading medical technology company with over 170 years of experience and 18,000 patents globally. With more than 48,000 dedicated colleagues in 75 countries, we will continue to innovate and shape the future of healthcare.

#### Endnotes

<sup>1</sup> World Health Organization (WHO): Ageing and Health (<https://www.who.int/news-room/fact-sheets/detail/ageing-and-health>), WHO: Ten Facts on Ageing and Health (<https://www.who.int/features/factfiles/ageing/en/>) and United Nations World Population 2017 ( [https://population.un.org/wpp/Publications/Files/WPP2017\\_Wallchart.pdf](https://population.un.org/wpp/Publications/Files/WPP2017_Wallchart.pdf))

<sup>2</sup> Innovative Technology in Addressing Global Health Issues: The WHO Perspective ([https://www.who.int/diagnostic\\_imaging/imaging\\_modalities/InnovativeTechAddressingGlobalHealthIssues\\_WHOperspective.pdf?ua=1](https://www.who.int/diagnostic_imaging/imaging_modalities/InnovativeTechAddressingGlobalHealthIssues_WHOperspective.pdf?ua=1))

<sup>3</sup> Training in Diagnostic Ultrasound: Essentials, Principles and Standards Report of a WHO Study Group World Health Organization <https://www.ncbi.nlm.nih.gov/pubmed/9659004>

<sup>4</sup> Medical Imaging Market – Global Outlook and Forecast 2018-2023 Arizton

<sup>5</sup> World Health Organization: The Global Burden of Chronic Disease ([https://www.who.int/nutrition/topics/2\\_background/en/](https://www.who.int/nutrition/topics/2_background/en/))

<sup>6</sup> When compared to the ACUSON S3000 ultrasound system.

<sup>7</sup> When compared to 6C1HD with the ACUSON S3000 ultrasound system.

<sup>8</sup> Included in every purchase.

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