SIEMENS Healthineers

ACUSON Sequoia 3.5 Customer Presentation

Clarify with Confidence

July 2025

Our long story of success

SIEMENS Healthineers


Röntgen


Von Behring

1901
Nobel prize winners
(Physics and Medicine)

1896

First industrially manufactured medical X-ray unit

1909

The fastest X-ray device of its time

1933

Our first rotating anode X-ray tube

1953

First device for echocardiography

1956

First ever dry chemistry testing for glucose in urine

1957

First fully automated discrete chemistry analyzer for whole blood or serum

1958

First nuclear medicine scanner from Siemens

1964

First glass electrode for blood-gas analysis

1967

World's first real-time ultrasound scanner

1975

Our first CT scanner

1983

First Siemens MRI scanner

1990

World's first spiral CT scanner

1991

First point-of-care HbA1c analyzer

1998

Our first track-based laboratory automation system

1999

First intuitive medical IT platform from Siemens

2001

Our first PET/CT system

2005

World's first Dual Source CT scanner

2008

Robotic-assisted angiography system

2009

Multi-modality 3D imaging software

2011

First integrated, simultaneous whole-body MRI and PET

2012

Wireless transducers for ultrasound

2014

"Free breathing" CT scanning with dual X-ray sources and detectors

2014

Cloud-based network: teamplay

2015

Wide-angle image Acquisition breast tomosynthesis

2015

The first research 7T MRI: MAGNETOM 7T


First Twin Robotic X-ray for better patient care and productivity

2016

Liquid biopsy


Cinematic rendering for 3D medical imaging

2017

Lab diagnostics solution for immunoassay & clinical chemistry: Atellica® Solution


A whole new world of precision: Biograph Vision

2017

Mobile operations for closer patient interaction: SOMATOM go.platform


MRI technology adapting to human nature: BioMatrix


FAST 3D Camera – automated precise patient positioning


Blood gas testing available at the patient's side

2018

More than 40 AI-enriched offerings

2018

AI-Rad Companion Chest CT to mark and measure potential abnormalities


Software for remote scanning assistance: *syngo*.Virtual Cockpit[1]


Innovision: Planned to redefine the MRI experience[2]


epoc system: first handheld blood gas analyzer powered by Android

2019

AI-enabled user guidance system: myExam Companion

2019

MR Fingerprinting[3]: Leverage quantitative data to understand more precisely a patient's condition


ARTIS icono enables a wide procedure mix and multi-disciplinary usage


CT imaging of the head at the point of care: SOMATOM On.site


Multi-modality imaging decision support with AI-Rad Companion[4]


AIDAN Artificial Intelligence for Molecular Imaging

2020

Breaking barriers to expand the reach of MRI: MAGNETOM Free.Max


Syngo Carbon[5]: New software environment for enterprise imaging and reporting


In-vitro diagnostic assays[6,7] for SARS-CoV-2 detection


Biograph Vision Quadra™ 106 cm axial PET field of view for simultaneous whole-body imaging

2021

NAEOTOM Alpha®: The world´s first photon-counting CT


8-minute finger-stick test for high-sensitivity troponin I[8]


Addition of an integrated portfolio for fighting cancer through joining forces with Varian


Partners in cancer care: Value Partnerships| Oncology


Disruptively simple approach to MRI: MAGNETOM Free.Star

2025

MAGNETOM Cima.X & MAGNETOM Terra.X[9]


MAGNETOM Viato.Mobile[9]


Halcyon® and Ethos™ radiotherapy system featuring HyperSight™ imaging solution

2023

Self-driving mobile 3D C-arm: CIARTIC Move – Move like never before[10]


SOMATOM Pro.Pulse[11]: Unlock Dual Source technology. Everywhere.

We pioneer breakthroughs in healthcare.
For everyone. Everywhere. Sustainably.

Innovating **personalized care**

Achieving **operational excellence**

Transforming **the system of care**

Future

The products/features (mentioned herein) are not 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. | **1** *syngo*.Virtual Cockpit is not commercially available in all countries. Due to regulatory reasons its future availability cannot be guaranteed. Precondition: Expert-i enabled modality from Siemens Healthineers. | **2** Innovision is still under development and not commercially available yet. It is not for sale in the US. Its future availability cannot be ensured. | **3** The product / feature is not for sale in the U.S. Its future availability cannot be guaranteed. | **4** Several devices of AI-Rad Companion are planned and under development, not commercially available in all countries, and their future availability cannot be ensured. | **5** Syngo Carbon consists of several products which are (medical) devices in their own right. Some products are under development and not commercially available. Future availability cannot be ensured. | **6** These SARS-CoV-2 molecular and serology tests have not been FDA cleared or approved. These tests have been authorized by FDA under an EUA for use by authorized laboratories. The molecular test has been authorized only for the detection of nucleic acid from SARS-CoV-2, not for any other viruses or pathogens. The serology test has been authorized only for detecting the presence of antibodies against SARS-CoV-2, not for any other viruses or pathogens. These tests are only authorized for the duration of the declaration that circumstances exist justifying the authorization of emergency use of in vitro diagnostics for detection and/or diagnosis of COVID-19 under Section 564(b)(1) of the Act, 21 U.S.C. § 360bbb-3(b)(1), unless the authorization is terminated or revoked sooner. | **7** The Siemens Healthineers lab and POC antigen assays are not available for sale in the U.S. Product availability may vary by country and is subject to regulatory requirements. | **8** The product / feature is not for sale in the U.S. Its future availability cannot be guaranteed. | **9** The products are still under development and not commercially available yet. Their future availability cannot be ensured. Siemens Healthineers neither intends, nor assumes any obligation, to update or revise these forward-looking statements in light of developments which differ from those anticipated. | **10** CIARTIC Move is pending 510(k) clearance, and is not yet commercially available in the United States. | **11** SOMATOM Pro.Pulse is pending 510(k) clearance, and is not yet commercially available in the United States.

Our unique capabilities

Reflected in our broad and deep portfolio

Patient Twinning[1]

Imaging

A market leader in diagnostic imaging with systems for

- Computed Tomography
- Magnetic Resonance
- Molecular Imaging
- Ultrasound
- X-Ray/Fluoroscopy
- Mammography Systems
- Digital Health Solutions
- Imaging Software and IT

Key clinical specialties

- Radiology
- Nuclear Medicine

Diagnostics

Accurate and timely test results plus, workflow excellence for lab and point-of-care settings

- Reagents, consumables and analytical instruments for testing
- Automation and IT systems
- Consulting and project management

Key clinical specialties

- Laboratory, molecular, and point-of-care diagnostic tests for nearly every disease and every healthcare setting

Precision Therapy

Varian

Cancer treatment ecosystem for streamlined, comprehensive patient-centric care

- Radiation Therapy
- Brachytherapy
- Proton therapy
- Radiosurgery
- Interventional Solutions

Key clinical specialties

- Radiation Oncology
- Interventional Oncology
- Radiosurgery

Advanced Therapies

Empowering advanced therapy concepts

- Angio Suites
- Cath Labs
- Hybrid ORs
- Mobile C-arms
- Multi-modality imaging solutions

Key clinical specialties

- Interventional Radiology
- Cardiology
- Surgery

Digital, Data and AI

Customer Services

Digitally-enabled and available in customizable service plans

- UpTime Services
- UpSpeed Services
- UpSkill Services
- UpLift Services
- UpTeam Services
- UpScale Services

Value Partnerships

Long-term, performance-oriented, collaborative commitments, focusing on

- Technology
- Operations
- Workforce
- Facility
- Strategic Transformation
- Digital Innovation

Note: The products mentioned above are not 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.

1 Patient Twinning is currently under development. It is not for sale. Its future availability cannot be guaranteed.

Global market dynamics – Staff shortage

The world is projected to be short of

10 million

healthcare workers by 2030[1]

- **Growing** world population
- Staff **retiring**
- Internal and international **migration**
- Staff **leaving** for better paid jobs
- **Not enough** young people enter profession/being adequately trained

1.6

practicing doctors per 1,000 population globally[2]

Consequence: Sourcing, attracting, and retaining experienced employees are among the top challenges globally. From a healthcare provider perspective, there are two ways to address these topics: With concepts to increase labor efficiency and by improving the attractiveness as employers, e.g., through education programs.

1 WHO: https://www.who.int/health-topics/health-workforce#tab=tab_1 viewed November 22nd, 2023
2 WHO: https://www.who.int/data/gho/data/indicators/indicator-details/GHO/medical-doctors-(per-10-000-population) viewed November 2nd, 2025

We are shaping the sustainability journey of the healthcare industry together

SIEMENS Healthineers

>3 bn

people lack coverage of essential health services[1]

4.4%

global GHG emissions generated by healthcare[2]

<33%

of senior and middle management positions globally occupied by women[3]

We are taking action by

Improving **healthcare access** for all

- Empowering healthcare providers to reach underserved communities
- Diagnosing diseases early and shifting to preventive care
- Strengthening healthcare workforce capacity and capability by providing education and training

Preserving our **planet's resources**

- Becoming net zero by 2050 by driving decarbonization across our value chain
- Transitioning to a circular economy and adopting sustainable design
- Supporting healthcare providers to achieve their sustainability targets

Developing **diverse & engaged Healthineers**

- Increasing the proportion of women in senior leadership roles as well as other forms of diversity
- Continuing to strive for highest levels of engagement and being recognized as one of the best places to work

- Combining local expertise at global scale with employee-led initiatives, and global and regional partnerships
- Creating sustainable value through responsible business, transparent reporting and leadership

1 WHO: https://www.who.int/news/item/13-12-2017-world-bank-and-who-half-the-world-lacks-access-to-essential-health-services-100-million-still-pushed-into-extreme-poverty-because-of-health-expenses
2 Karliner J, Slotterback S, Boyd R, Ashby B, Steele K, Wang J. Health Care's climate footprint: the health sector contribution and opportunities for action. European Journal of Public Health, volume 30, issue supplement_5, September 2020
3 UN Economic and Social Council (2017). Progress towards the Sustainable Development Goals: Report of the Secretary-General (E/2017/66)

Ultrasound has a wide, sustainable footprint across the globe

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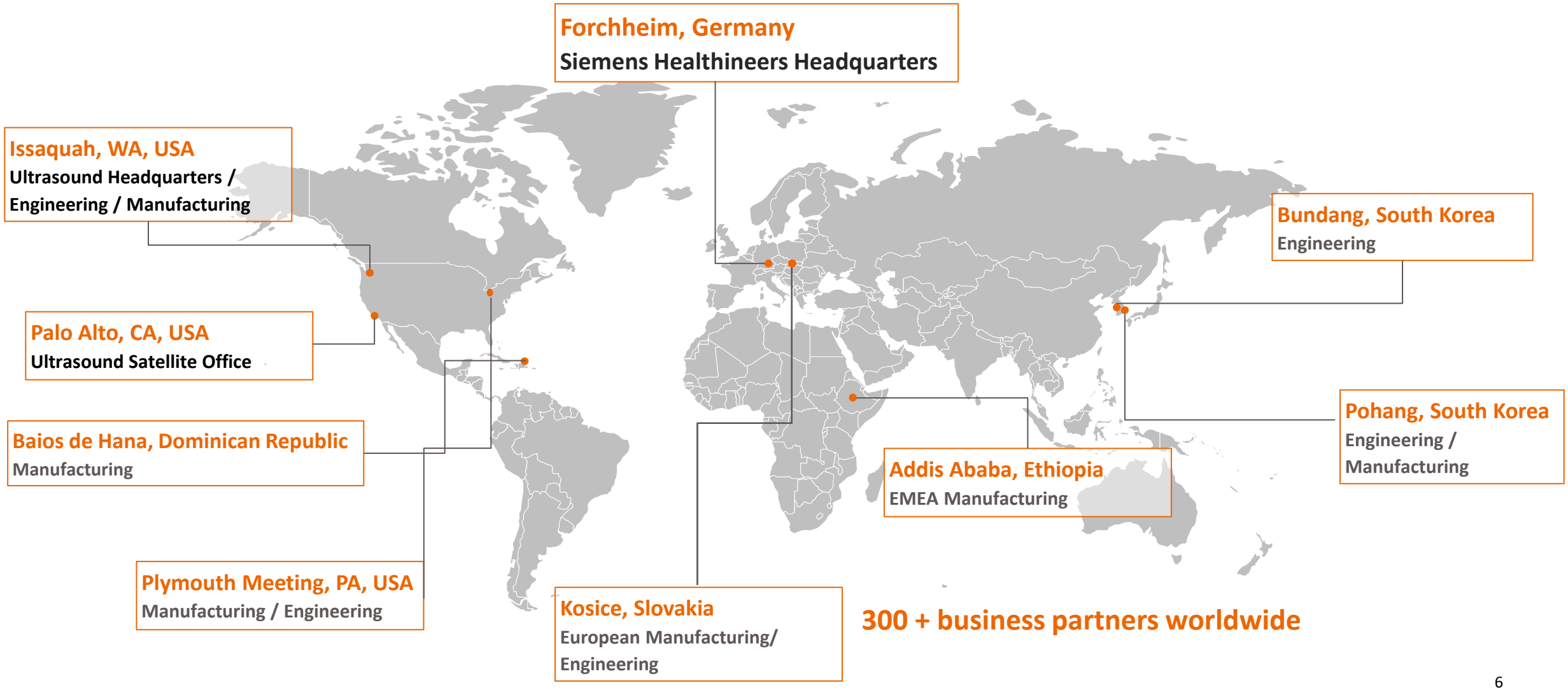
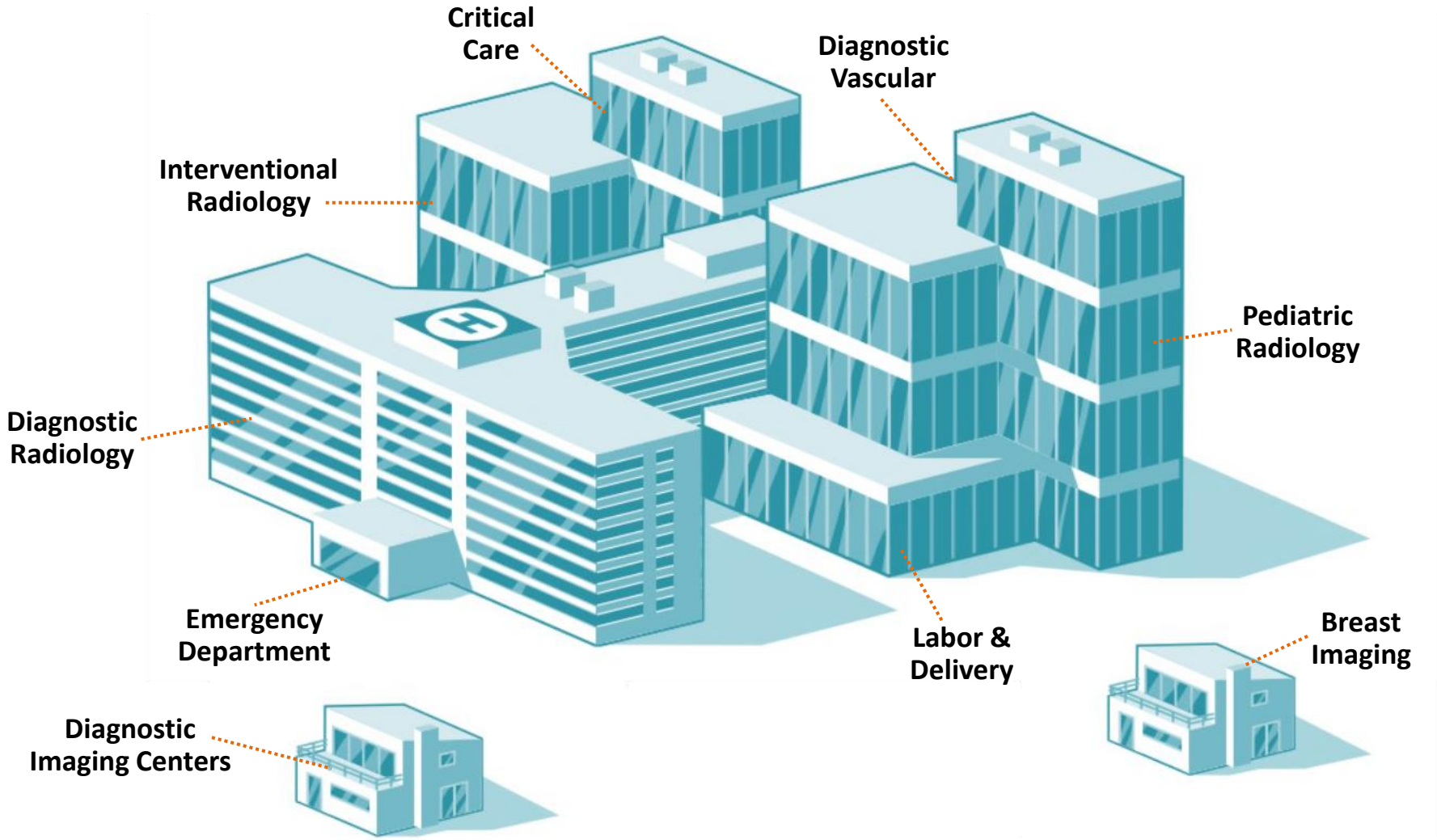


Siemens Healthineers has the youngest ultrasound portfolio

With a commitment to continue purpose-driven innovation

	Ultra Premium	Premium	High Performance	Performance	Portable	Wireless
Cardio-vascular (CV)	 ACUSON Origin	 ACUSON Redwood CV	 ACUSON Juniper CV	 ACUSON NX Series	 ACUSON P500 ICE	 ACUSON Freestyle
General Imaging (GI): RAD/Shared Service	 ACUSON Sequoia Series	 ACUSON Redwood Series	 ACUSON Juniper Series	 ACUSON Maple	ACUSON Freestyle  ACUSON P500	 ACUSON Freestyle

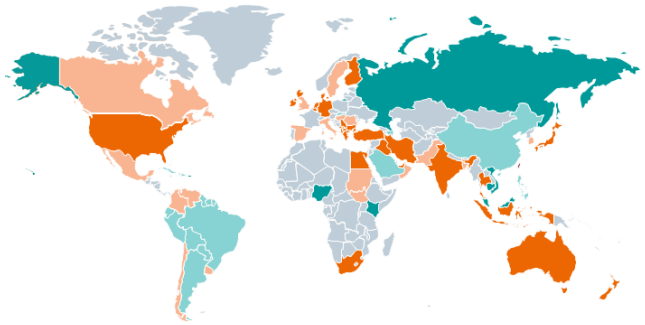
Demand for ultrasound is growing across every healthcare system



We are focused on solving big clinical challenges

Liver Disease

30% **global MASLD prevalence[1]**

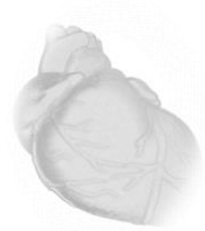


Breast Cancer

>2 million

Worldwide, over 2.25 million **new breast cancer cases** were diagnosed in 2025[2]

Cardiovascular



Heart Failure

Structural Heart Disease (SHD)

Coronary Artery Disease (CAD)

Arrhythmias/EP

[1] YipTC,VilarGomezE,PettaS,YilmazY,WongGL,AdamsLA,etal.GeographicalsimilarityanddifferencesintheburdenandgeneticpredispositionofNAFLD. Hepa-tology2023;77(4):1404–27.doi:10.1002/hep.32774.

[2] Breast cancer care (siemens-healthineers.com)

Our focus on AI in ultrasound is rooted in addressing our customers' pain points

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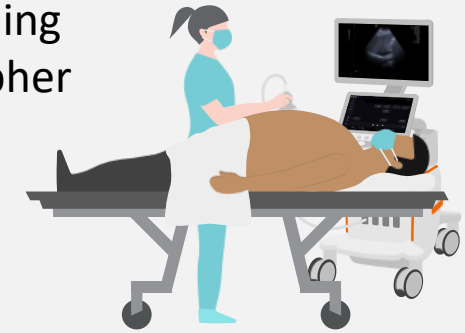
Customers are facing increasing shortage of trained workforce

Improving **workflow**, automation and quantitative measurements to leverage a broader workforce and lower dependency on declining sonographer base.



90% of ultrasound users are scanning in pain[1]

Embracing automation and Artificial Intelligence to help **reduce exam time** while improving ergonomics and diagnostic confidence.

Standardization is key to drive better outcomes, consistently

Implementing procedure specific protocols and out-of-the-box advanced quantification enables **standardization**; simplified software maintenance allows for better fleet management.

[1] Evans K, Roll S, Baker J. Work-Related Musculoskeletal Disorders (WRMSD) Among Registered Diagnostic Medical Sonographers and Vascular Technologists

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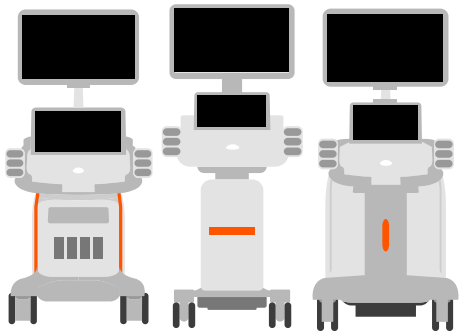
ACUSON Sequoia

Clarify with Confidence

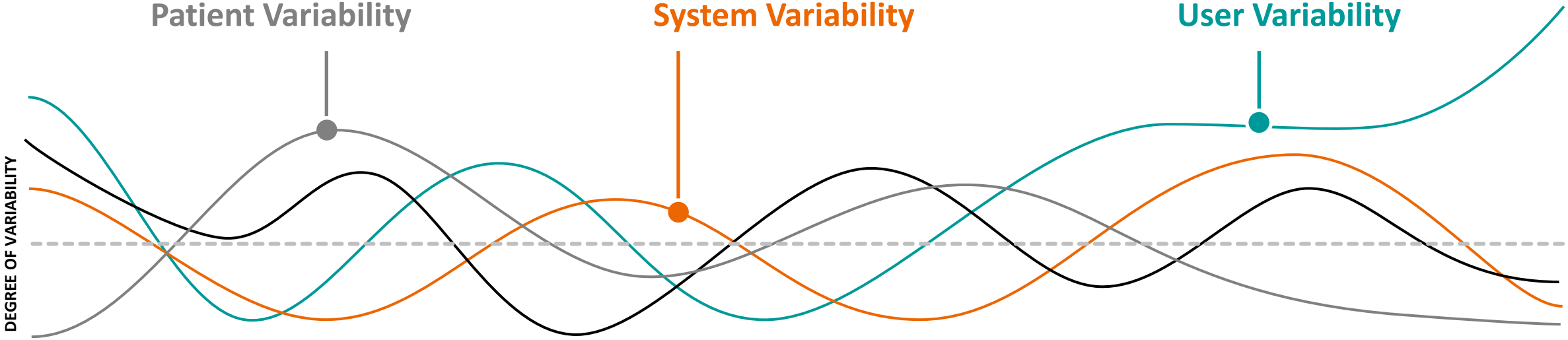
Ultrasound’s potential has been limited by unwarranted variability

Patient Variability



System Variability

User Variability



Reduce unwarranted variations for continuous improvement

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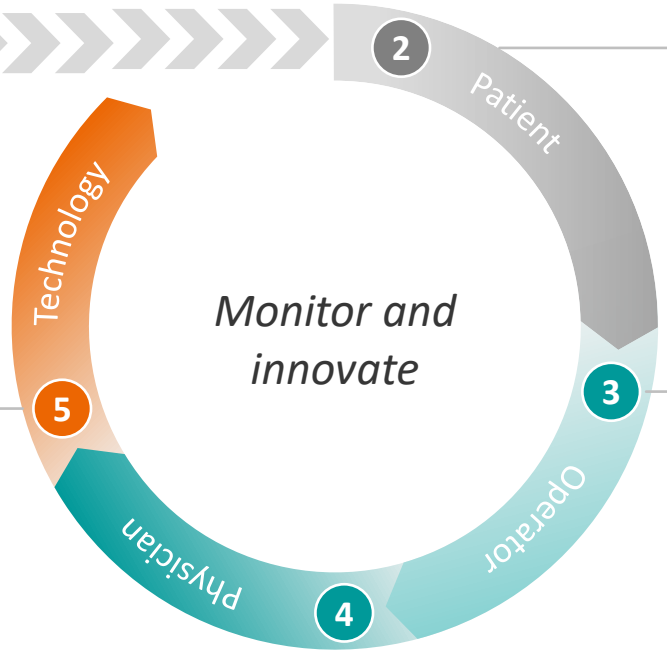
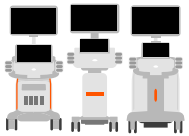
Consensus on best-practice standards

Achieve consensus on best-practice standards while implementing continuous improvements.



Adapt to patients' individual needs

Reduce unwarranted variations by adapting technology to patients' individual needs.



Enable reproducibility of technology

Reduce unwarranted variations by implementing reproducible technology.

Support operator through automation

Reduce operator variations by increasing levels of automation.

Assist decision-making of physician

Reduce variations in care paths by assisting decision-making of physicians.

ACUSON Sequoia is the youngest premium system in the market significantly improving addressability over time

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Investment Security

Expanding clinical excellence across use cases

Sequoia 1.0	Sequoia 1.1/1.2/1.3	Sequoia 2.0/2.5	Sequoia 3.0	Sequoia 3.5
				+AI Deep Learning Tools
				+ GI/Abdomen
			+ Cardiology	**+ Cardiology**
		+ OB	OB	OB
		+ MSK	MSK	+ MSK
		+ Breast	Breast	+ Breast
	+ Hepatology	Hepatology	Hepatology	Hepatology
	+ Pediatrics	Pediatrics	Pediatrics	Pediatrics
	+ Vascular	Vascular	Vascular	Vascular
+ Radiology	Radiology	Radiology	Radiology	Radiology

ACUSON Sequoia is designed to help you improve diagnostic confidence and patient outcomes

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Intelligent Imaging

Experience powerful imaging and reduced variability with automation in each major mode and a wide selection of advanced transducers.

- InFocus Imaging
- UltraArt
- Freehand 3D
- Advanced transducers

Expanded Insights

Expand your expertise with advanced tools and AI innovations designed to improve diagnostic confidence and patient outcomes.

- AI Abdomen
- AI Cardiology
- 2D Next-Gen SWE
- UDFF

User-Driven Design

Embrace advanced productivity with AI powered tools and an intuitive design for the ultimate user experience.

- Walk-up Usability
- Workflow
- Gesture Detection

Intelligent Imaging

Experience powerful imaging and reduced variability with automation in each major mode and a wide selection of advanced transducers.

Technologies designed to help improve patient outcomes

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InTune

Transducer Technology

InFocus

Fully Focused Imaging

Color Automation

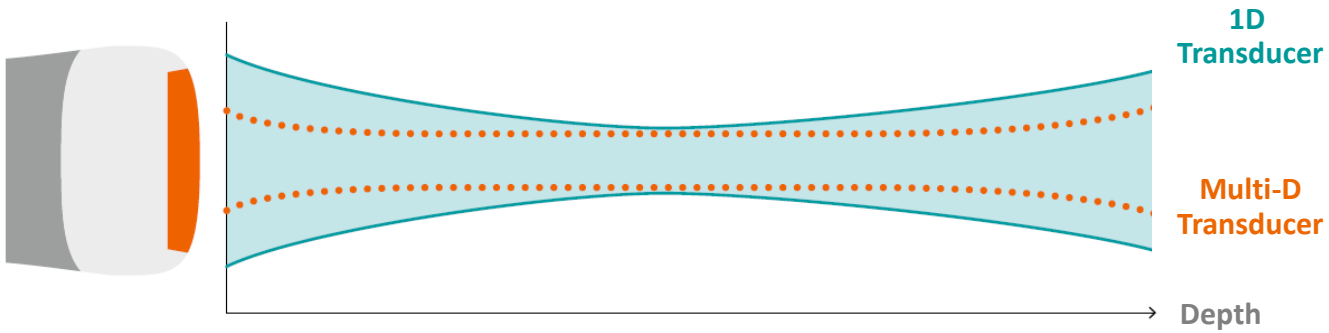
Artifact Reduction

Slow Flow

Micro Vascular Enhancement

Employing an advanced form of Multi-D beam formation

Eliminating limitations in difficult patients with DAX



The advanced Multi-D beam formation of the DAX controls the beam thickness and beam formation providing a new standard in deep abdominal imaging.

DAX Transducer

Reducing excessive transducer pressure

70%

Less force required

1 Compared to conventional ultrasound system

DAX transducer improving diagnostic confidence and reducing unnecessary follow-up in challenging exams

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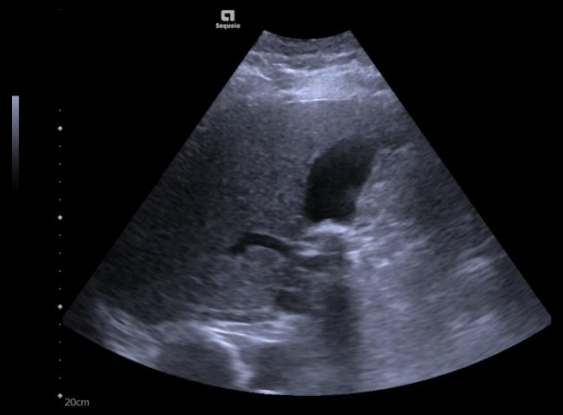
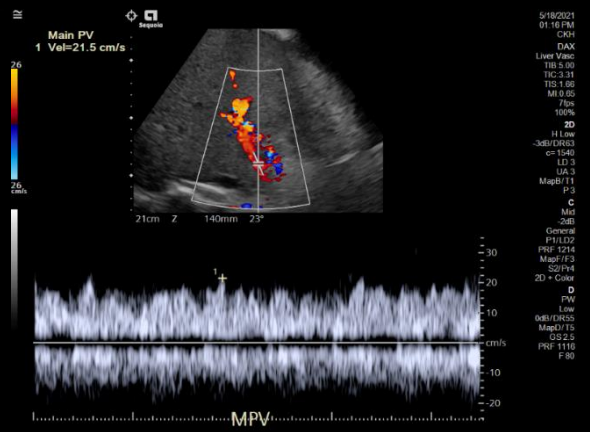
ACUSON Sequoia with DAX

Conventional Technology

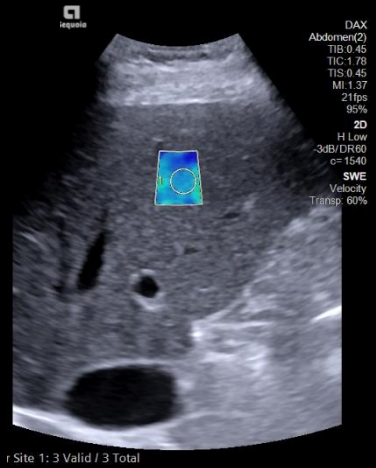
B-Mode



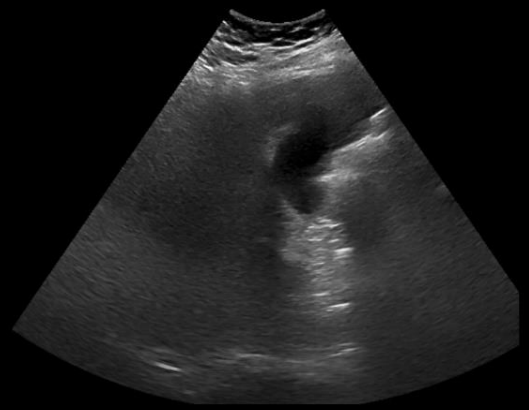
Color/PW

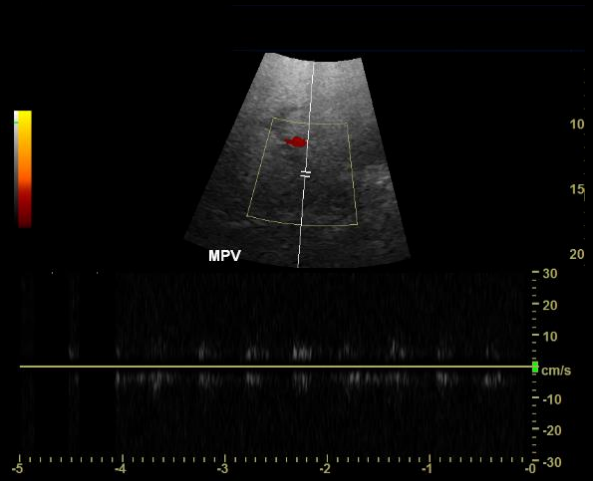


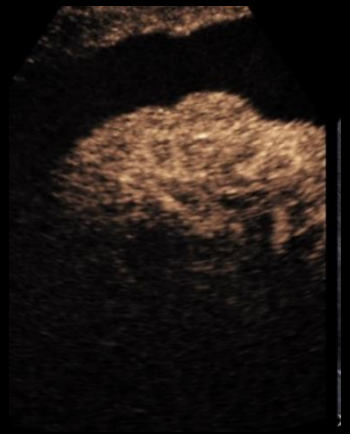
Elastography



CEUS

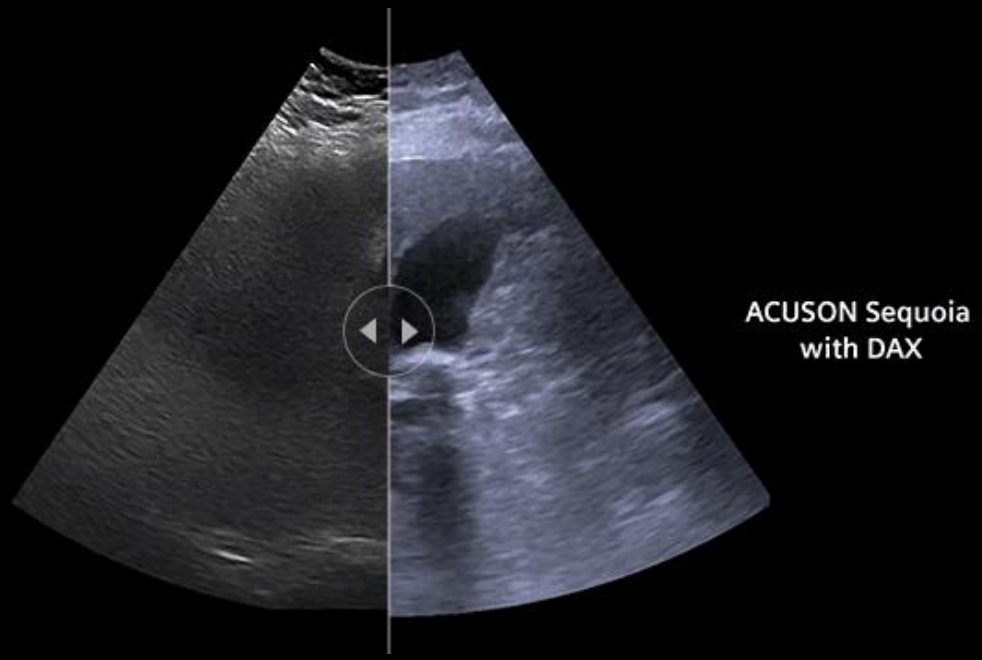






Benefits of DAX transducer 69-year-old male – BMI 41.6

Indication – Abdominal pain (severe obesity)



ACUSON Sequoia identified multiple mobile gallstones not visualized on the conventional ultrasound technology

Conventional Ultrasound Results

- Limited due to body habitus
- Unable to obtain quality color in portal vein or hepatic veins

ACUSON Sequoia Results

- Full qualitative liver evaluation
- Good color Doppler Portal & Hepatic Veins
- Multiple mobile gallstones

RUQ pain, Hx Cirrhosis, transplant list

29-year-old female – BMI 30

Conventional ultrasound findings:

- Occlusive thrombus in main portal vein
- Technically limited exam

Follow-up imaging:

CT showed patent portal vein consistent with Sequoia

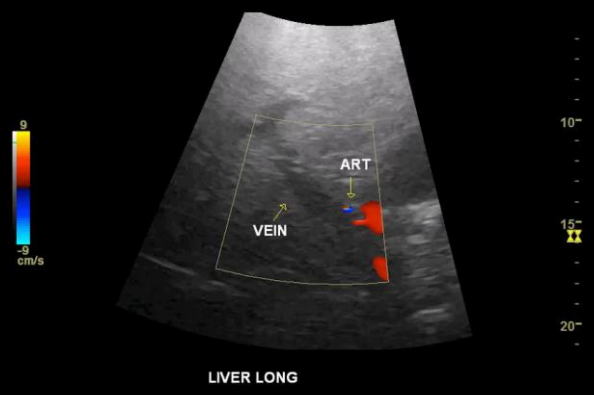
ACUSON Sequoia results:

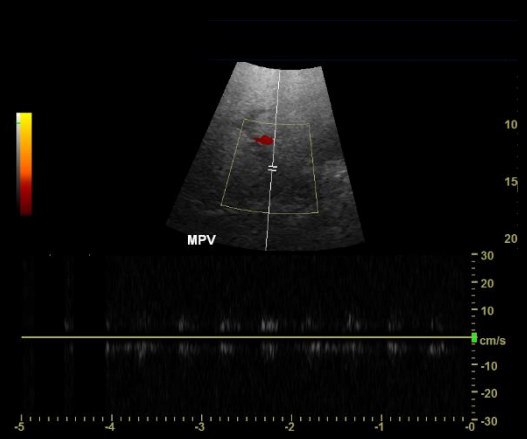
- Patent portal vein
- Complete abdominal exam

Clinical impact:

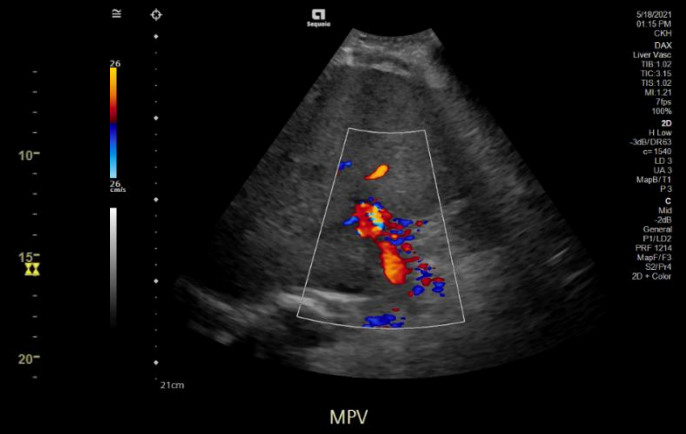
Sequoia with DAX would eliminate the need for follow-up exam to CT

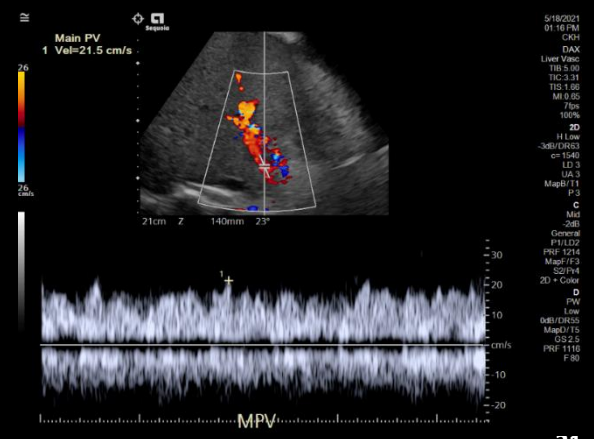
Conventional Transducer





ACUSON Sequoia with DAX





Case Study Courtesy of Richard Barr MD, PhD

HLX High-frequency linear transducer

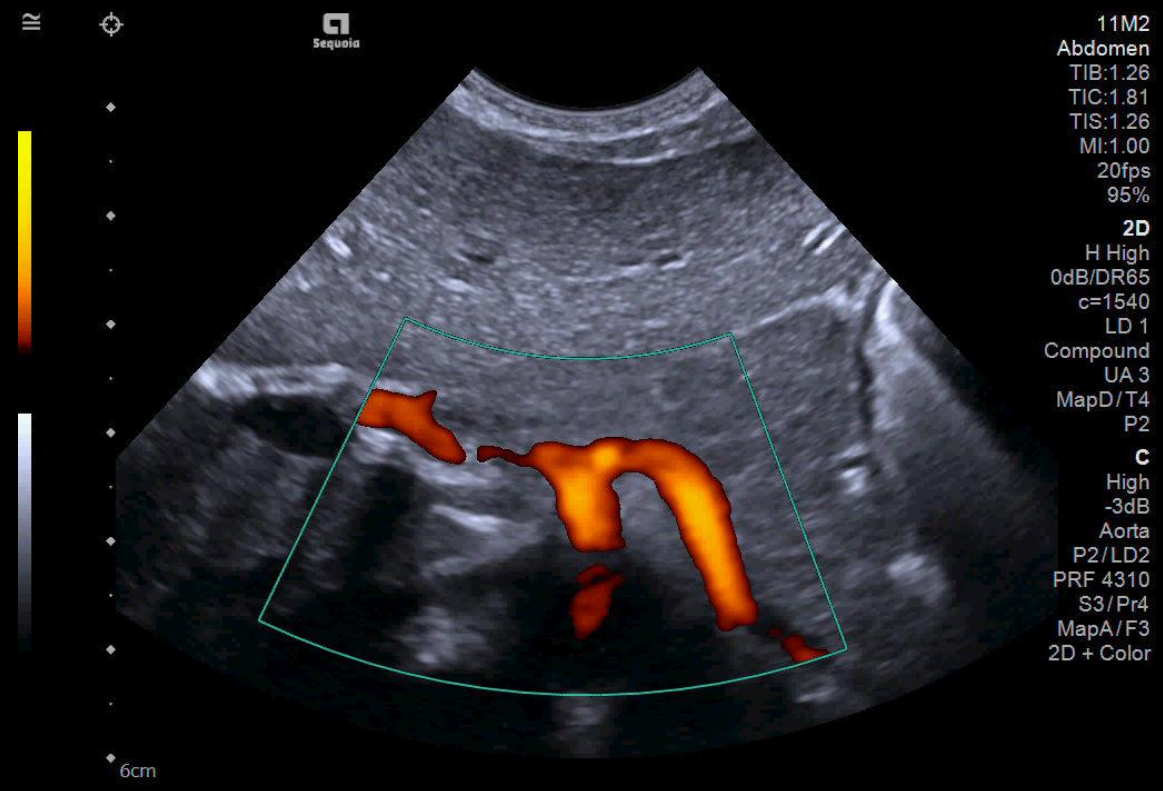
Achieve visual precision

- Our highest frequency linear transducer
- Delivers resolution and penetration in one high frequency transducer—so you no longer have to sacrifice one for the other
- Optimized for imaging Breast, MSK Superficial, Thyroid, Testes, and Vascular

Designed to help reduce strain & pain

- Small footprint allows access to tight spaces
- Ergonomic grip allows for constant light pressure
- Gesture Detection Technology

Benefits of 11M2 MicroConvex transducer



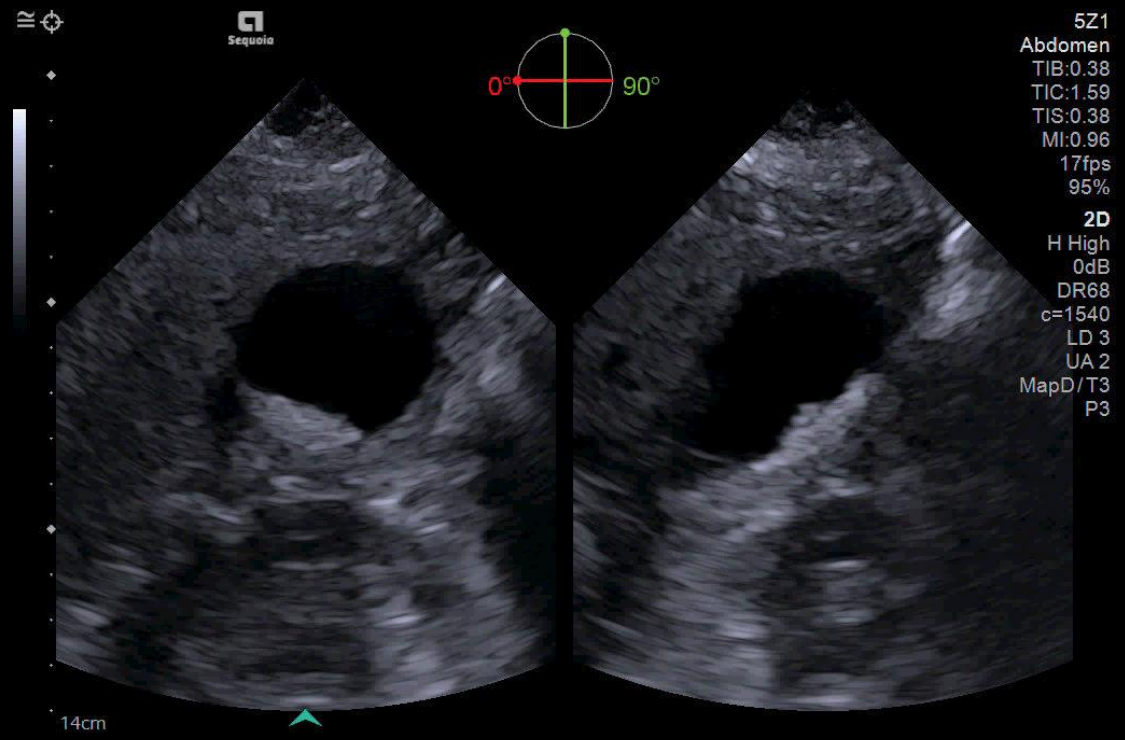
MicroConvex transducer

- Optimized for Abdomen and Neonatal Head
- Offers field of view from 85 degrees, up to 130 degrees to support visualization and measurements of extended anatomy

Designed for ergonomics

- Small footprint for small areas and small bodies
- Gesture Detection Technology

Benefits of 5Z1 Matrix Array transducer



Versatility for General Imaging and Cardiology

- Optimized for adult and pediatric imaging for Abdomen, Gynecology and Cardiology exams
- The ergonomic design with a small footprint supports challenging patient windows

Matrix Array transducer

- 2D Bi-Plane+, 2D Bi-Plane Color, 4D Volume, and 4D Color imaging
- Active electronics for instantaneous full volume imaging
- Gesture Detection technology

InFocus imaging technology for fully focused imaging with faster frame rates than conventional systems

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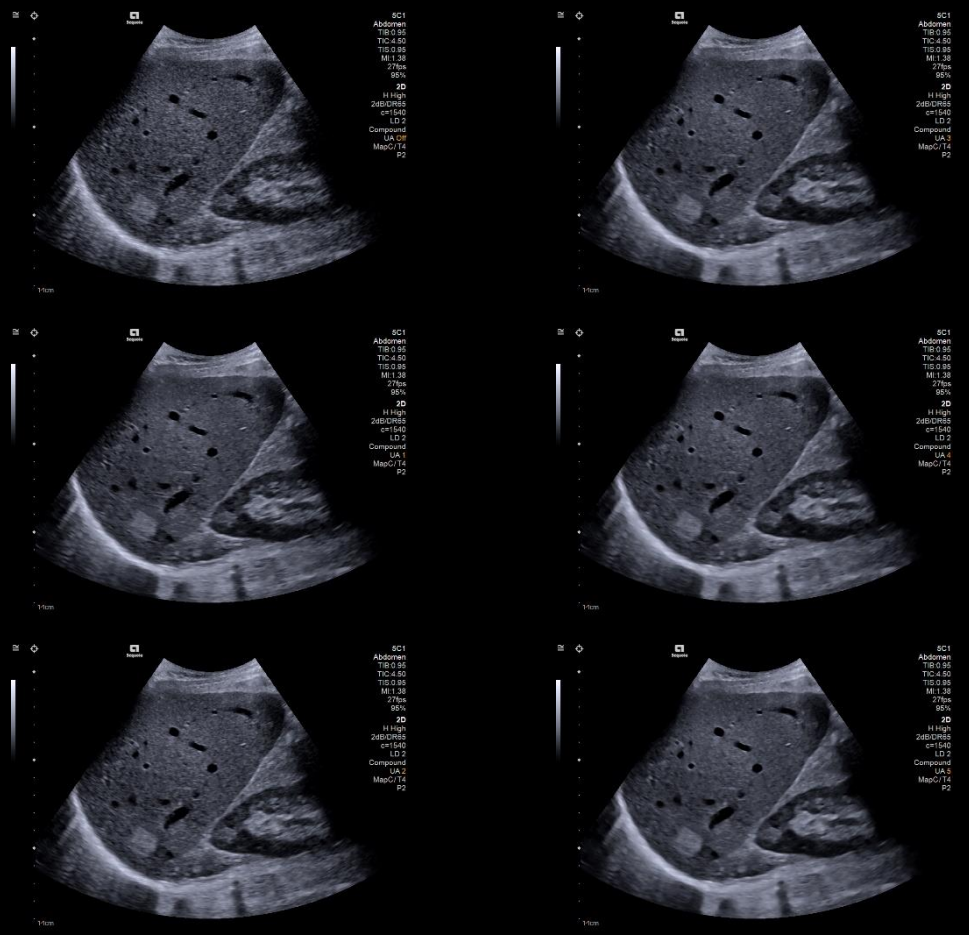
Conventional Ultrasound

- Near, mid, and far fields are always in focus
- Eliminates manual focal zones for improved imaging with no user interactions
- Adaptive gain processing eliminates frequent adjustments by user
- High resolution imaging at high frame rates, even in mixed modes

3x **More sensitivity at faster frame rates***

* Compared to the ACUSON S3000 ultrasound system

UltraArt universal imaging processing



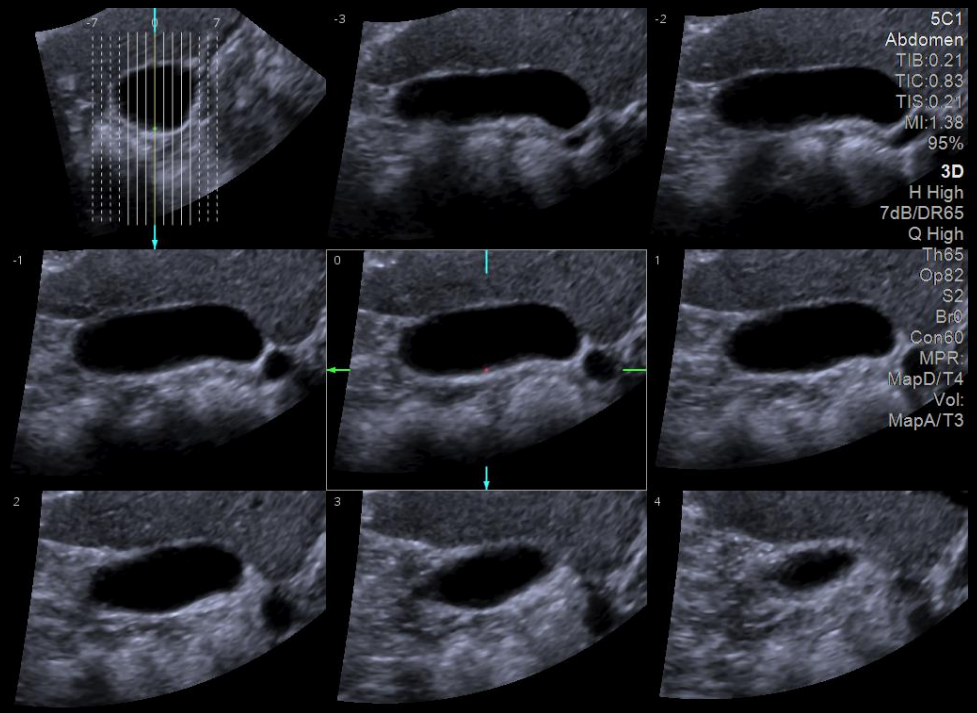
Delivers your image aesthetic preference

- Ultrasound the way you want it with a real-time, six-choice display of imaging aesthetics at the touch of a button
- Select the image look you prefer, more or less processed, more or less speckle
- Like using a social media filter
- Helps reduce user eye fatigue

Realistic tissue presentation at near, middle and far fields

- Reduces speckle, enhances edges and contrast
- Includes motion compensation to reduce flickering artifacts
- Available in B-mode, PW, and Contrast modes
- Can be performed on real-time or frozen images

Freehand 3D



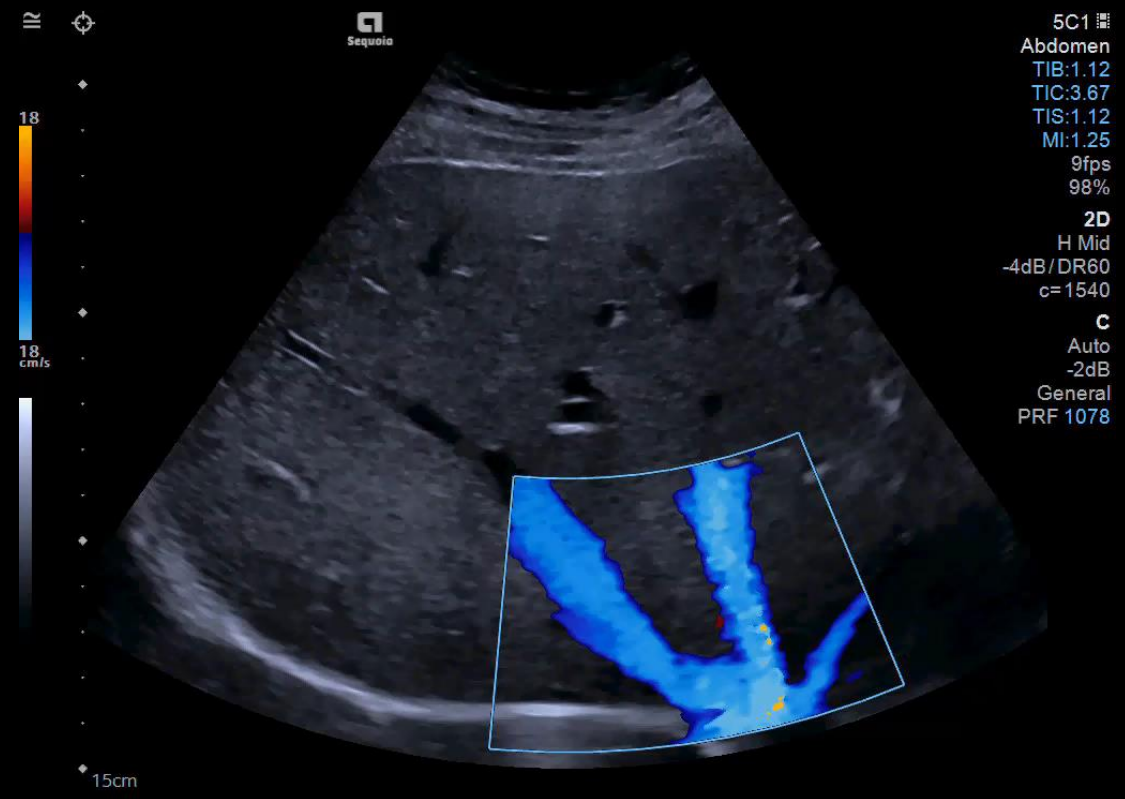
Efficient volume rendering with standard transducers

- No need to stop the exam to change to a specialized probe
- Saves costs of purchasing mechanical or matrix transducers
- Available on curved, linear, and endocavity transducers

Seamless workflow with volume manipulation tools

- Rocked and linear acquisitions
- Compatible with FlexPlane draw-through manipulation and reconstruction tool
- Compatible with LightSource tints for depth perception

Dynamic MultiHertz technology supporting automation and efficiency

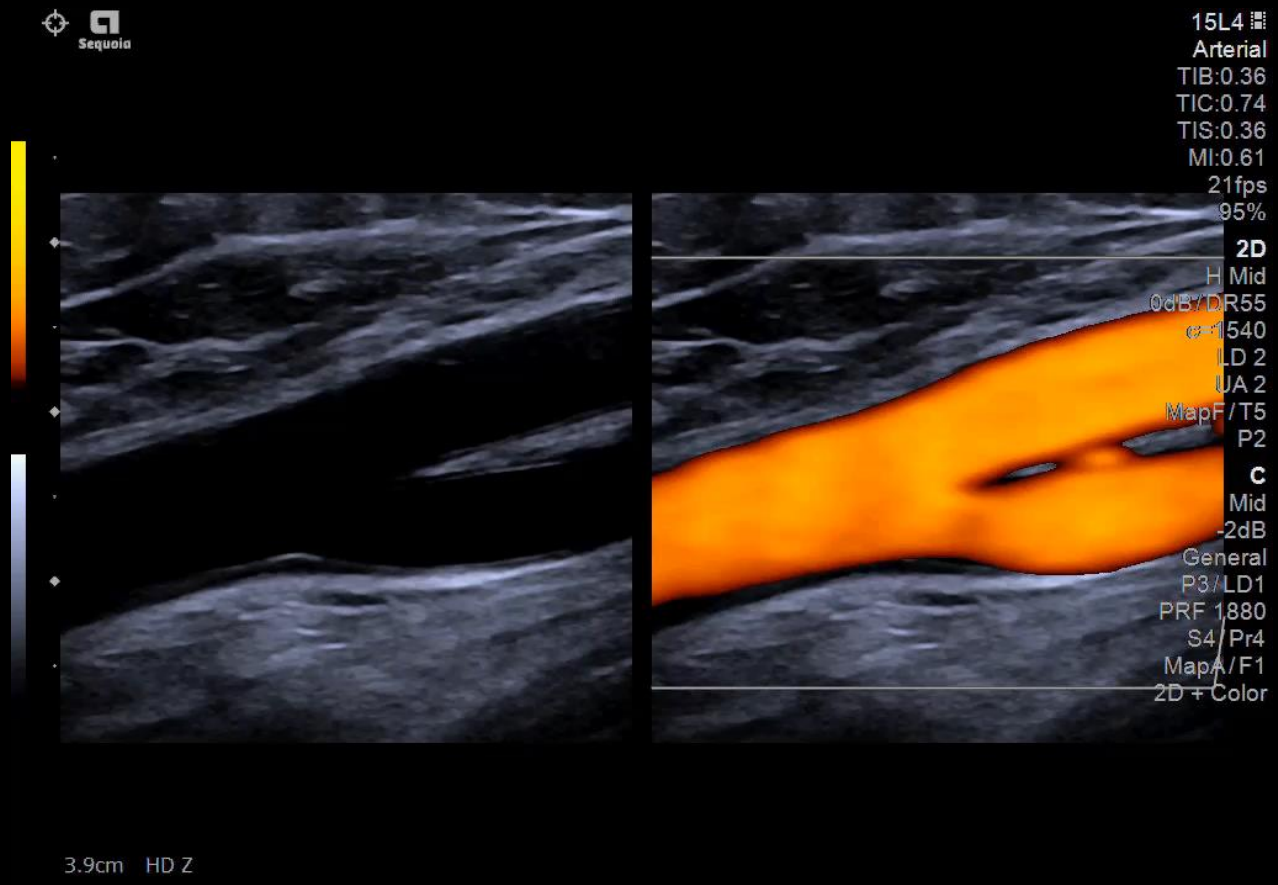


Color frequency changes based on ROI depth

Higher frequency for shallow depth

Lower frequency for deeper depth

Automatic motion suppression for improved image quality and consistency



Limits flashing and ghosting color artifacts

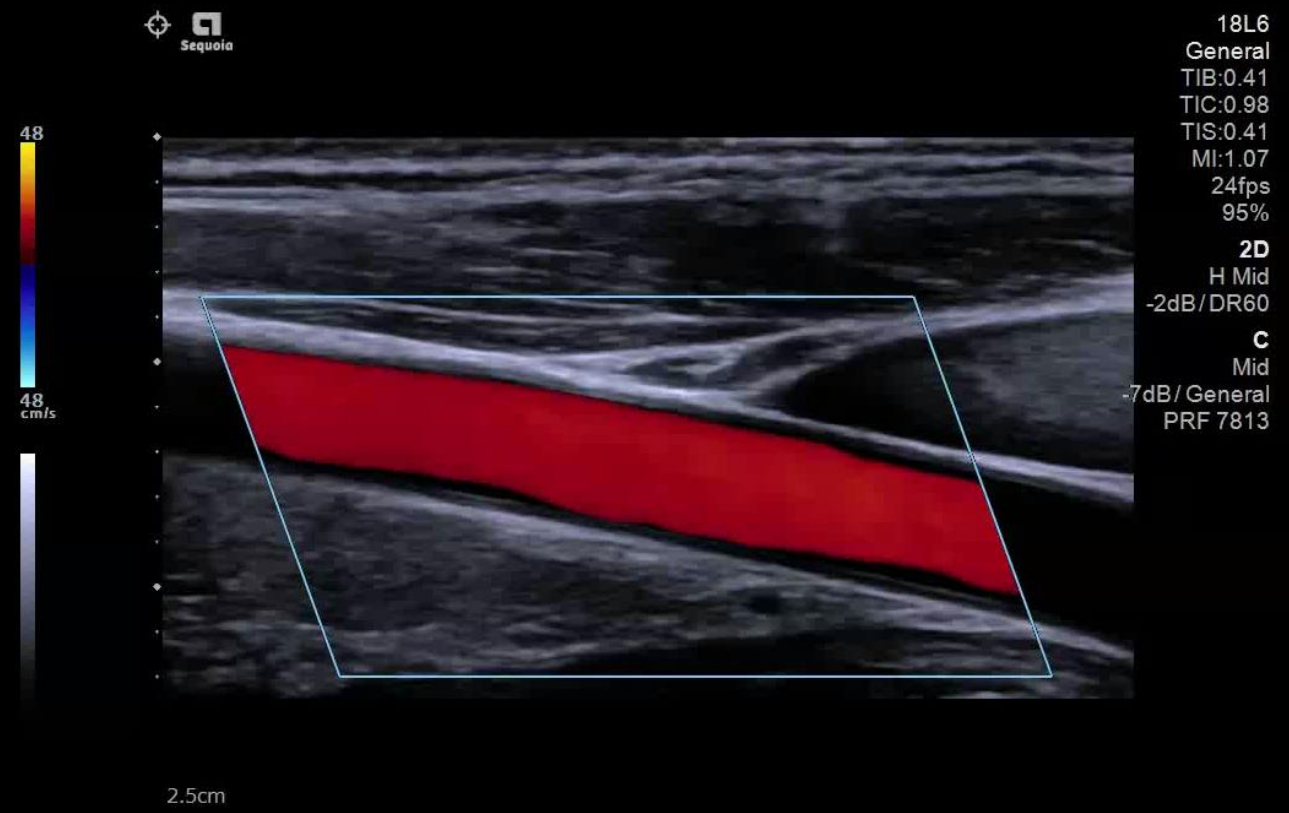
Conventional image processing restored when motion stops

No user interaction needed

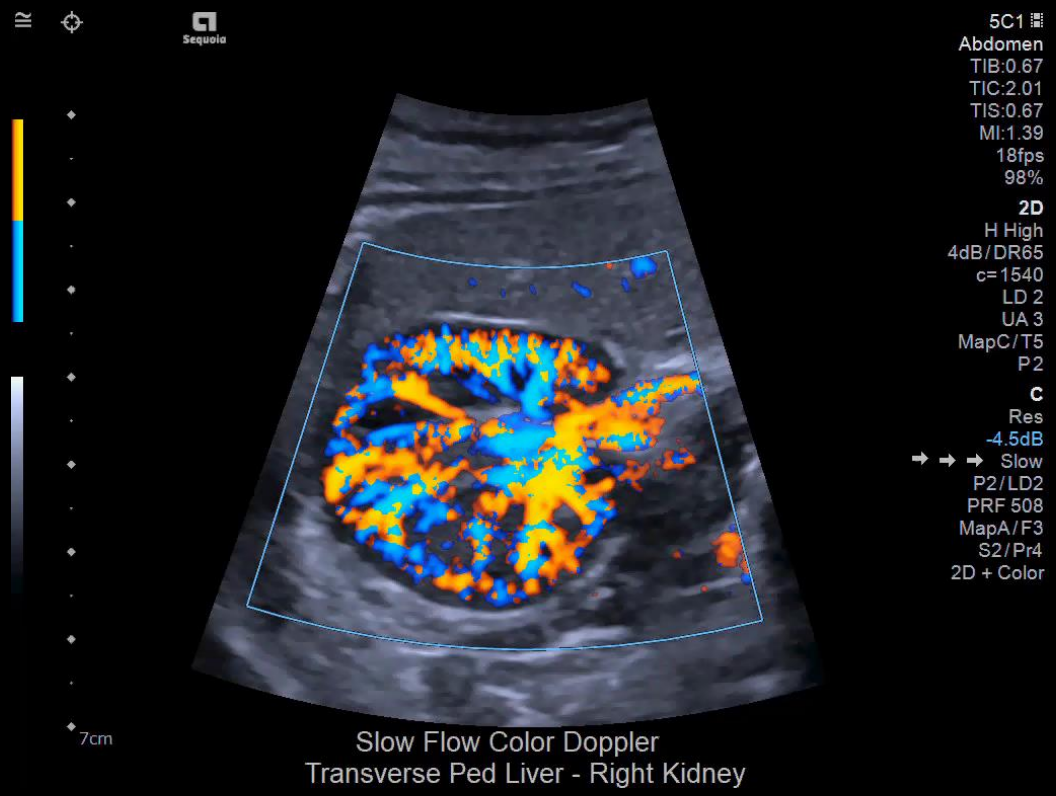
Address variability in Doppler with Auto Doppler TEQ

Automatically optimizes relevant Doppler parameters upon freeze with minimum user interaction for increased consistency, improved spectral quality and seamless workflow.

Allows for post processing of Doppler parameters if needed including Baseline, Scale, Dynamic Range and overall Gain.



Slow flow technology to visualize smaller, deeper, low-flow vessels



Slow Flow Color Doppler
Transverse Ped Liver - Right Kidney

Intelligent smart filter

- Filter computed from data
- Detect all levels of decorrelation from flow by identifying the best filter bases

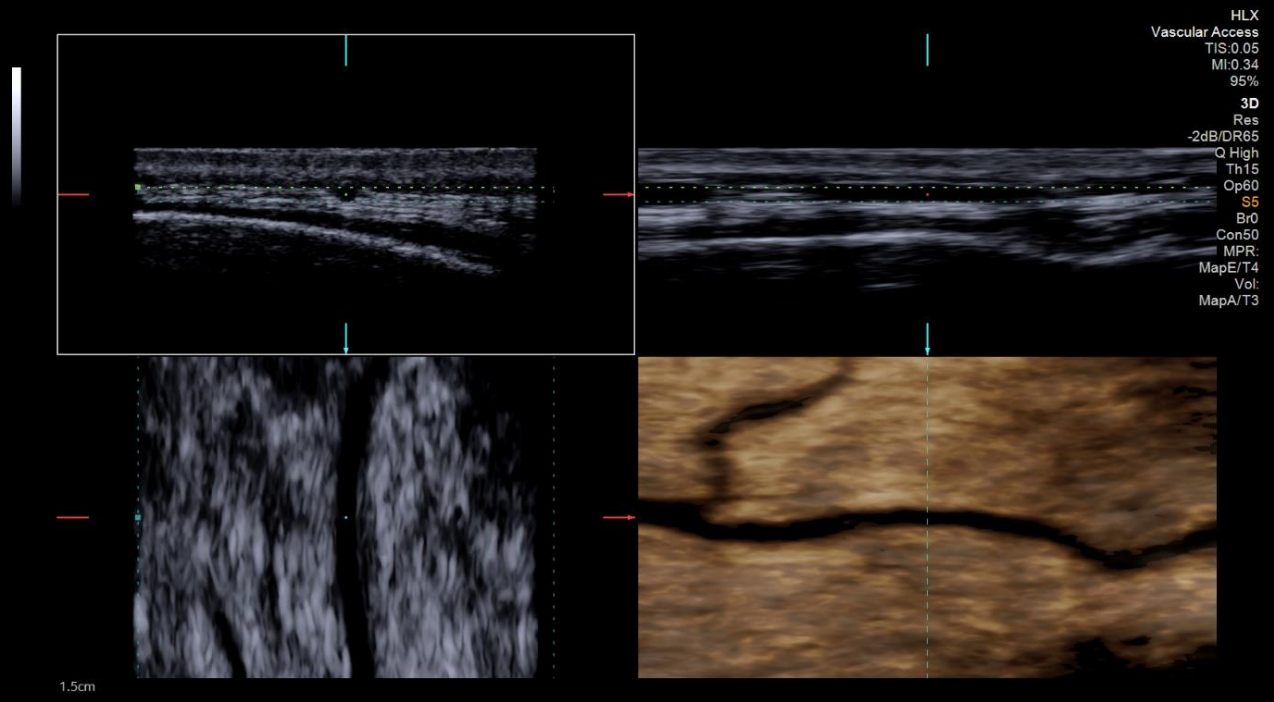
Temporal flash suppression

- Adaptively suppress flash while keeping low flow signal

Slow flow demonstrates

- More vessel branches than conventional doppler
- Smaller vessels than conventional color doppler
- Vessels further into tissue than conventional color Doppler

Benefits of HLX and vascular



Optimized for superficial vascular applications

- Our highest frequency linear transducer
- Superior near field imaging of superficial vessels (radial, temporal)
- Slow Flow technology to visualize smaller, slower flow vessels
- Freehand 3D compatible to see vessel branches you cannot see in 2D

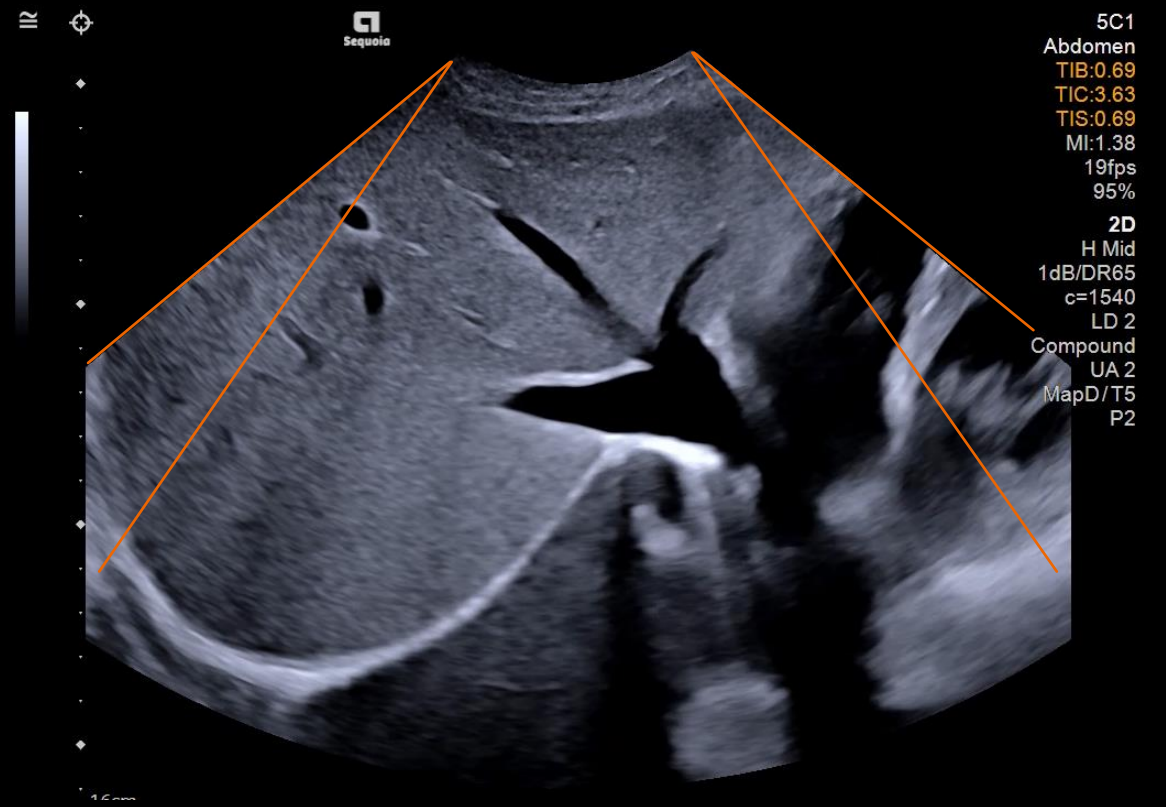
Designed to help reduce strain & pain

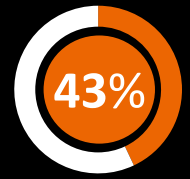
- Small footprint for tight access
- Ergonomic grip and narrow shape for constant light pressure
- Complements the vascular portfolio with the 15L4, 14L5 and 10L4 probes

Improve visualization and ability to measure structures that extend beyond the field of view with Wide FOV

SIEMENS Healthineers

Wide FOV





Increased Field of View*

Simple Touch Screen control to extend beyond the traditional FOV

Reduce time and effort compared to Panoramic Imaging

* Data on file

Expanded Insights

Expand your expertise with advanced tools and AI innovations designed to improve diagnostic confidence and patient outcomes.

Boost your clinical confidence with a system designed to enhance your expertise

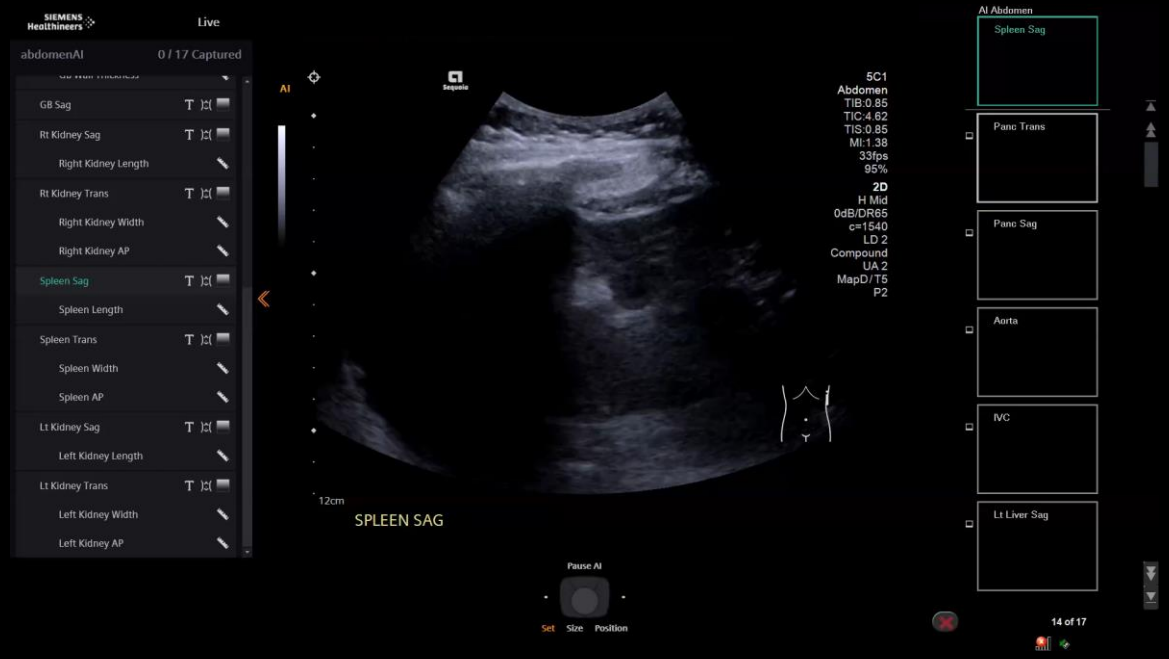
AI Abdomen

Quantitative Ultrasound

Multi-planar Imaging

AI Cardiology

AI Abdomen



Empower faster, smarter abdominal exams

- Automatically recognizes and labels 17 anatomical views and calculates 12 key measurements in milliseconds
- Improves exam throughput and workflow efficiency
- Driven by a proprietary AI algorithm available exclusively on ACUSON Sequoia

Standardize imaging across users

- Semi-automated measurements standardize imaging across users
- Automatic reordering of protocol scans and alerts for missed views

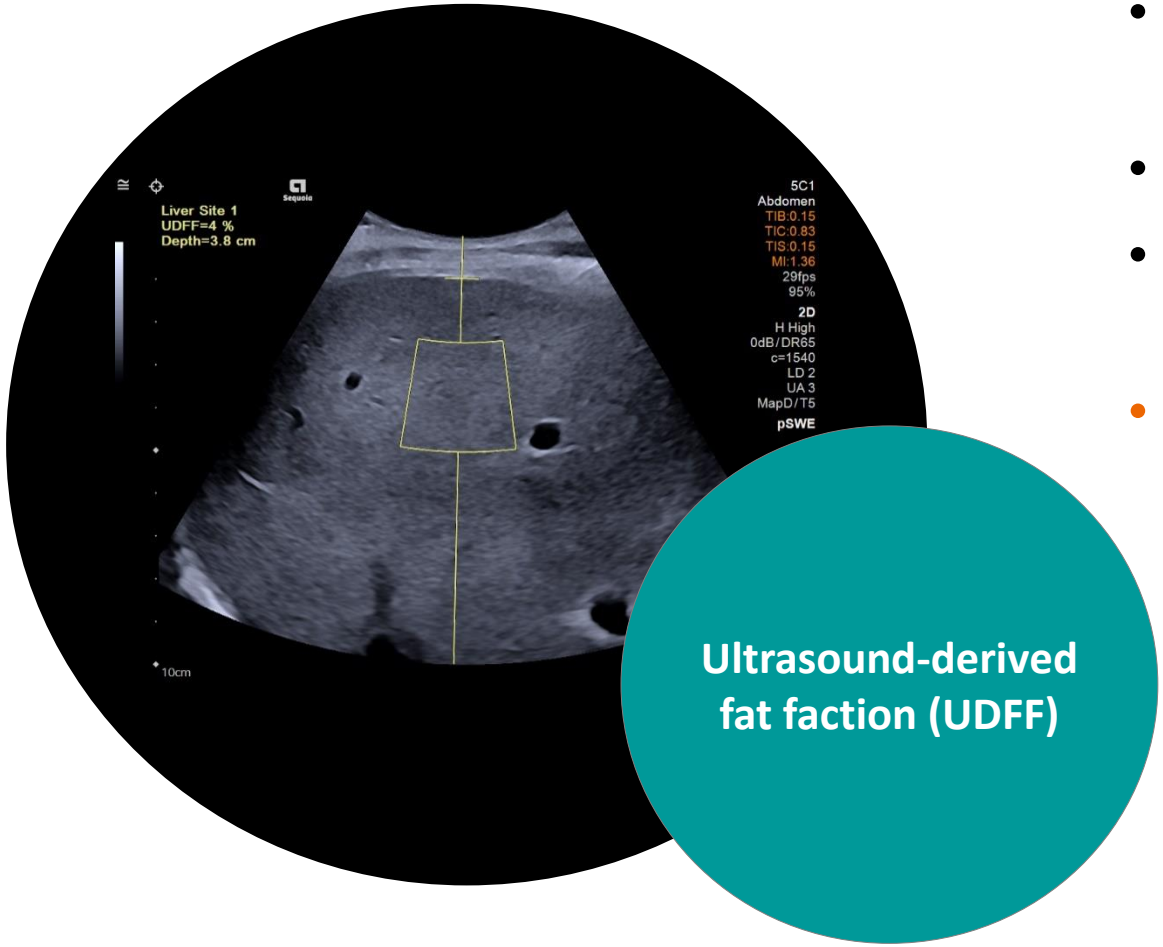
Reduce user strain & pain

- Reduces hand motion by 47% and keystrokes by 55% compared to the manual labeling and measurements of a routine complete abdomen exam*
- Mitigates fatigue and injury that result in pain for 90% of ultrasound users[1]

[1] Evans K, Roll S, Baker J. Work-Related Musculoskeletal Disorders (WRMSD) Among Registered Diagnostic Medical Sonographers and Vascular Technologists

*Data on file

Ultrasound-derived fat fraction (UDFF)



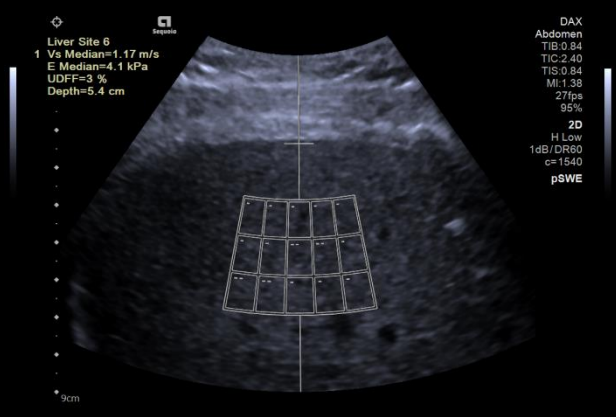
- UDFF incorporates both **attenuation** & **backscatter** coefficients to measure fat content
- UDFF shows good agreement with **MRI-PDFF**
- UDFF helps **manage** patients with hepatic steatosis
- **% fat** value is easy to interpret for clinicians & patients

5C1 **DAX** **9C2**

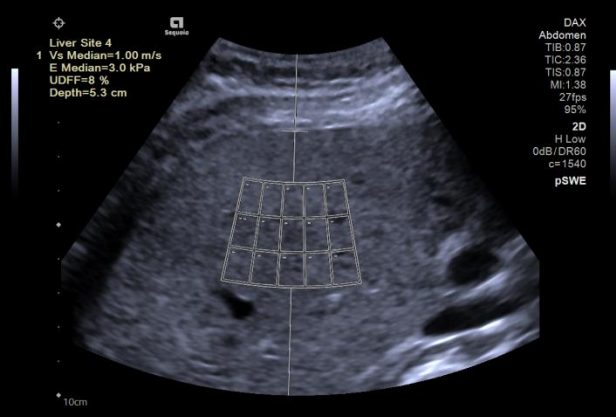
Ultrasound-derived fat fraction (UDFF)
A new benchmark for quantifying hepatic steatosis

SIEMENS Healthineers

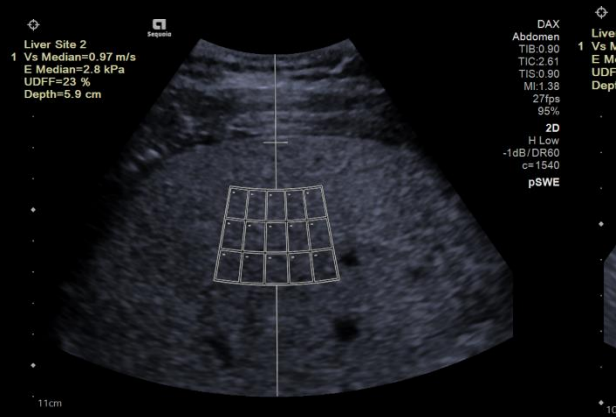
UDFF: 3%
PDFF: 3%



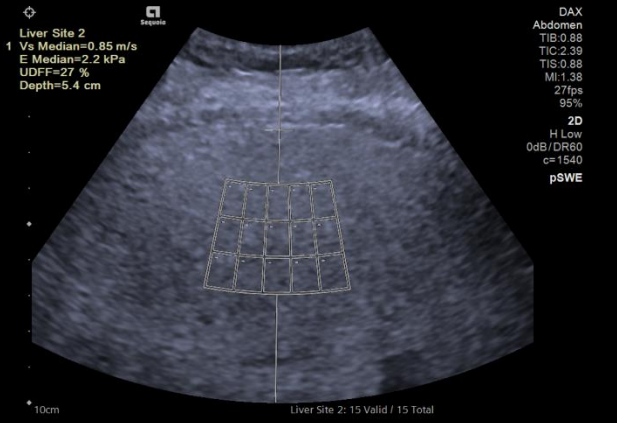
UDFF: 9%
PDFF: 8%

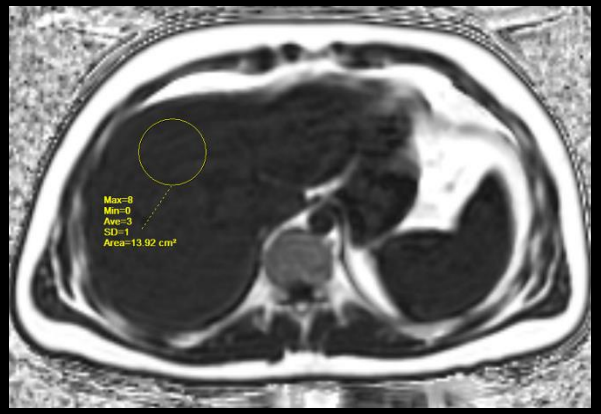


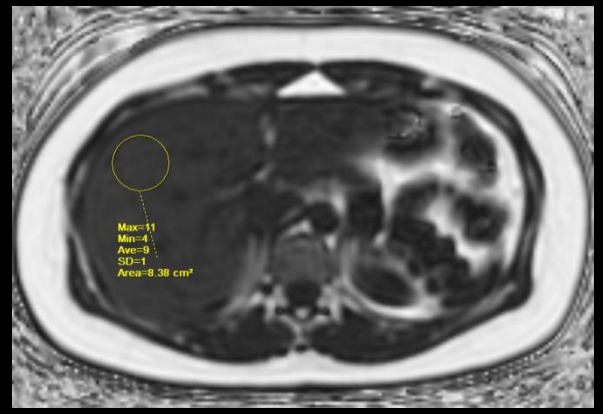
UDFF: 23%
PDFF: 21%

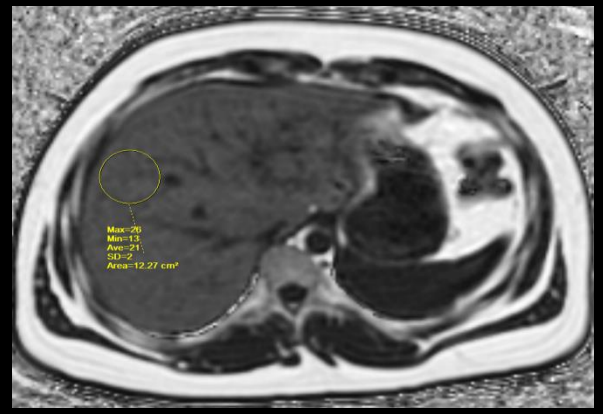


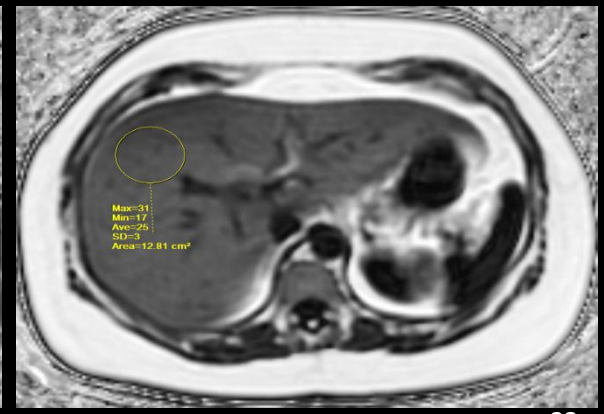
UDFF: 27%
PDFF: 25%



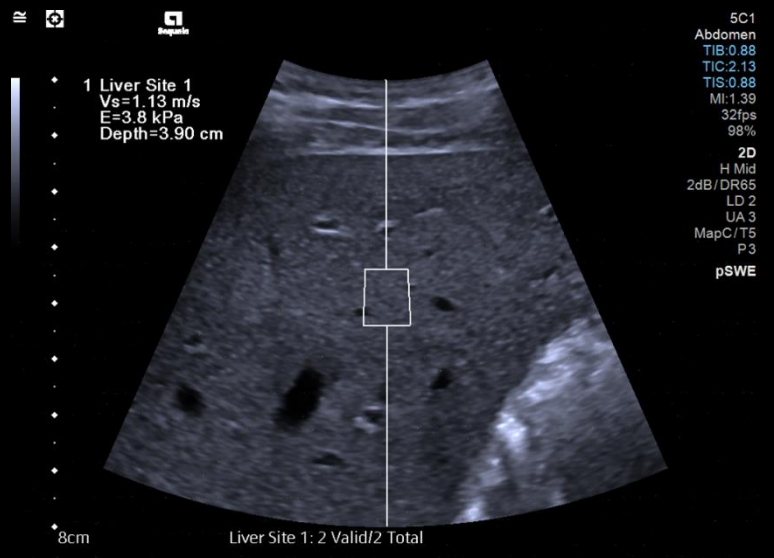


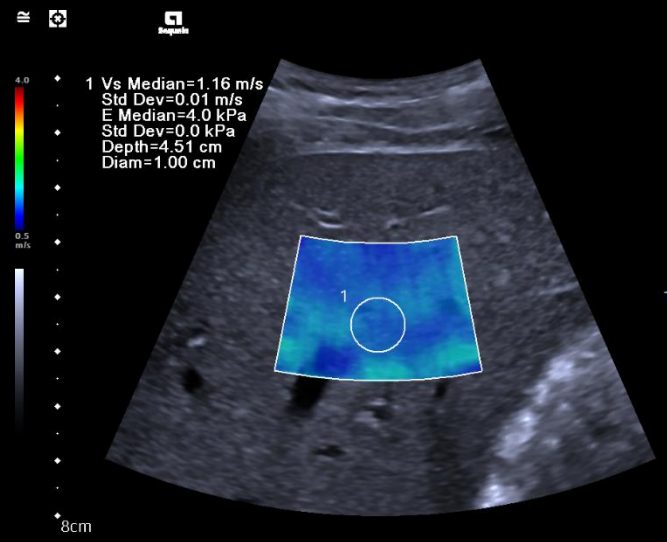


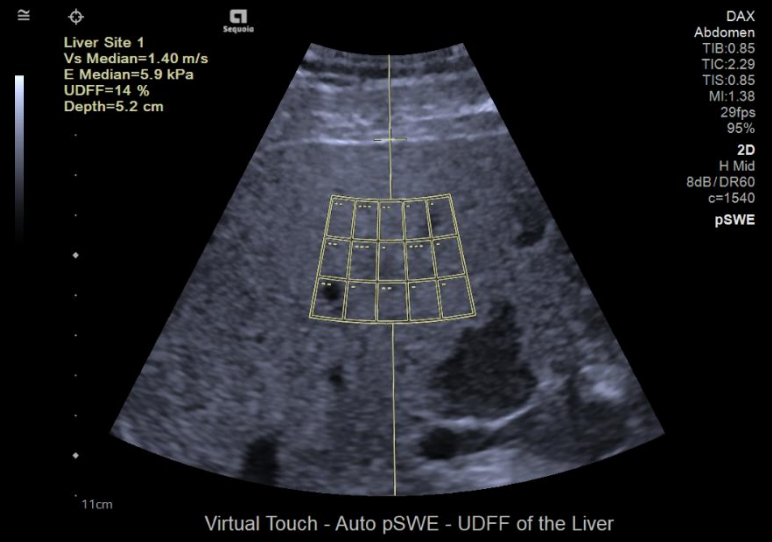




Liver elastography is a proven tool in ultrasound tissue evaluation







pSWE	2D SWE	Auto pSWE

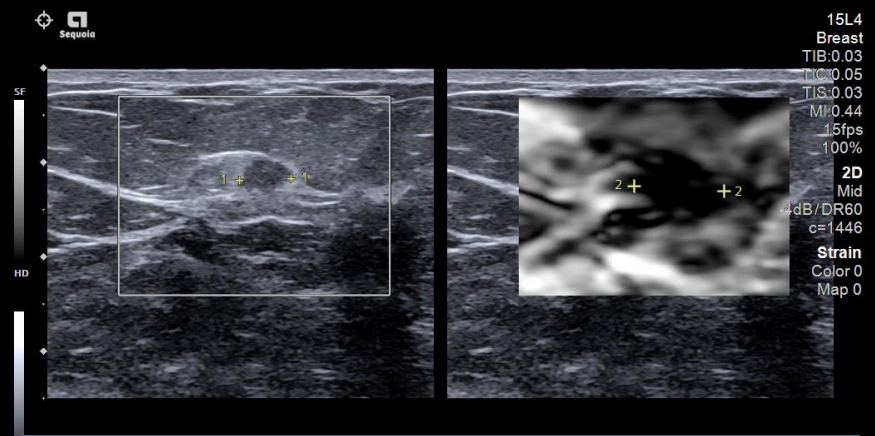
Reduce

Unnecessary biopsies

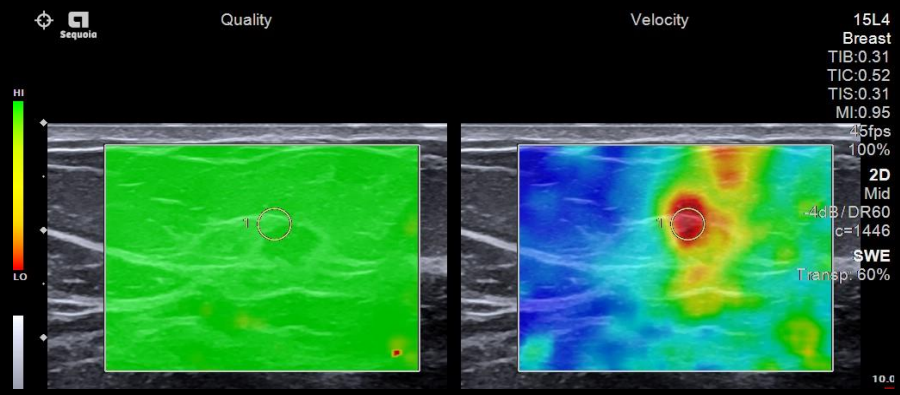
Monitor

Disease progression

Ultrasound elastography (UE) for breast lesion characterization has been utilized for over 20 years



Strain Elastography (SE)

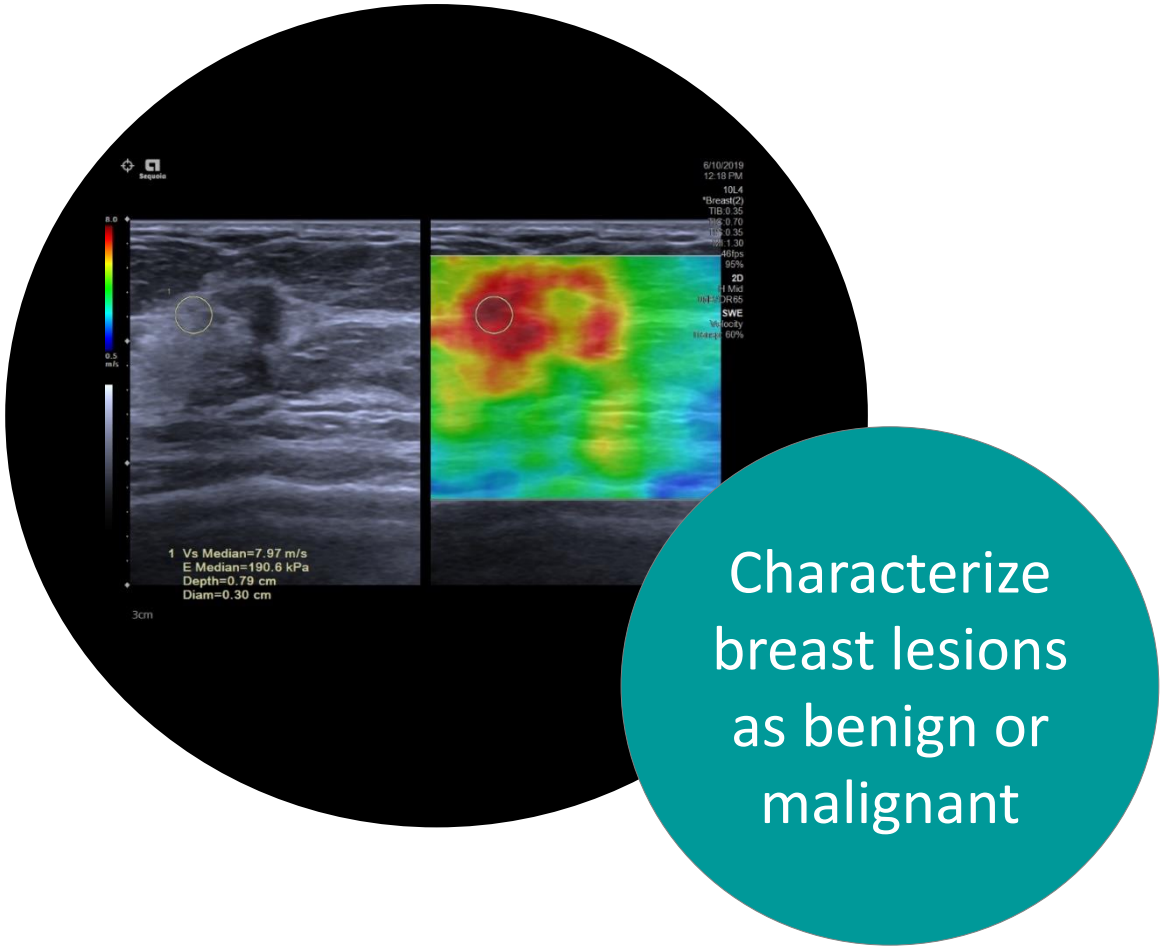


Shear Wave Elastography (2D SWE)

Aid in the Characterization of

Breast lesions

Next Generation Breast 2D SWE
Overcoming the industry challenge of dense breast on 2D SWE



Recent study states[1]:

Substantially **eliminates the false negative** cases on SWE

Cut-off value of >5.0 m/s - malignancy

Many BI-RADS **4A – 4C lesions could be downgraded to BI-RADS 3 lesions**

Could markedly **decrease** the number of **benign biopsies**

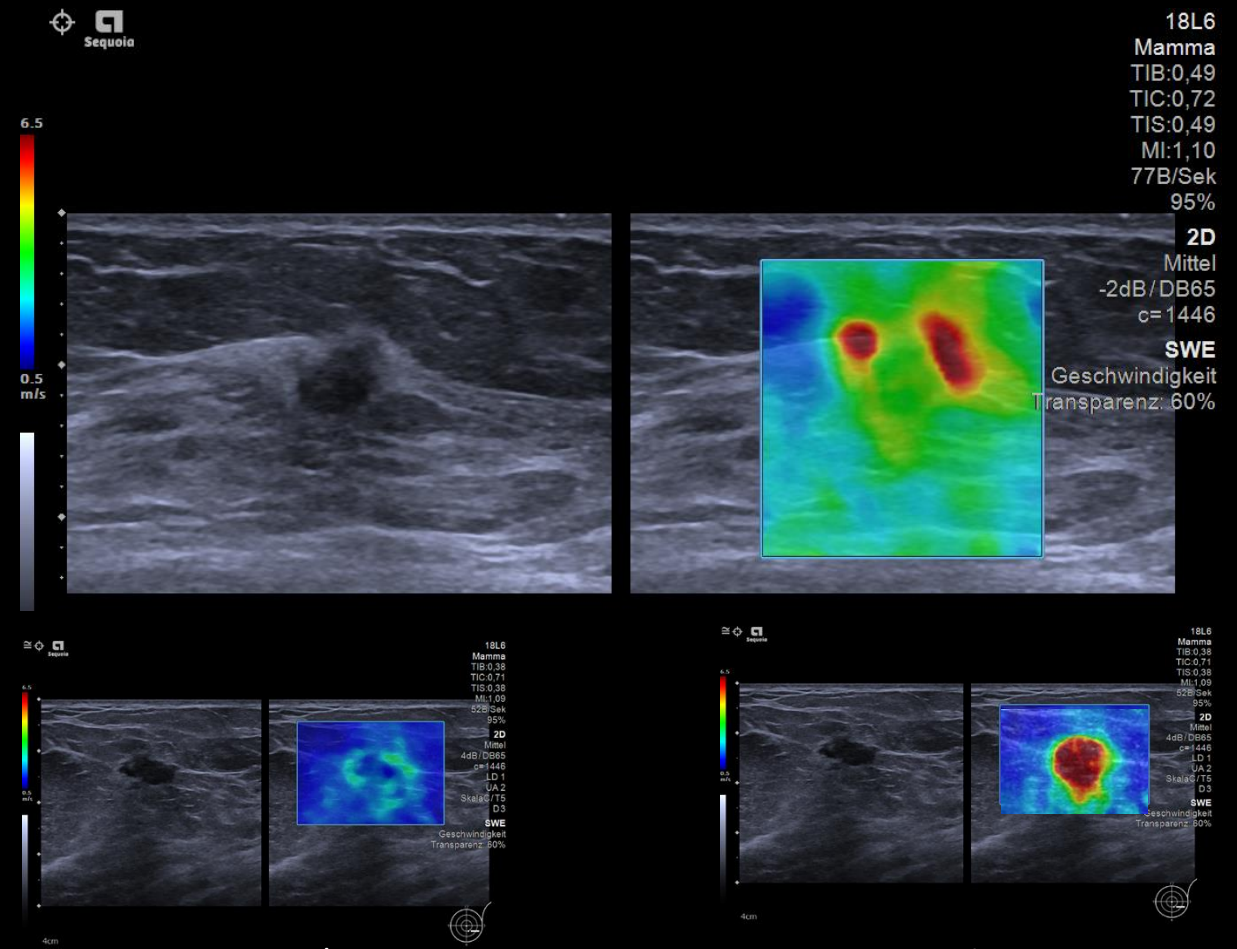
[1] https://journals.lww.com/investigativeradiology/Fulltext/9900/Improved_Breast_2D_SWE_Algorithm_to_Eliminate.100.aspx

Next-generation 2D SWE, expanded insights features, and technologies designed to aid clinical confidence

SIEMENS Healthineers

Improved SWE linear lesion visualization which helps to reduce variability of patients with dense breasts

- Non-invasive assessment
- Unique quality map ensures data integrity
- Uniform shear wave velocity estimate throughout lesion
- Quantitative data adds more confidence when making interventional decisions



Previous Visualization

Next Gen Shear Wave

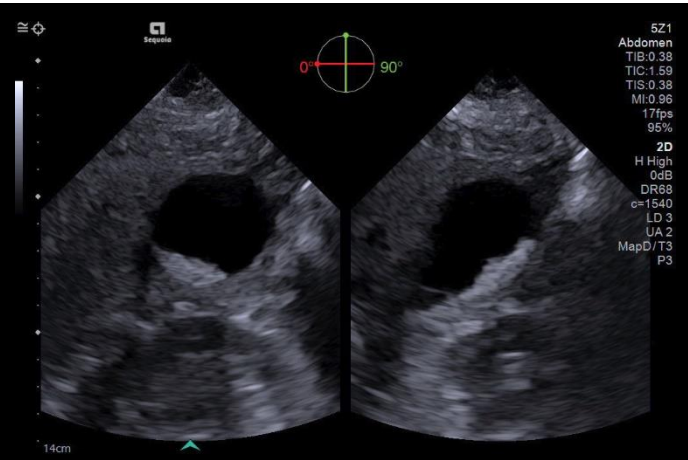
BiPlane Imaging with the 5Z1 Matrix Array & Z6T Volume TEE transducers

SIEMENS Healthineers

5Z1 Matrix: Versatility for GI, GYN, and Cardiology

- Small, lightweight transducer optimized for adult and pediatric imaging for Abdomen, Gynecology and Cardiology exams
- 2D BiPlane+, 2D BiPlane Color, 4D Volume, and 4D Color imaging

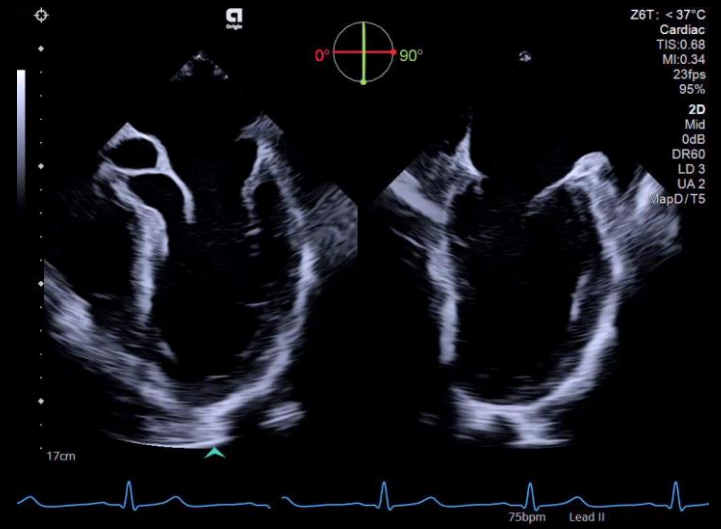
5Z1



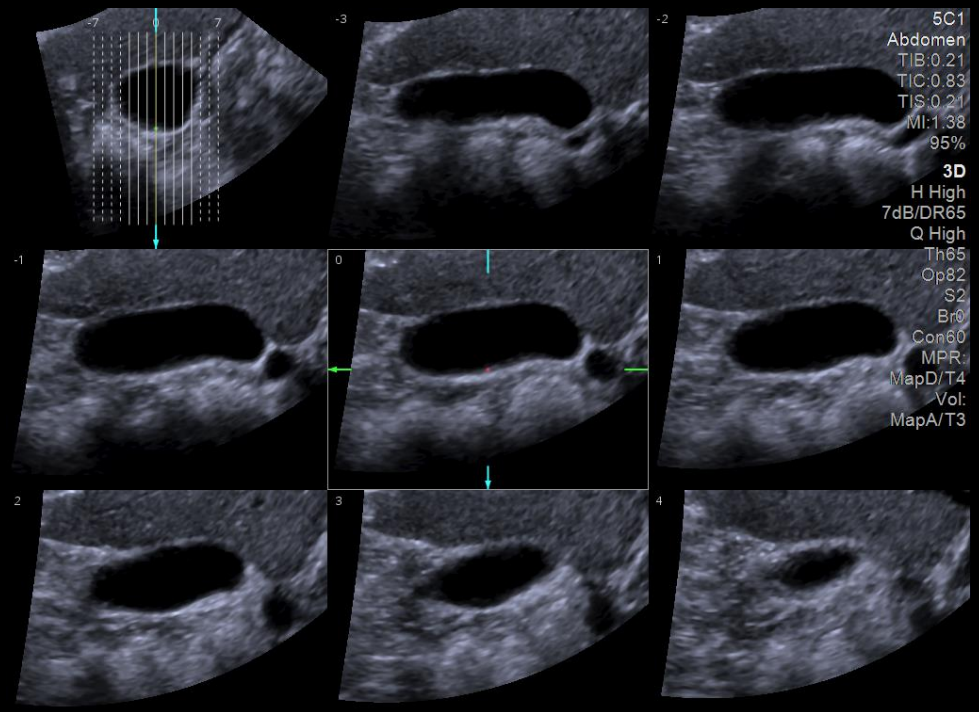
Z6T TEE: Expand your Cardiology capabilities

- Support pre-op imaging and interventional guidance for left atrial appendage closure and mitral valve repair procedures
- Single crystal matrix array
- 2D, 4D, BiPlane+, B-mode, color flow Doppler, M-mode, pulsed and continuous wave spectral Doppler

Z6T



Freehand 3D imaging processing



Efficient volume rendering with standard transducers

- No need to stop the exam to change to a specialized probe
- Saves costs of purchasing mechanical or matrix transducers
- Available on curved, linear, and endocavity transducers

Seamless workflow with volume manipulation tools

- Rocked and linear acquisitions
- Compatible with FlexPlane manipulation and reconstruction tool
- Compatible with LightSource tints

SIEMENS Healthineers

User-Driven Design

Embrace advanced productivity with AI-powered tools and an intuitive design for the ultimate user experience.

Boost your clinical confidence with a system designed to enhance your expertise

Industrial Design

Workflow

Automation

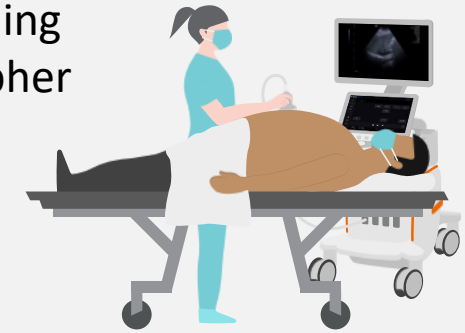
= Productivity

Our focus on AI in ultrasound is rooted in addressing our customers' pain points

SIEMENS Healthineers

Customers are facing increasing shortage of trained workforce

Improving **workflow**, automation and quantitative measurements to leverage a broader workforce and lower dependency on declining sonographer base.



90% of ultrasound users are scanning in pain[1]

Embracing automation and Artificial Intelligence to help **reduce exam time** while improving ergonomics and diagnostic confidence.

Standardization is key to drive better outcomes, consistently

Implementing procedure specific protocols and out-of-the-box advanced quantification enables **standardization**; simplified software maintenance allows for better fleet management.

[1] Evans K, Roll S, Baker J. Work-Related Musculoskeletal Disorders (WRMSD) Among Registered Diagnostic Medical Sonographers and Vascular Technologists

Reducing variability and operator burden

SIEMENS Healthineers

170
workshop sessions
with 365
ultrasound users[1]

Designed with :

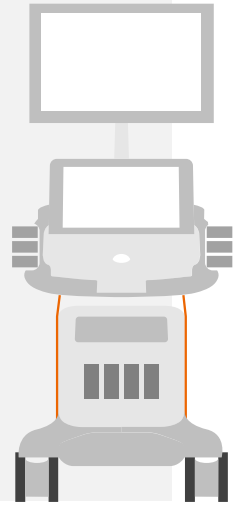
1-Click registration

Gesture detecting transducers

UltraArt Universal image processing

Resulting in:

- **Reduced** variability between users
- **Reduced** scan time
- **Automated** protocols
- **Reduced** Repetitive Strain Injuries (RSI)



1 Macadamian Technologies

Workflow standardization

Practical automation to improve

exam consistency

Up to 40%
reduced scan times*

Standardize exams
across users

Dedicated
protocol controls

Advanced
skip options

Export
order management

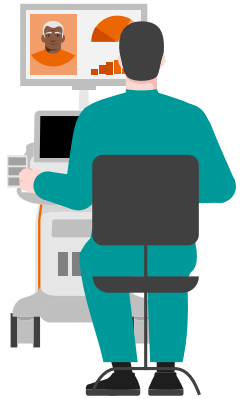
* Operational Excellence in Ultrasound Whitepaper

Virtual Workstation

Uninterrupted workflow, greater efficiency across departments

Establish connection to a remote computer or server to access remote applications directly from the ultrasound system.

- **Modality Worklist (MWL)**
- **PACS**
- **EMR**



Improve post-exam workflow efficiency

Access PACS straightaway following an exam, upload and verify all necessary images are stored correctly.

All the data in one place for full transparency

Review patient history and access past exams[1] uploaded to EMR to deliver the most accurate diagnosis and quality patient care.

Mitigate errors and raise patient experience

Review patient schedules and download and manage patient demographic data; know what exam is needed for the patients' visit.

[1]Not limited to ultrasound; view all historical imaging data like CT, X-ray, MRI, etc.

Ergonomic design enables the highest level of ultrasound imaging anywhere in your institution

24” (60.9cm) Barco monitor

Medical imaging display brings image consistency from the exam room to reading room

Large intuitive touch display

13.3” (33.7cm) high-definition touch display with variable tilt angle from 30 to 60 degrees

Integrated gel warmer

An integrated gel warmer which can be placed on either side of the system

Multiple storage areas

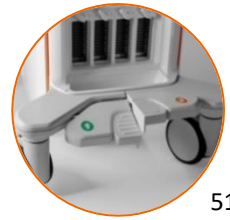
Integrated storage bins with large container for easy storing of accessories

Floating control panel

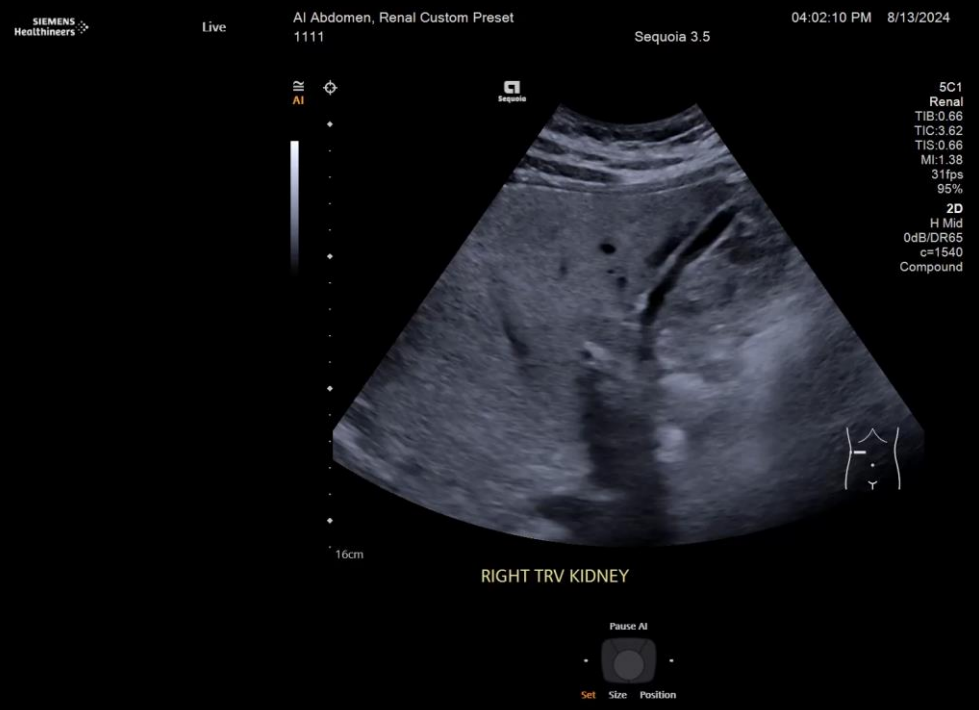
System adapts to the user to maximize ergonomic scanning and user comfort

Central locking & steer pedals

Allows simple access to steering and breaks for an optimal transport experience



Boost productivity with user-driven design and workflow protocols



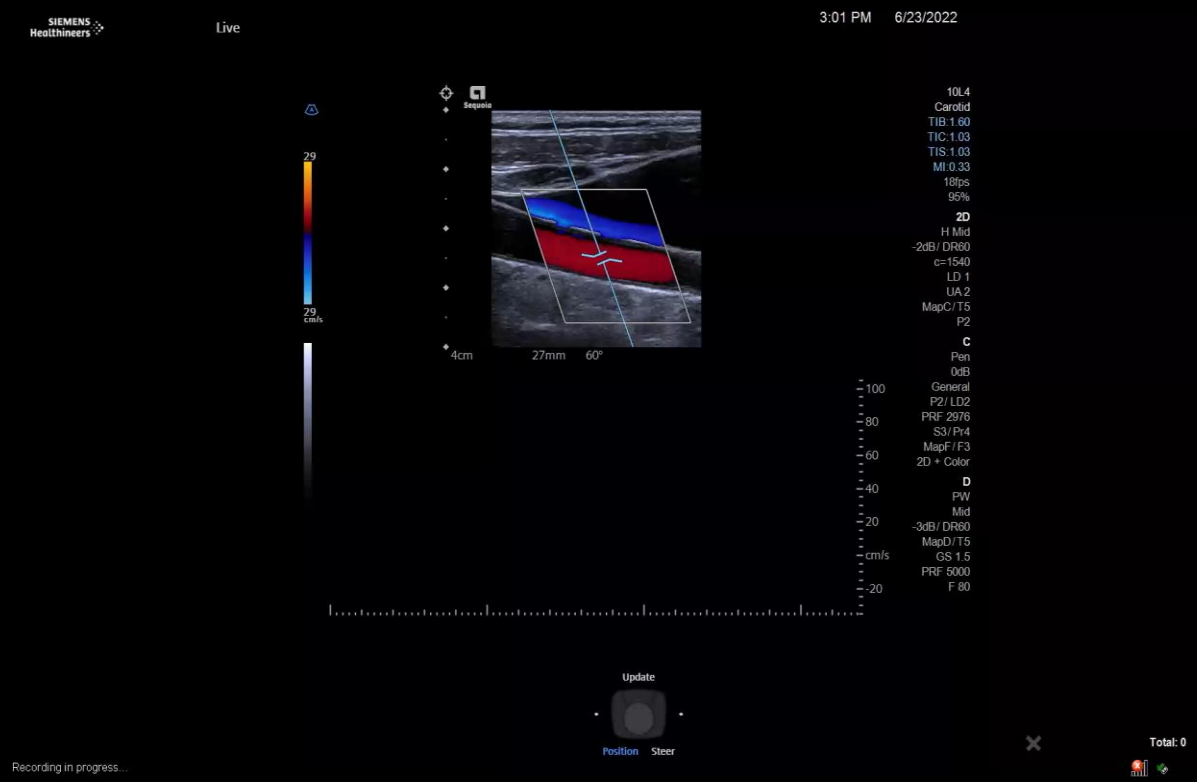
Standardizes exams across users

Reduces keystrokes

Enables flexibility when needed

Boost productivity with Auto Doppler

User-driven design automated features



Auto Doppler can reduce exam keystrokes by >25%*

Further expansion of automated features

Reduced operator variability

Auto Doppler can improve scan times compared to conventional workflows

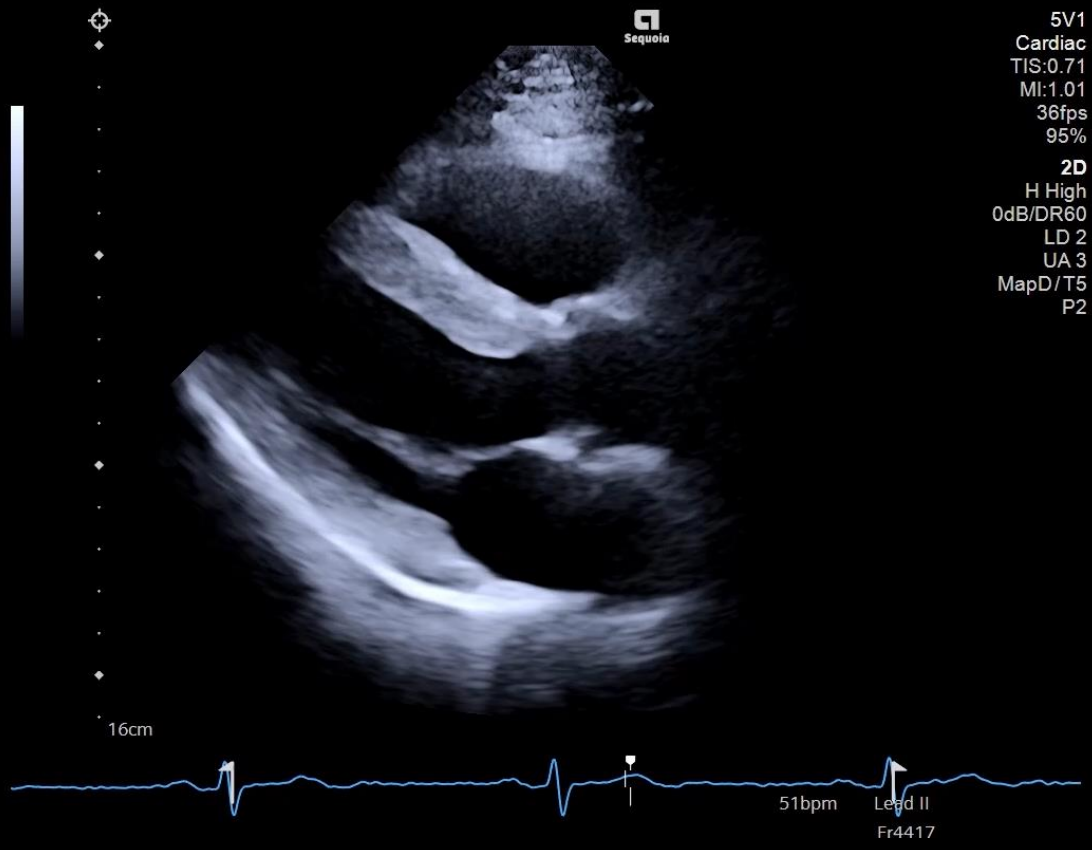
* Data of file

AI-powered measurements alleviate tedious, time-consuming and variable routine Echo calculations

SIEMENS Healthineers

AI Measure

Deep Learning



Semi-automated measurements for Routine Echo exams for 2D, M-Mode, and PW measurements

Improve the patient and user experience by reducing routine echo exam time

Reduce user variability to improve diagnostic confidence on follow-up exams

120 Offers 120 AI calculations

Customer Service

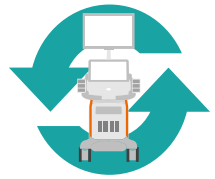
When lives depend on the right diagnosis, you need the confidence that you can deliver. That calls for a trusted partner to help ensure systems are performing properly, staff are trained and processes optimized.

Expert support for seamless workflows, enhanced imaging and confident diagnosis

OEM quality parts
Only Siemens parts, so image quality is never compromised

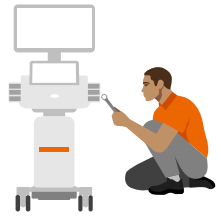
Global footprint
Continuous high-quality support

Streamlined logistics
Worldwide network to support rapid parts delivery



Software upgrades
Protect your investment with TechUp programs

Kinectus™ Remote Services
Minimize downtime and enhance reliability



Up-to-date technical expertise
Service by the people who designed, built, and know your system best

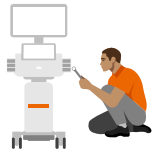
Flexible contracts
Customizable contracts to fit your unique needs*

*Service offerings vary by country

Ensuring confidence in care throughout your ultrasound lifecycle

Pre-installation

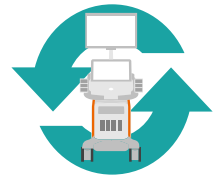
Point of sale
Service Contracts



Equipment installation

Remote connection

Hand-over training



Continuous care and evolution during equipment lifecycle

- Remote technical support
- Remote application support
- Planned maintenance (PM)
- Reactive maintenance (RM)
- Parts & transducer coverage
- Remote update handling (RUH)
- On-site software installation
- TechUp 18
- Techup NOW
- Software updates
- Online tutorials
- Classroom courses

Reliable system performance, flexibility to fit your needs

Full Service

Complete coverage to maximize your system's uptime

Our full-service solution provides you the peace of mind, with reliable expert support, ensuring your systems are running at peak performance.

Flexible service

Choices that fit your budget

Our flexible service offers you options that fit your service needs and budget, while still providing expert support.

All plans supported by Kinectus Remote Service where available

Shared service

Collaboration that helps expand your team

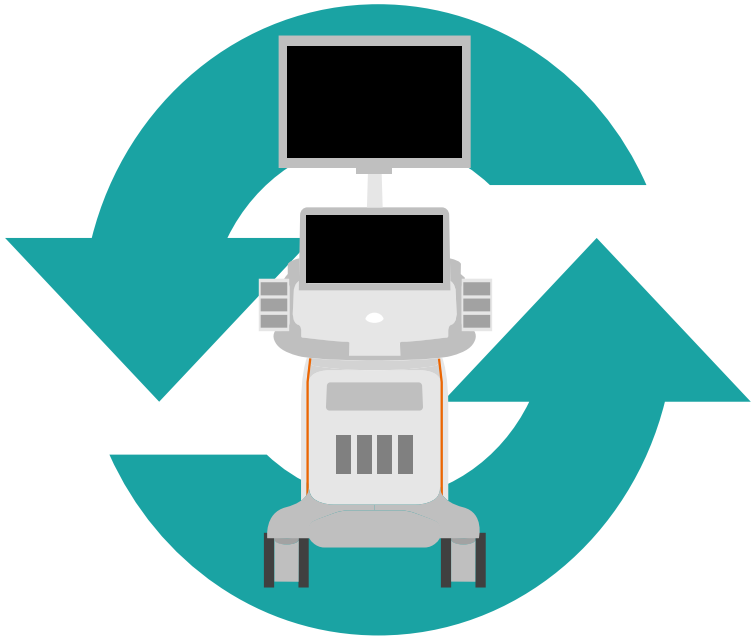
Our partnership empowers your in-house biomedical engineers with training, parts coverage, and labor support, giving you control while ensuring success with our expert backing.

The products/features and/or service offerings (here mentioned) are not commercially available in all countries and/or for all modalities. If the services are not marketed in countries due to regulatory or other reasons, the service offering cannot be guaranteed. Please contact your local Siemens Healthineers organization for further details.

SIEMENS Healthineers

TechUp 18 service contract option protects your investment

Our new software upgrade program
designed to help keep your systems up to date



Enhance your Siemens Healthineers ultrasound system investment

Multiple software upgrades during the life of your ACUSON service contract*

Keep your team up-to-date

New software release at least once every 18 months when available

Optimize your daily operational efficiency

Access to the latest enhancements of existing features to help improve your workflow and productivity

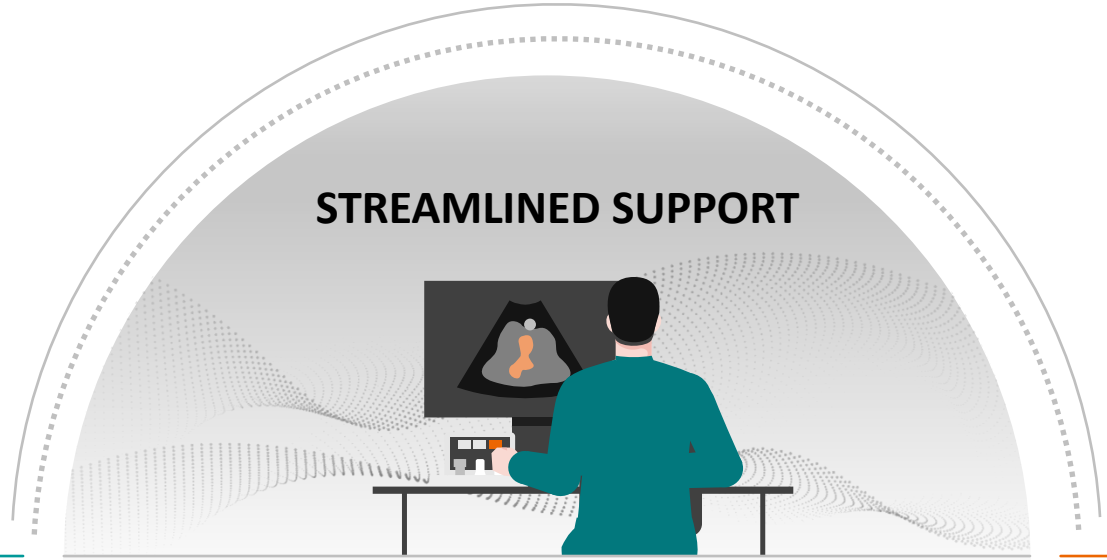
*Depending on the duration of your service contract

The products/features and/or service offerings (here mentioned) are not commercially available in all countries and/or for all modalities. If the services are not marketed in countries due to regulatory or other reasons, the service offering cannot be guaranteed. Please contact your local Siemens Healthineers organization for further details.

Kinectus Remote Service

Always connected. Always advancing. Always ahead.

SIEMENS Healthineers



SECURE CONNECTIVITY

Reduce the risk of unauthorized access with built-in security features*

Connect with just a single outbound port

*Single Sign-on (SSO), Multi-factor Authentication (MFA), and device whitelisting

Access real-time technical and applications support without delay

Minimize downtime and enhance reliability with remote diagnosis and repair

Protect your system from cyber threats with remote updates

SUSTAINABLE SOLUTION

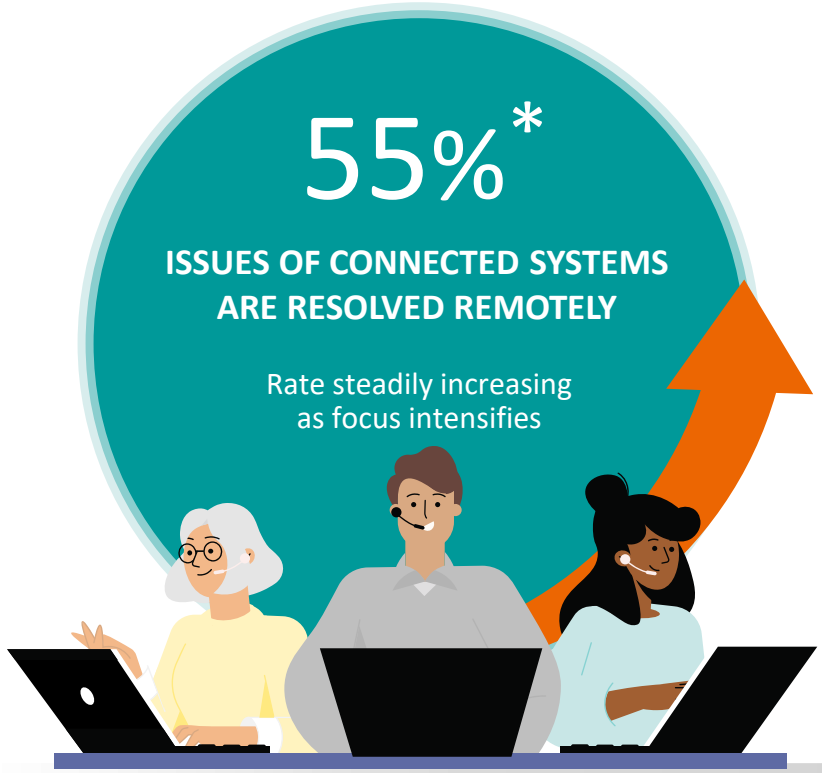
Lower carbon footprint
Reduce need for onsite support

Reduce transportation and travel need

Reduce e-waste

No additional equipment required to connect

Kinectus
Remote technical support



Remote error identification, diagnosis and repair using advanced software troubleshooting tools

Immediate access to technical support
Our experts can quickly clarify system questions

Error diagnosis
Our advanced tools help resolve issues with fewer onsite visits

Error repair
We can quickly correct errors and restore operations

VALUE

Minimize impact of a failure in your daily routine

Optimize uptime while waiting for onsite support

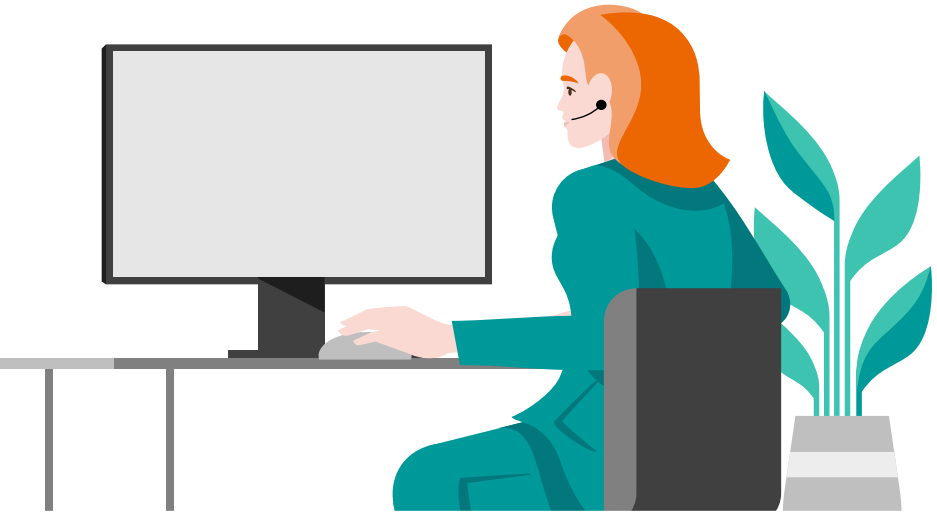
Enhance equipment stability and reliability

*Global Site Visit Avoidance rate (December 2025)
Prerequisites: stable Kinectus connection with adequate bandwidth.

Kinectus
Remote applications support

SIEMENS Healthineers

Real-time interaction between clinical staff and clinical application experts, whenever support is needed



Real-time image quality troubleshooting for increased clinical confidence

Expert guidance for optimizing scan protocols and other customized needs to keep up to date with advances in clinical procedures

Workflow enhancements and support with step-by-step guidance through clinical applications

VALUE

Get immediate, secure access to clinical application experts

Maximize the full potential of your clinical applications

Optimize your daily operational efficiency

Prerequisites: Stable Kinectus connection with adequate bandwidth

SIEMENS Healthineers

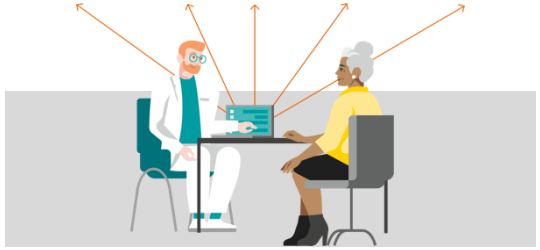
AI Leadership

With innovative solutions, we directly address your challenges using practical AI that enhances the quality of care by reducing variability among patients, users, and systems.

Our 4 strategic priorities in ultrasound

Improving access to care

We are pioneering breakthroughs in healthcare to everyone, everywhere, sustainably.



Networked care and digitally enabled services

Ultrasound is pushing outside of the hospital walls, with AI tools and platforms (e.g., Kinectus) are designed to make ultrasound exams easier and faster with a confident diagnosis.

Cardiovascular and neurovascular care

We have a legacy of cardiovascular ultrasound leadership, and our new ACUSON Origin reinforces our place atop the industry

Comprehensive cancer care

We are helping customers take on the challenges of two of the most challenging cancers: breast and liver cancer pathways and leveraging ultrasound technology to monitor the effects of chemotherapy.

Leading the way in AI

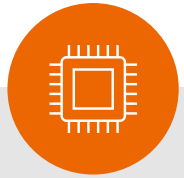
SIEMENS Healthineers

AI that leads change

We are focused on delivering faster, easier exams that deliver important clinical insights or enable decision making

It’s Personal

The premise of our AI strategy is to give humans more time to connect, excel, and thrive



AI that helps lift the load

Our AI solutions reduce manual movements, speed up the right insights to expedite care, and personalize care

Practical AI

Our intellectual property in AI drives real-world results

Supercomputing our way into the lead

No other manufacturer has the investment, talent or resources we’ve committed to AI

A pioneer in diagnostic artificial intelligence

SIEMENS Healthineers

We are the global leader in AI patent applications in medical imaging

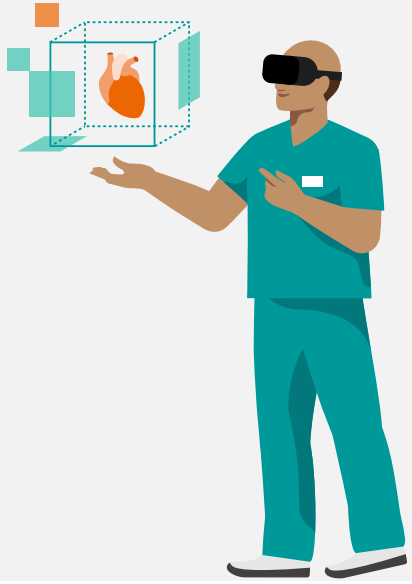
We've been a pioneer in AI development for
more than 20 years

More than 650
patent families related
to machine learning

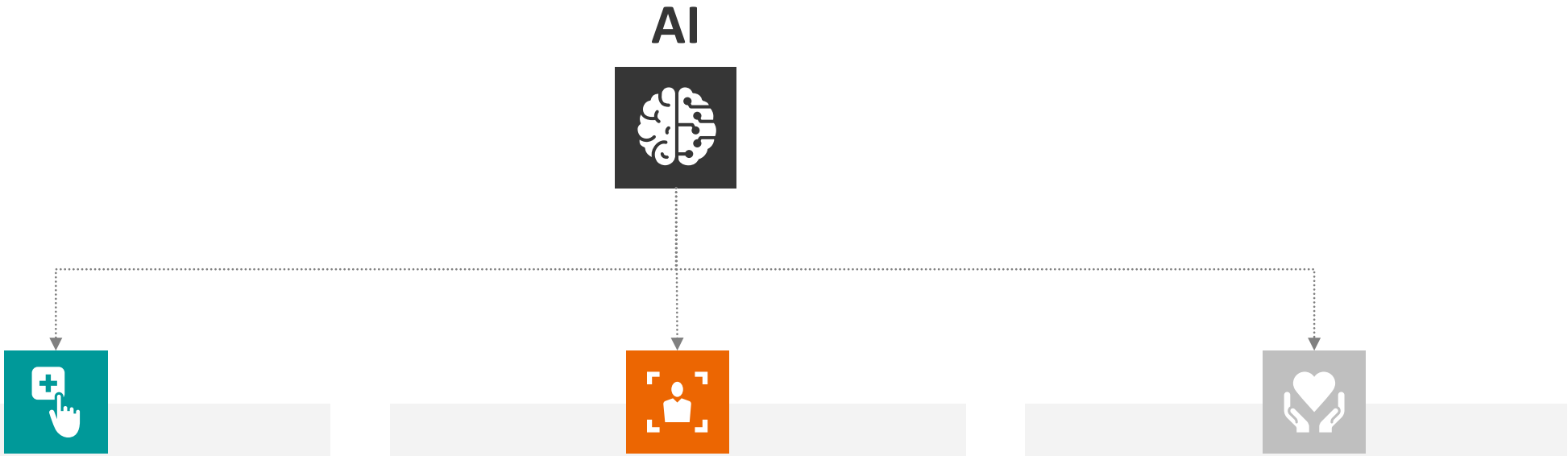
Of which,
more than 250
are rooted in deep learning

We are shaping the future of digital health with AI-powered solutions

We will improve clinical decision-making by **increasing the number of AI-supported product** offerings significantly over the next 5-7 years



AI drives healthcare digitalization



Expand precision medicine

Quality of care

Patient and risk stratification

Outcome optimization

Do what is right for the patient

Outcomes that matter to patients

Prioritizing complex/ acute cases

Avoiding unnecessary interventions

Transform care delivery

Efficiency and productivity

Productivity through increased assistance in automation

Clinical operation optimization

We develop AI applications to improve efficiency and productivity, optimize workflow, and enhance clinical insights

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Efficiency and Productivity

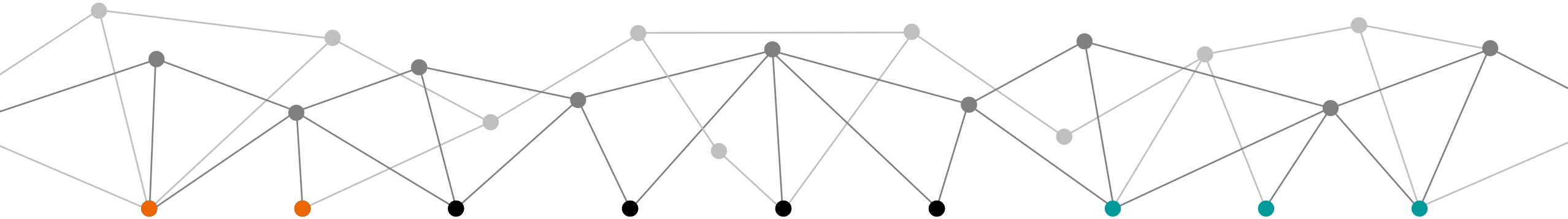
Simplify tasks, increase patient throughput

Workflow

Optimize and automate the exam

Clinical Insights

Streamline and support decision-making



Patient History and Protocol Selection

Service Efficiency

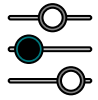


Image Optimization

View Identification

Measurement Support

Ergonomic Improvement

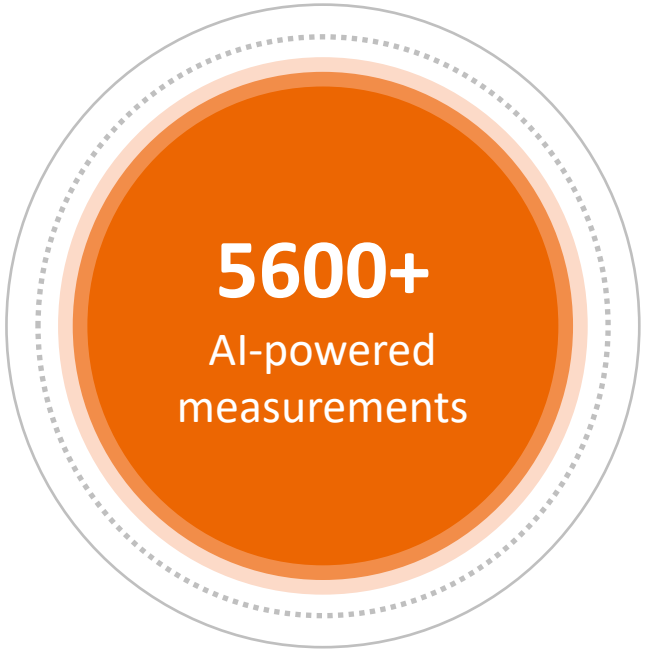
Detect/Score Findings

Procedure Planning

Virtual Second Opinion

AI Technologies onboard ACUSON Sequoia
5600+ AI-powered measurements

Improve diagnostic confidence and reduce time to treatment by decreasing task complexity, standardizing exam quality, and resolving resource shortages through implementation of practical artificial intelligence solutions.



AI Abdomen
Real-time view labeling & measurements

Trace^{AI}
Volume rendered measurements

AI Assist
Real-time view classification

4D Heart^{AI}
Strain, ejection fractions, & volumes

2D Heart^{AI}
Strain, Ejection Fraction

AI Measure
Automated Routine Echo, B-mode, M-mode, PW

Auto Calcs
Comprehensive measurements of complex masses

Auto OB
Fetal Biometry, EFW

Key drivers for an abdominal exam

SIEMENS Healthineers

Abdominal Pain[1]
Evaluation of unexplained abdominal pain to assess for organ pathology

Billary Disorder[1]
Detection of gallstones (cholelithiasis) and inflammation of the gallbladder (cholecystitis)

Pancreatic Pathology[1]
Detection of pancreatitis, pancreatic masses, or cysts

Kidney Disorders[1]
Evaluation of kidney stones, cysts, tumors, and hydronephrosis

Liver Disease[2]
Assessment of fatty liver, cirrhosis, hepatitis, and liver masses

Estimate of % of clinicians who request abdominal exam[2]

[1] Abdominal Pain evaluation of unexplained abdominal pain to assess for organ pathology
[2] Data on file

AI Abdomen

Empower faster, smarter abdominal exams

- Automatically recognizes and labels 17 anatomical views and calculates 12 key measurements in milliseconds
- Improves exam throughput and workflow efficiency
- Driven by a proprietary AI algorithm available exclusively on ACUSON Sequoia

Standardize imaging across users

- Automated measurements standardize imaging across users
- Automatic reordering of protocol scans and alerts for missed views

Reduce user strain & pain

- Reduces hand motion by 47% and keystrokes by 55% compared to the manual labeling and measurements of a routine complete abdomen exam
- Mitigates fatigue and injury that result in pain for 90% of ultrasound users[1]

[1] Evans K, Roll S, Baker J. Work-Related Musculoskeletal Disorders (WRMSD) Among Registered Diagnostic Medical Sonographers and Vascular Technologists

AI Abdomen

Automating abdominal ultrasound workflow with AI

Patient registration

Scan

Freeze image

AI-based detection and labeling

Activate Annotation Tool

AI anatomy

Label image

AI-based measurements

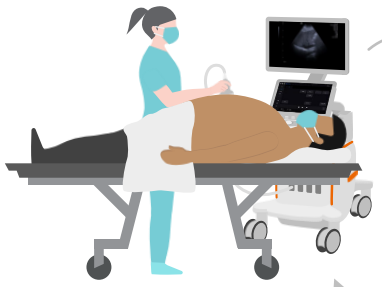
Activate measurement caliper

Measure

AI measurements

Unfreeze image

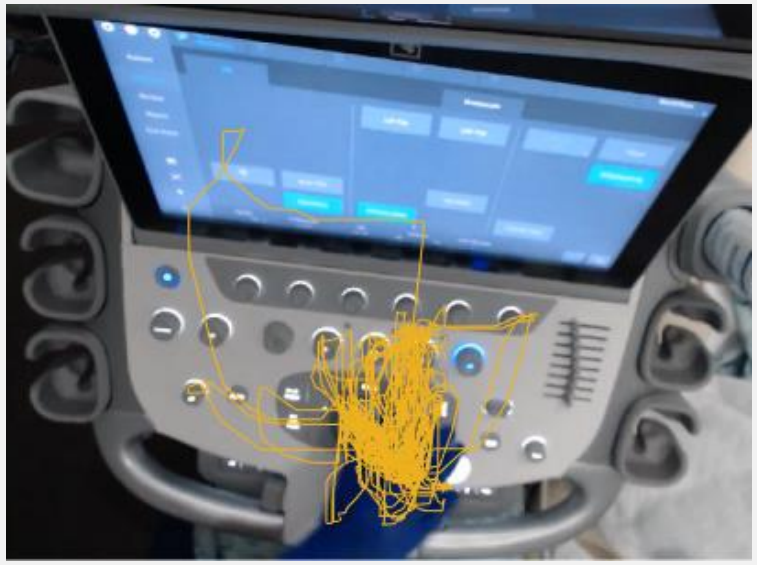
Repeat **10+ times**



Sonographer ergonomic stress

The reduction in hand movement is visible when compared with other methods

AI Abdomen



Reduced hand motion

47%

vs manual[1]

Protocol

Reduced hand motion

24% vs manual

Manual

[1] Data on file

AI Abdomen workflow in action

AI Abdomen
17 Essential views for complete exams

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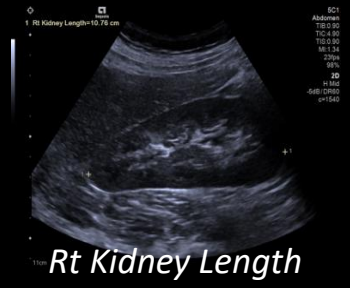
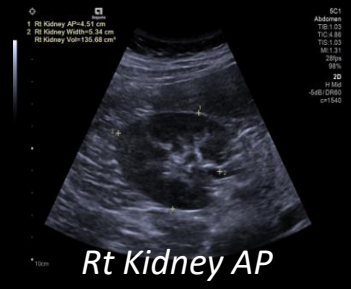
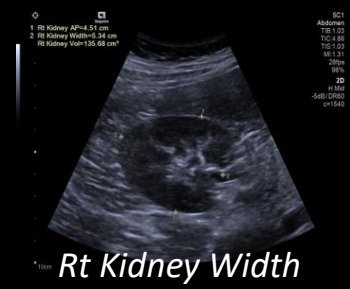
AI Abdomen
12 Key measurements for complete exams


GB Wall Thickness

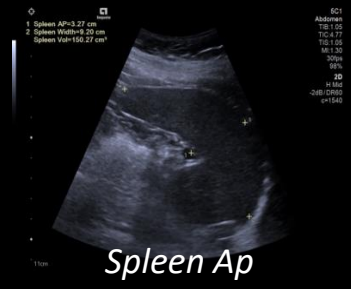

Liver Length

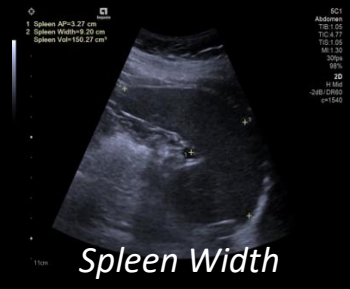

Rt Kidney Length


Rt Kidney AP

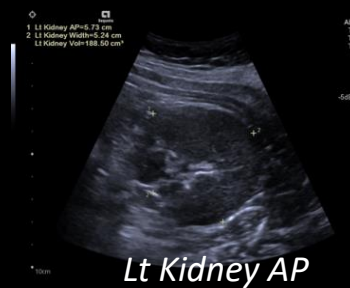

Rt Kidney Width


Spleen Length


Spleen Ap


Spleen Width


Lt Kidney Length


Lt Kidney AP


Lt Kidney Width


CBD

Lifestyle choices impact cardiovascular diseases

SIEMENS Healthineers

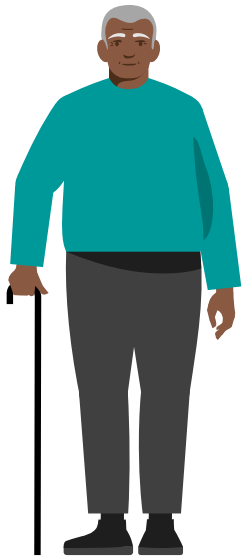
Cardiovascular diseases (CVDs)

are the leading cause **of death globally.**[1]

An estimated

17.9 million

people died from CVDs in 2019, representing **32% of all global deaths.** Of these deaths, 85% were due to heart attack and stroke.[2]



Out of the **17 million premature deaths** *(under the age of 70)* due to noncommunicable diseases in 2019,

38%

were caused by CVDs[3]

Over three quarters of CVD deaths

take place in **low-and middle-income countries.**[4]

Most cardiovascular diseases can be prevented

by addressing behavioral risk factors such as **tobacco use, unhealthy diet and obesity, physical inactivity and harmful use of alcohol.**

1-4. Data on file. Recent Vascular information from The World Health Organization.

ACUSON Sequoia delivers a comprehensive package of AI-powered cardiology features to improve workflow

SIEMENS Healthineers

AI Assist

Automatic identification and classification of cardiac structures

2D Heart^{AI}

AI-powered quantification for Cardiac Strain analysis

4D Heart^{AI}

Metrics across all four heart chambers – strain, global longitudinal strain (GLS), ejection fractions, and volumes

Trace^{AI}

Measurement tool for Volume rendered images for cardiac and structural heart imaging

Stress Echo

Comprehensive and intuitive heart wall motion scoring software

AI Measure

Semi-automated measurements for Routine Echo exams

Z6T 4D TEE Transducer

Supports pre-op imaging and interventional guidance with volume transesophageal echo

5Z1 Transducer

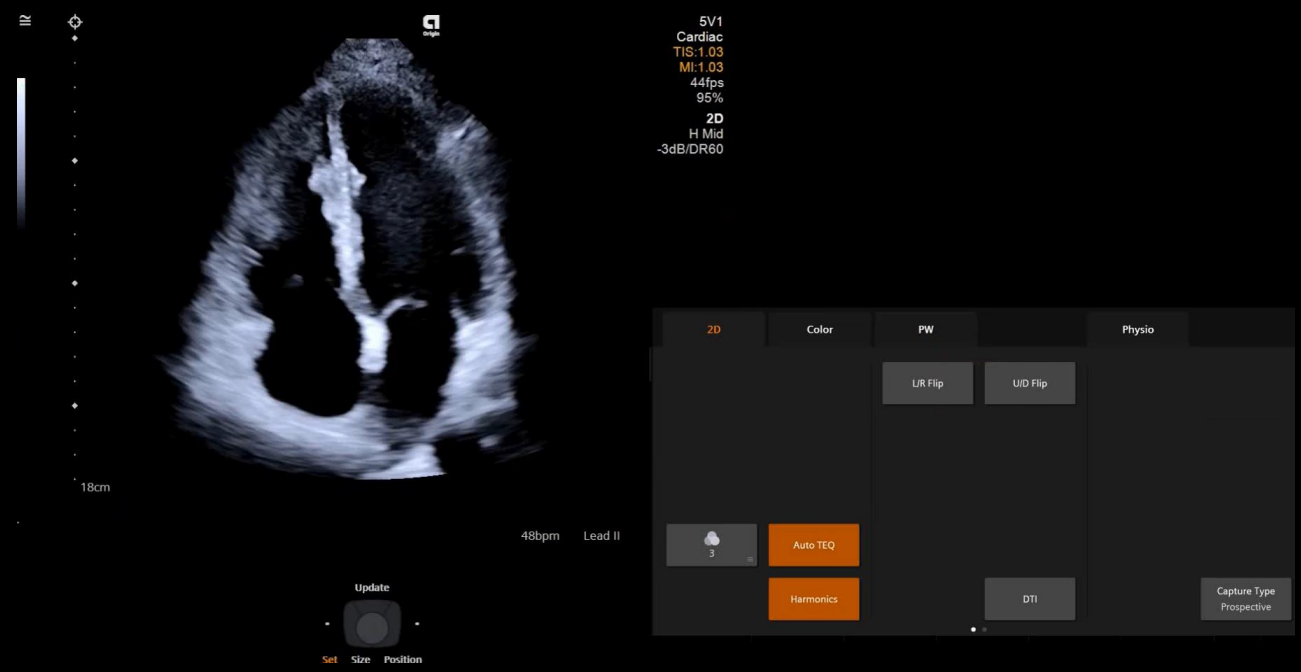
Matrix 4D and BiPlane optimized for Cardiac, Abdomen and Gyn

AI Assist

- AI Assist has real-time AI view recognition
- AI view classification streamlines the imaging process

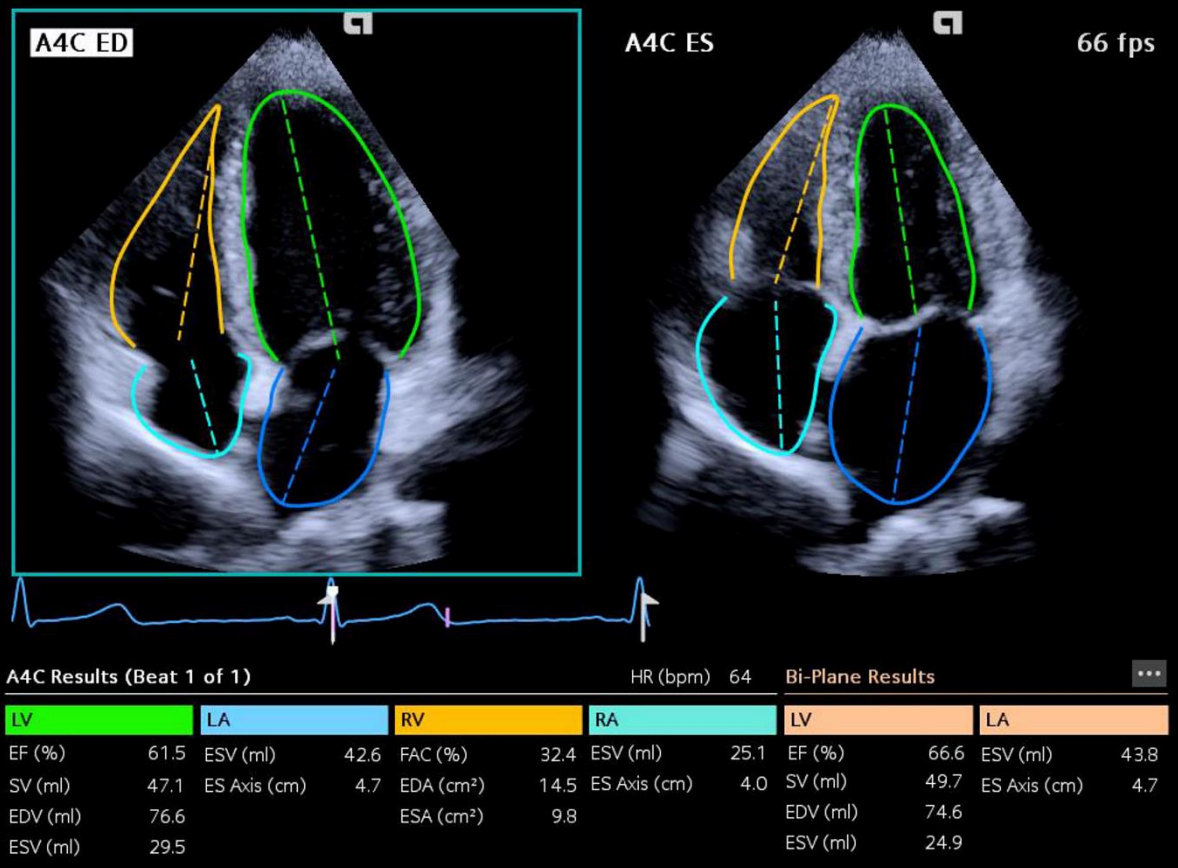
Enhanced efficiency

- Flexibility to override auto placement and easily switch between auto and manual
- Semi-automated placement of color Doppler ROI and spectral Doppler sample
- Available on cardiac TTE transducers for complete routine echocardiogram

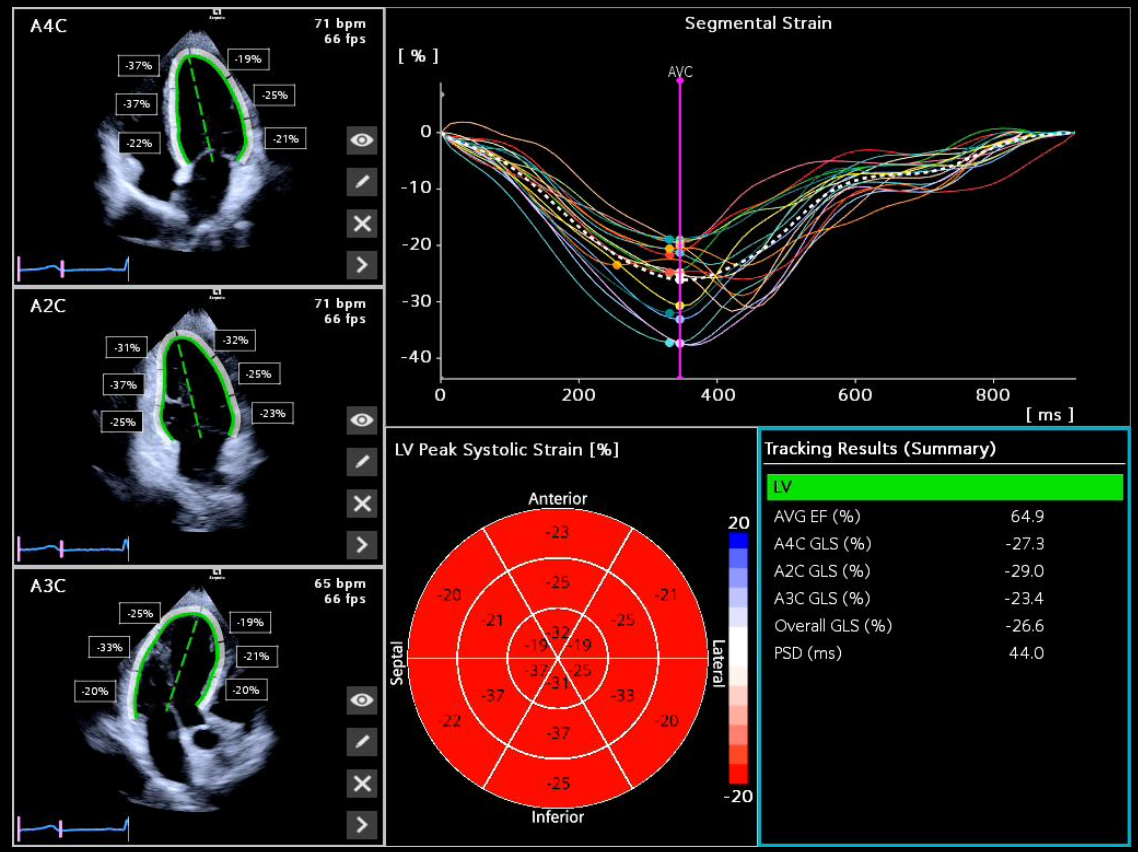


2D Heart^{AI} strain analysis
Ease of use, reproducibility, and standardization

SIEMENS Healthineers



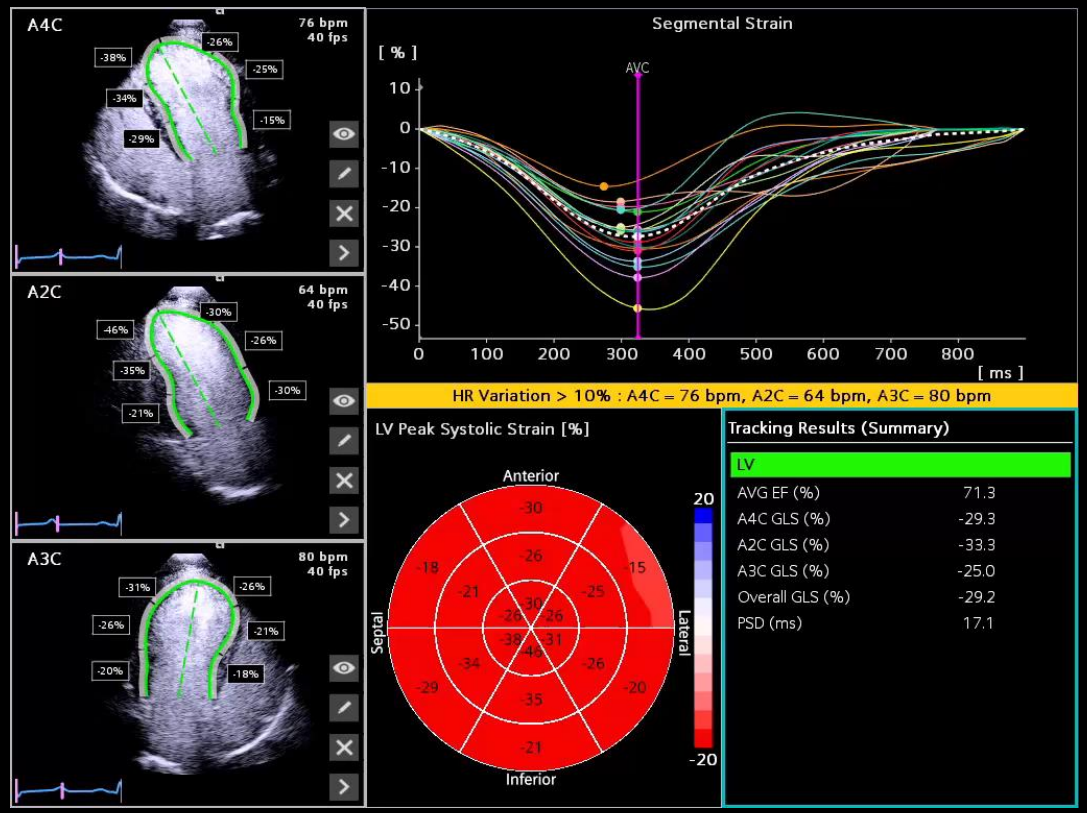
Four-Chamber Biplane Assessment



GLS and Segmental Analysis

2D Heart^{AI}

Strain with contrast



Swift and precise cardiac assessments

- AI-powered quantification for Ejection Fraction and Strain
- Comprehensive measurements across all 4 heart chambers in seconds
- Improves speed and precision over manual tracing
- Auto view detection and contour placement
- Provides immediate insights for informed decision-making

Industry

1st

Strain analysis with or without ECG for rapid assessment

Industry

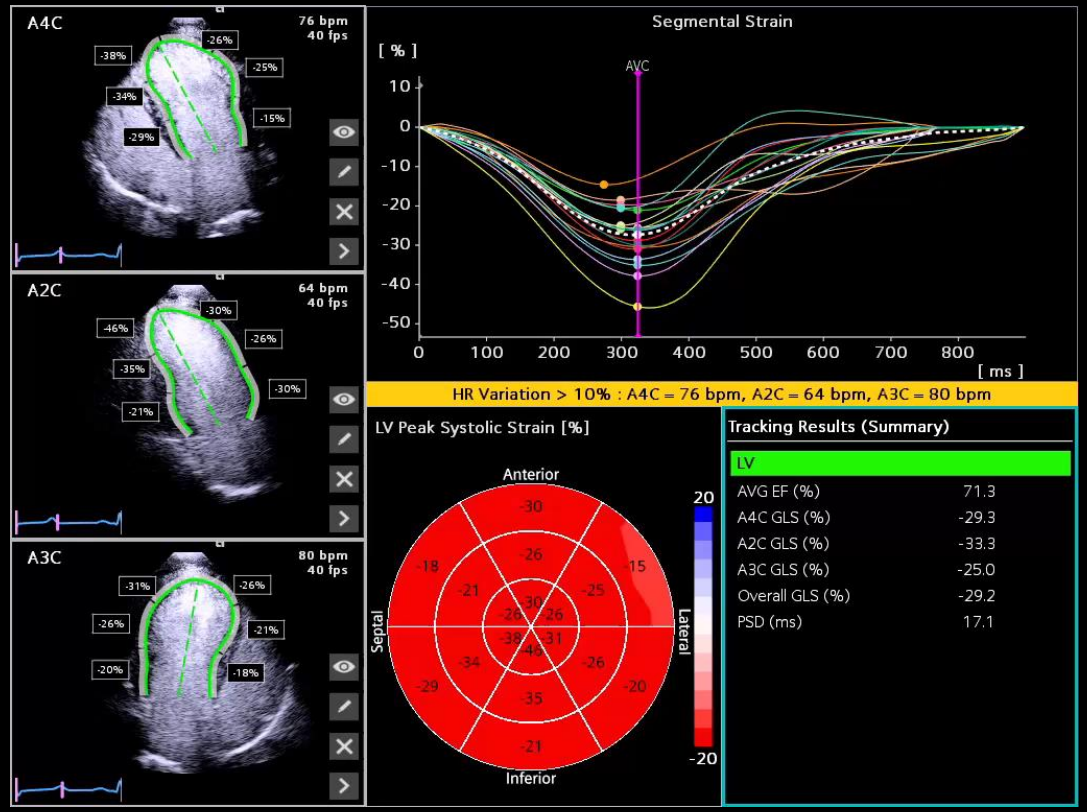
1st

Strain analysis with or without Contrast to expand assessment to technically difficult exams

AI-powered quantification for ejection fraction and strain
Improved speed and precision over manual tracing

2D Heart[AI]

Deep Learning



Auto view detection and contour placement

Easy editing and ability to change ED/ES and AVC timings

Industry

1st

Strain analysis with or without ECG for rapid assessment

Industry

1st

Strain analysis with or without Contrast to expand assessment to technically difficult exams

2D Heart^{AI}

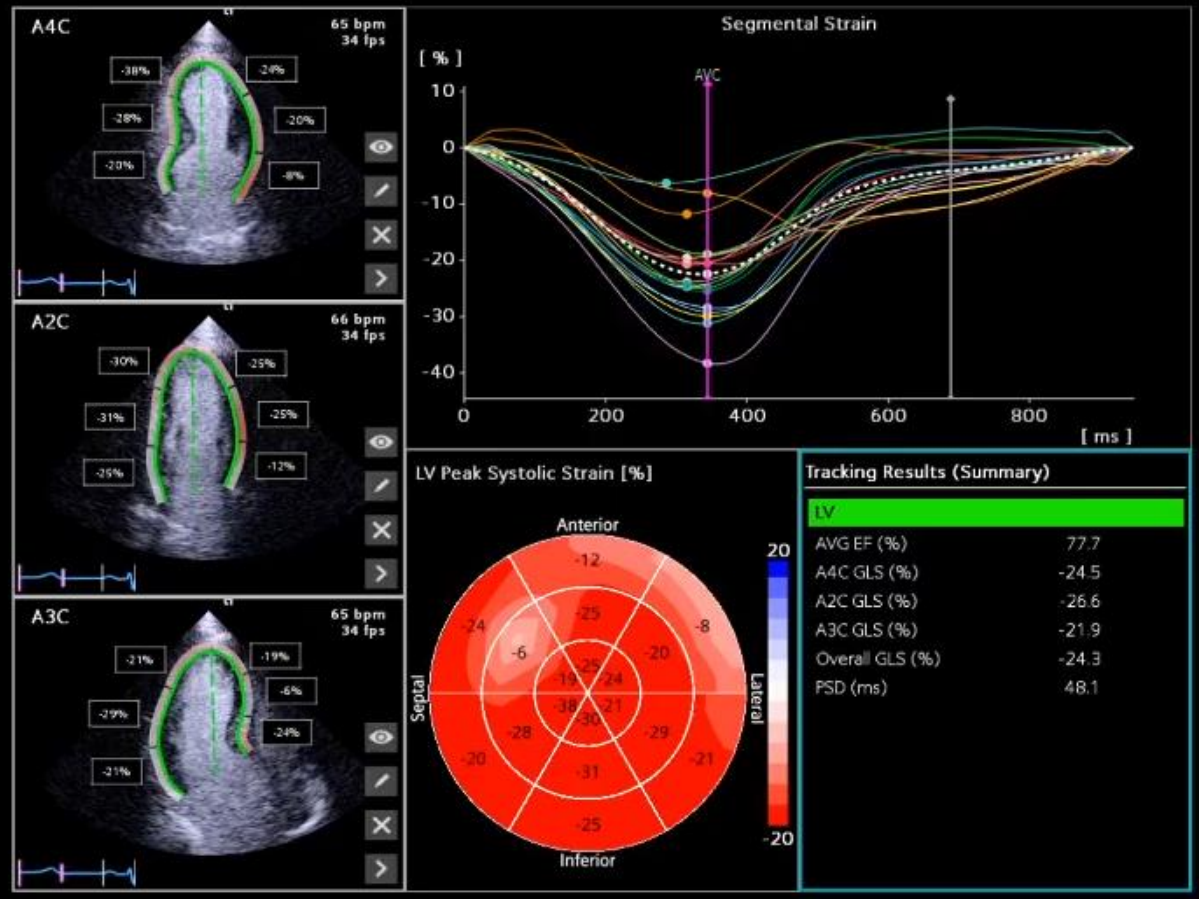
Contrast Quantification

First AI based auto LV tracking with LVO

Industry

1st

Strain with contrast



4D Heart[AI]

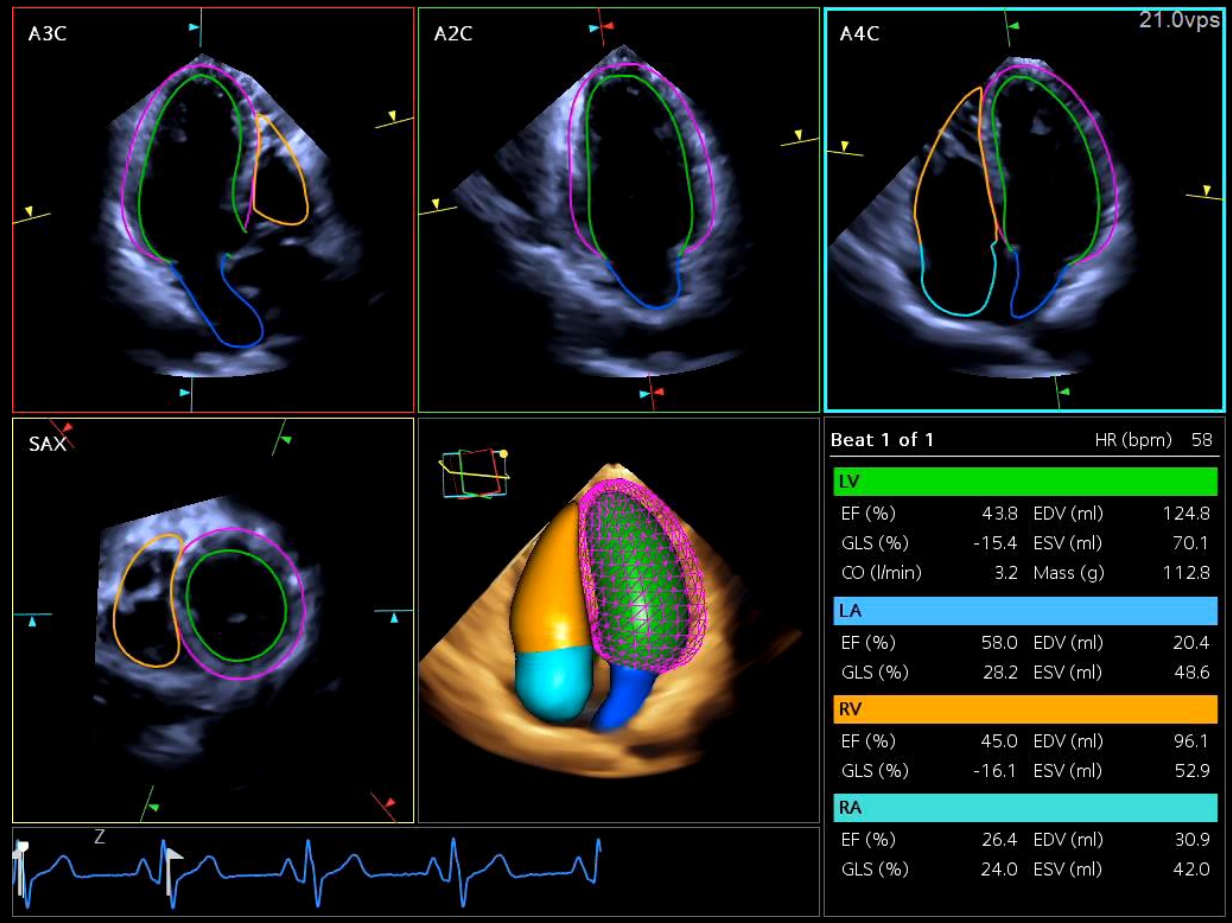
SIEMENS Healthineers

One-click cardiac assessment

- Utilizes proprietary AI to process complex cardiac data instantaneously, in seconds
- Measures essential cardiac metrics across all 4 heart: strain, global longitudinal strain (GLS), ejection fractions, and volumes

Instant insights, real-time results

- Real-time quantification ensures timely and accurate decision-making
- 4D analysis
- Imaging capabilities across both TTE and TEE modalities for versatile usage and expanded clinical applications



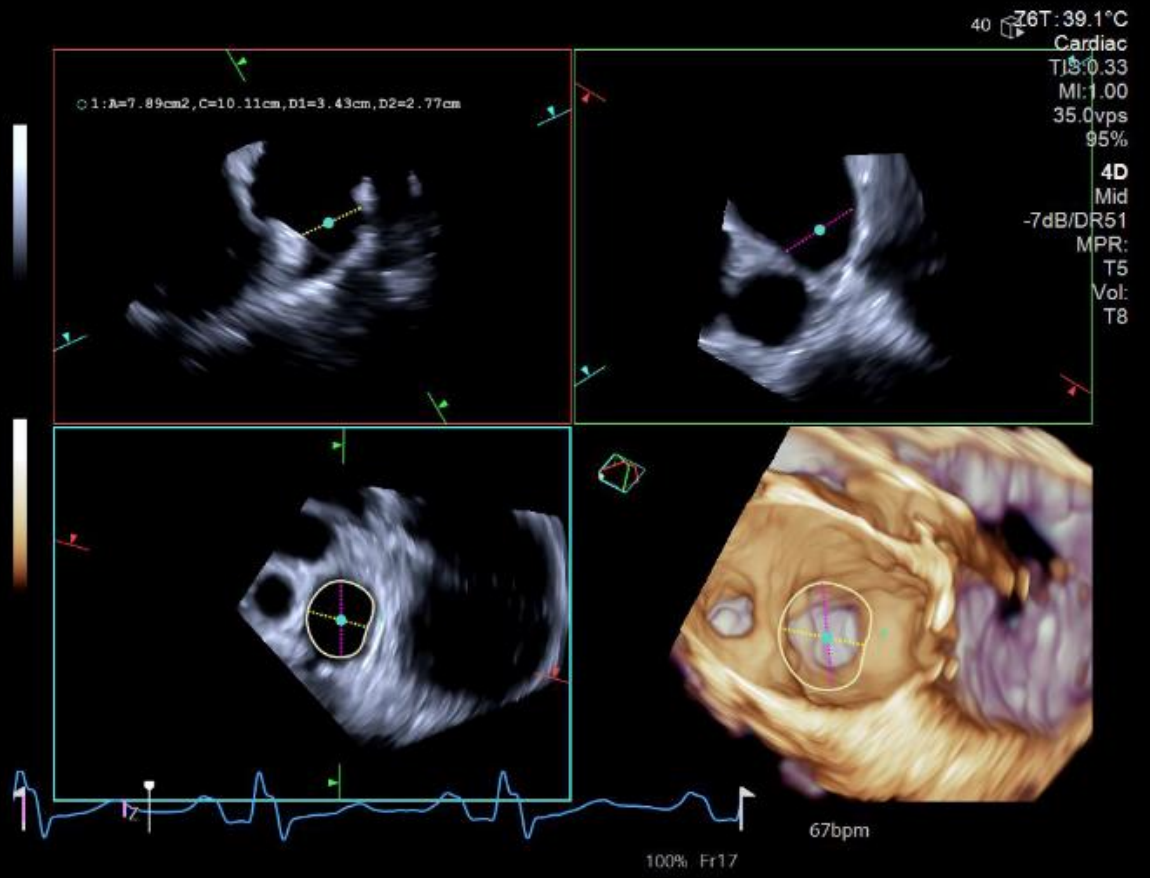
Trace[AI]

Quick, semi-automated calculations

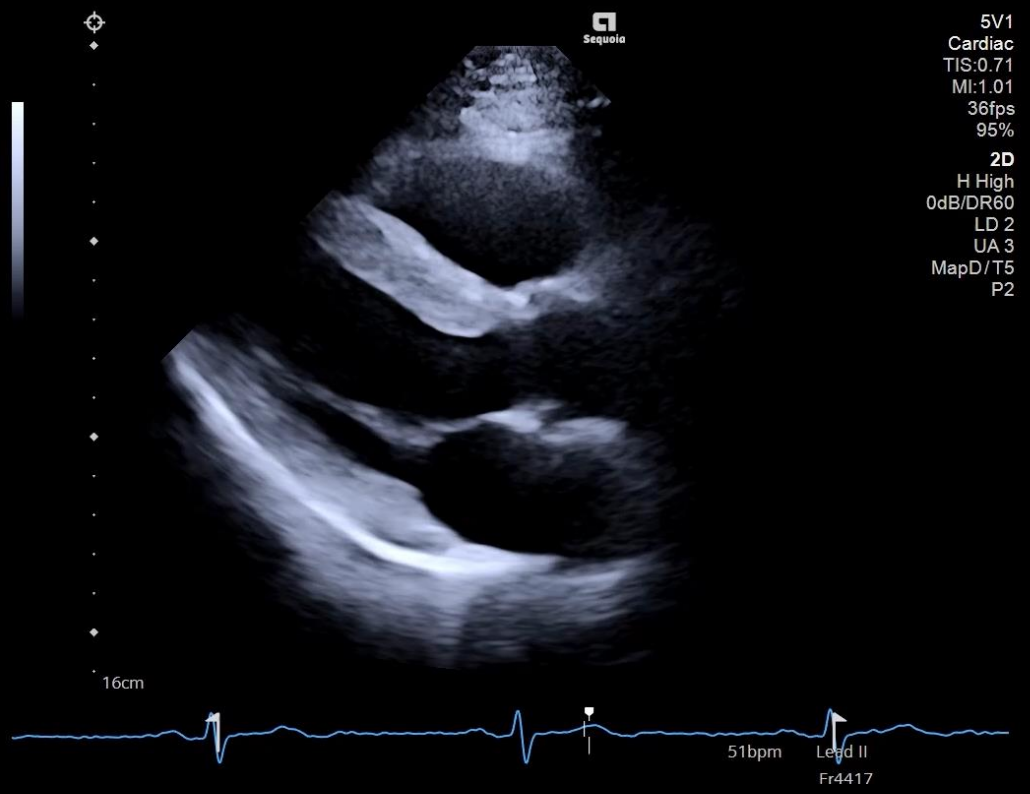
- AI-powered measurement tool for volume rendered images for cardiac and structural heart imaging
- Detects the borders of an orifice to quickly measure the anatomical structures on 2D MPRs

‘Snap to’ workflow

- Snaps to ovoid structures to automatically measure minimum/maximum diameter, circumference, and area
- See the measurement graphics rendered in the VR image



AI Measure



Alleviate time consuming calculations

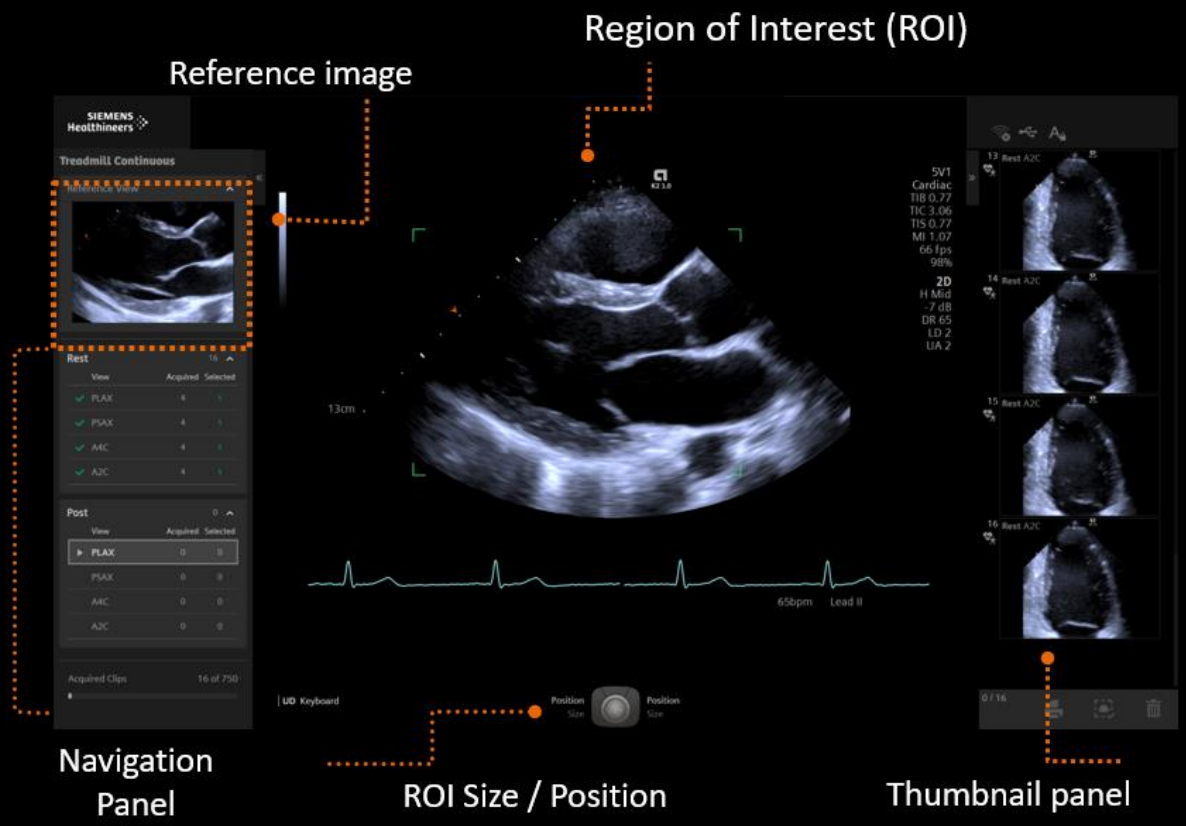
- AI-powered measurements alleviate tedious, time consuming and variable Routine Echo calculations
- Semi-automated measurements for 2D, M-Mode, and PW measurements

Standardize exams across users

- Reduces variability and standardizes across users to improve diagnostic confidence on follow-up exams
- Improves the patient and user experience by reducing routine echo exam time

120 Offers 120 AI calculations

Stress Echo



Deeper cardiac assessments

- Provides tools for ECG-triggered acquisition, display, selection, comparison, evaluation, and archiving of multiple cardiac loops during various stages of a Stress Echo examination
- Comprehensive heart wall motion scoring evaluates cardiac function at levels of stress
- A deeper cardiac assessment supporting pre-surgical workups

Simple and intuitive workflow

7 User-definable default protocols

Support pre-op imaging and interventional guidance with 4D TEE

Z6T Volume TEE Transducer

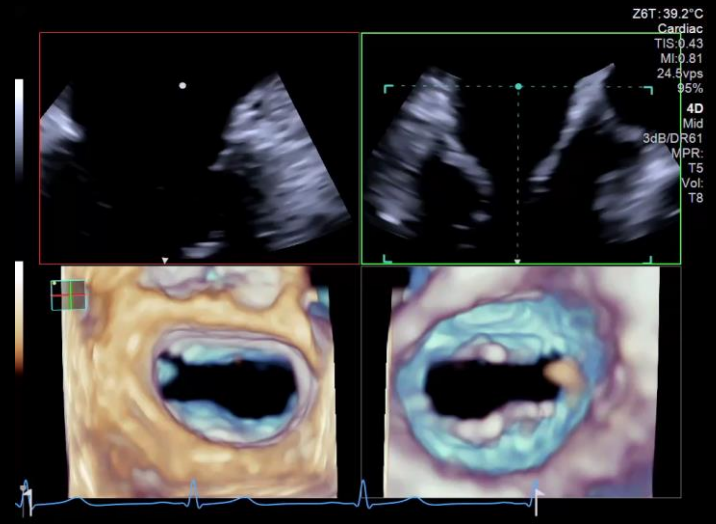
Expand Cardiology capabilities with high volume rates with high resolution for valvular analysis

Support pre-op imaging and interventional guidance for left atrial appendage closure and mitral valve repair procedures

- Single crystal matrix array
- 2D, 4D, BiPlane+, B-mode, color flow Doppler, M-mode, pulsed and continuous wave spectral Doppler

Bi-Plane

Real-time 4D

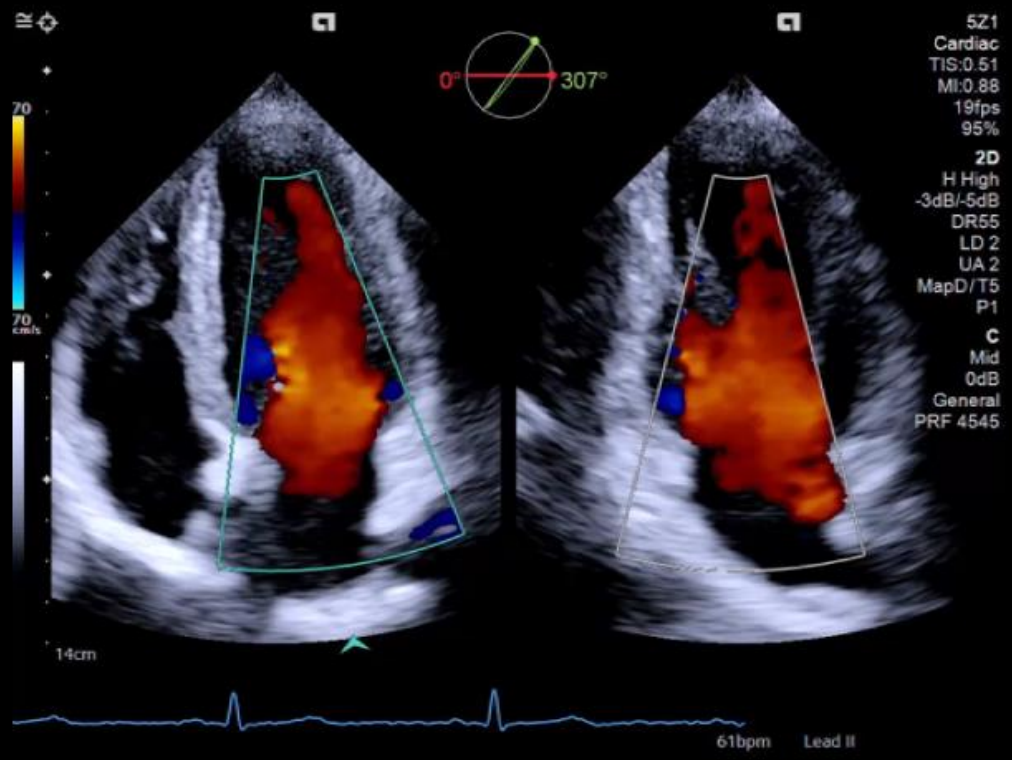


5Z1 Matrix Array transducer

5Z1 Transducer – Cardiac Imaging

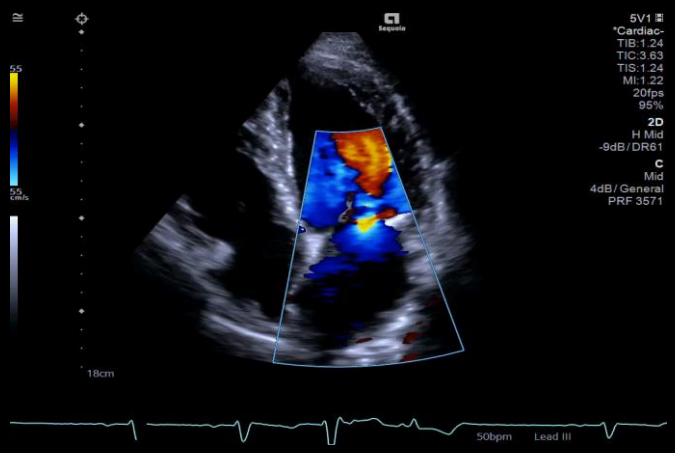
Matrix Array transducer for Adult and Pediatric cardiac imaging with active electronics for instantaneous full volume transthoracic echo

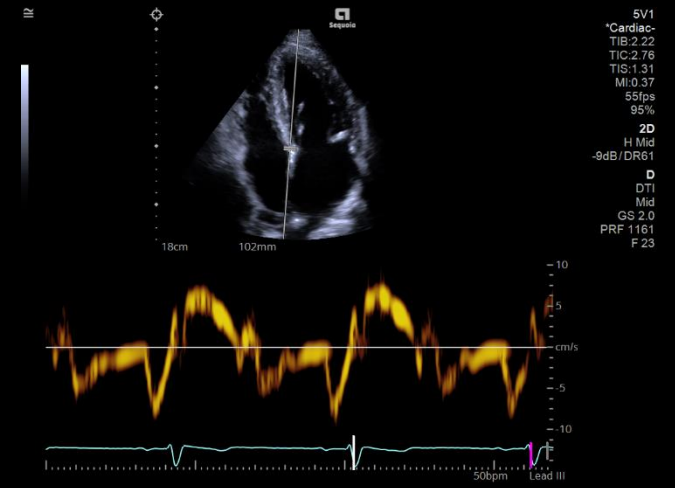
- Ergonomic design with a small footprint supports challenging patient windows
- 2D BiPlane+, 2D BiPlane Color, 4D Volume, 4D Color
- Gesture Detection Technology

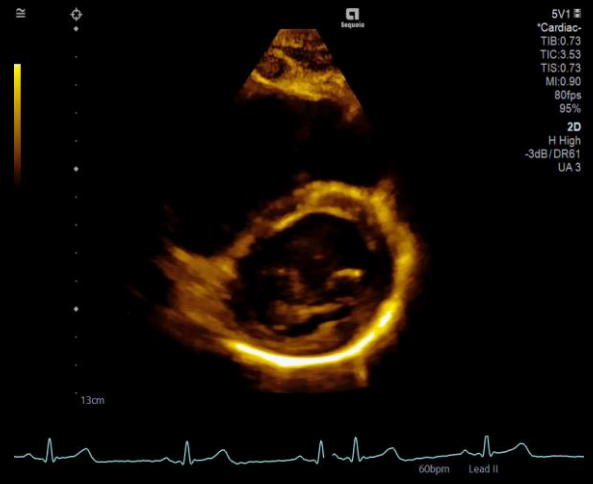


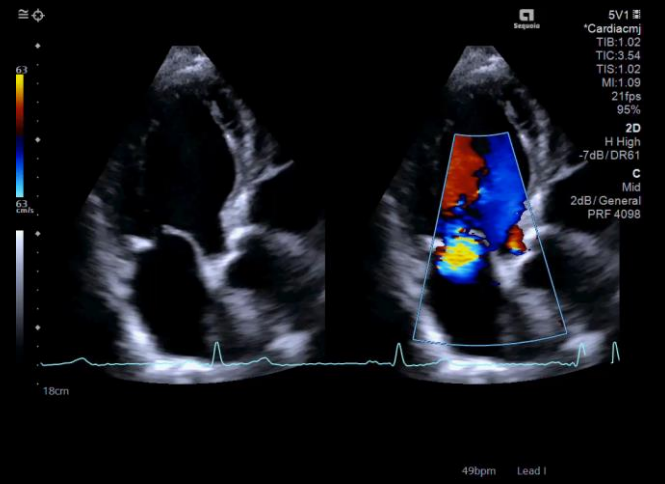
Addressing variations image fully focused from near field to far field

Highest resolution color flow, sensitivity and penetration









Liver disease

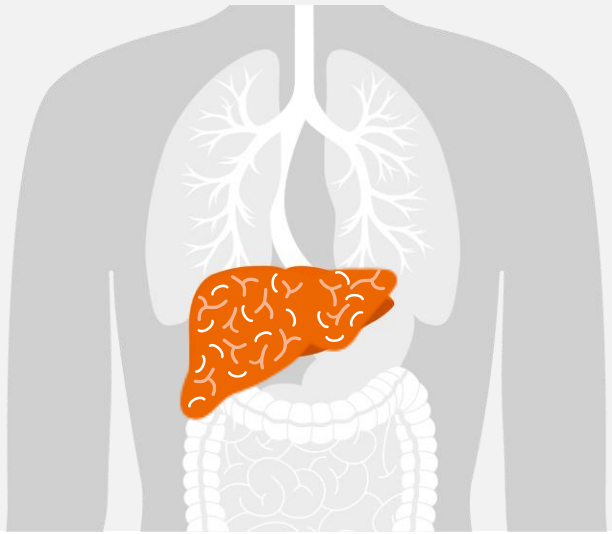
Silent Killer

SIEMENS Healthineers

MASLD

Metabolic dysfunction-associated steatotic liver disease

Formerly known as Non-Alcoholic Fatty Liver Disease (NAFLD)



30%

of the world's population is affected by MASLD[1]

#2

leading cause of years of working life lost in America and Europe[2]

1,436, 744 new cases[1]

Increased from 905.766 since 2020

#3 in mortality

> 830.000

Liver Cancer deaths per year, ~2.300 deaths per day[1]

<16% survival rates

Consistently low average 5-year survival rates for last decades[2]

1. Yip TC, Vilar-Gomez E, Petta S, Yilmaz Y, Wong GL, Adams LA, et al. Geographical similarity and differences in the burden and genetic predisposition of NAFLD. Hepatology 2023;77(4):1404–27. Doi: 10.1002/hep.32774.
2. Karlsen, et al. Lancet 2022; 399: 61–116

Liver disease is reversible if caught early enough

SIEMENS Healthineers

Early Detection

Diagnosis & Staging

Treatment Planning & Therapy

Healthy

MASLD
(fat accumulation)

MASH
(MAFLD + Inflammation)

High risk MASH
(MASH + Fibrosis)

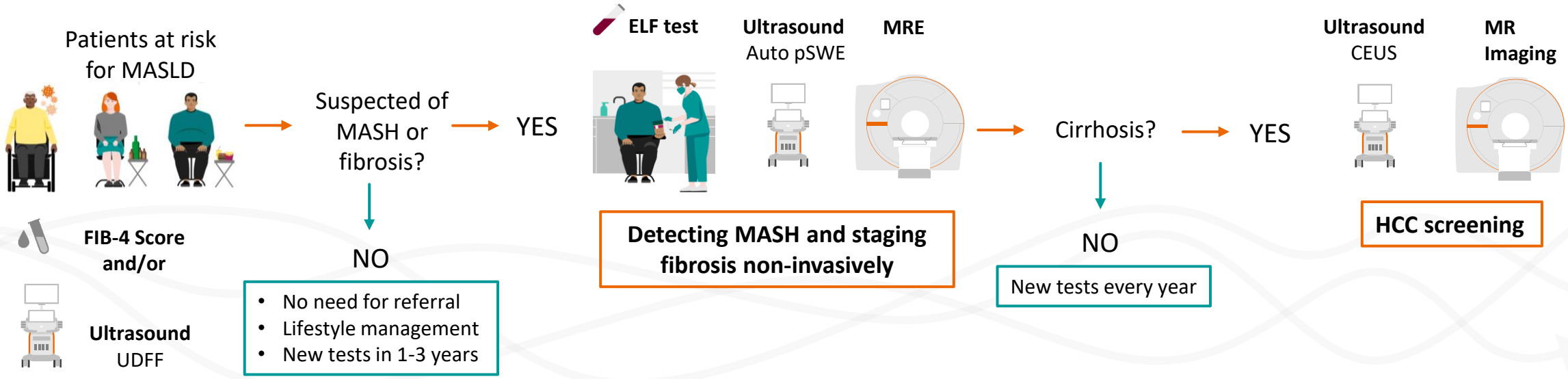
Cirrhosis
Hepatocellular Ca (HCC)

Reversible

Disease Progression

Few treatment options with curative intent at at late diagnosis

Siemens Healthineers helps to accelerate the path from risk stratification, diagnosis and survivorship



Based on EASL Guideline, JOURNAL OF HEPATOLOGY 2021;75:659-689.

MRI Proton Density Fat Fraction (MRI–PDFF)

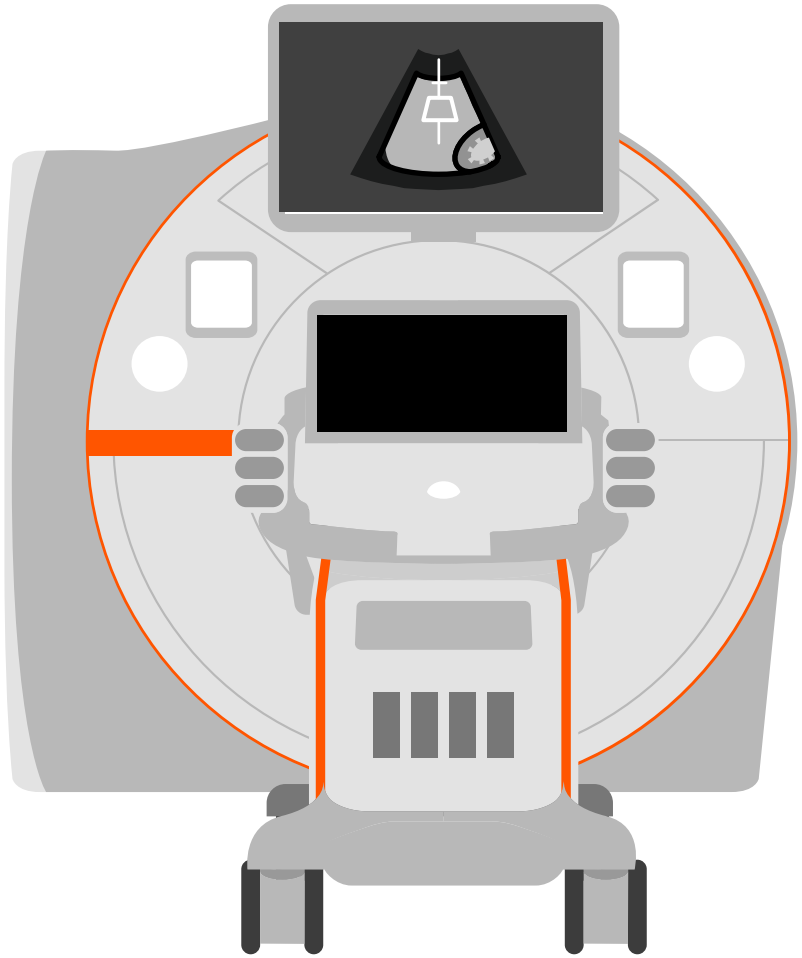
MRI-PDFF closely correlates with the histologic assessment of liver fat content, thus it is currently thought of as a “surrogate” to liver biopsy

There are, however, pitfalls:

- Expensive
- Not everyone can get access
- Time consuming
- Need for sedation in some cases

As a result, there is a need for new noninvasive, easily available/accessible, cost-effective test such as…

ultrasound-derived fat fraction (UDFF)



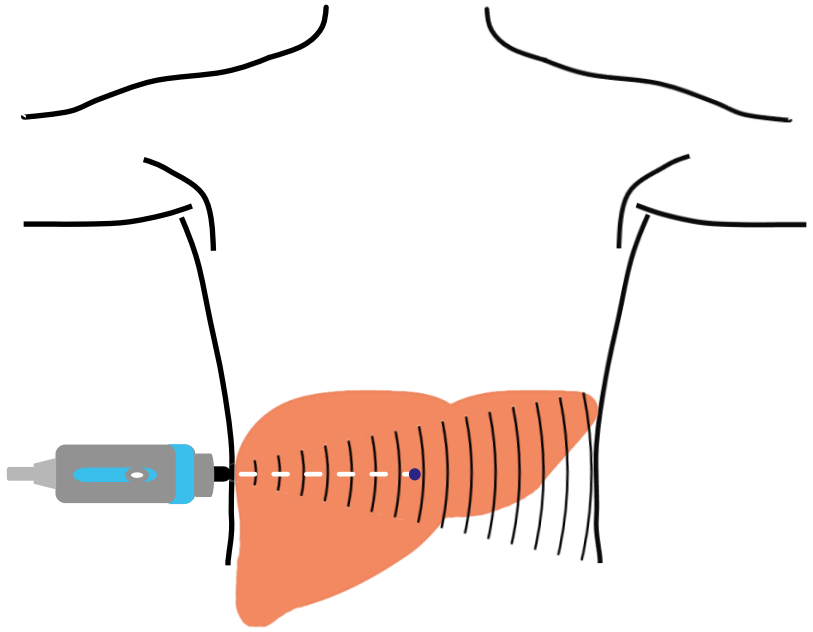
Ultrasound-derived fat fraction (UDFF)
What is it and how do we determine it?

Ultrasound-derived fat fraction (UDFF) **non-invasively** quantifies fat in the liver

UDFF index is estimated from both **attenuation coefficient (AC) and backscatter coefficient (BSC)**

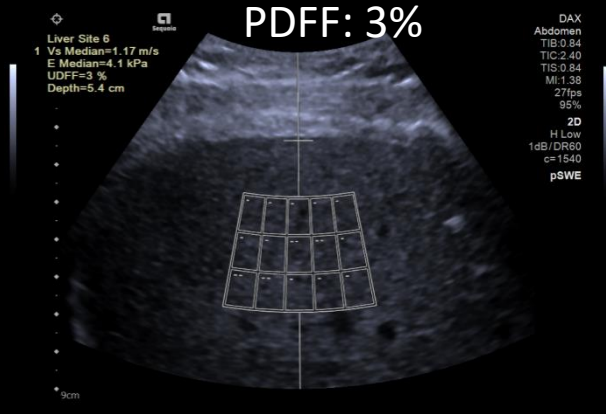
A proprietary algorithm **maps AC and BSC to MRI-PDFF;** UDFF shows good agreement with MRI-PDFF in adults and children

Like MRI-PDFF, UDFF is **displayed in percent (%)**

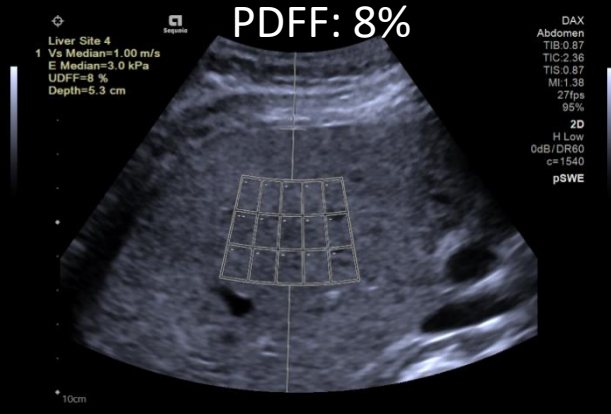


Ultrasound-derived fat fraction (UDFF)
A benchmark for quantifying hepatic steatosis

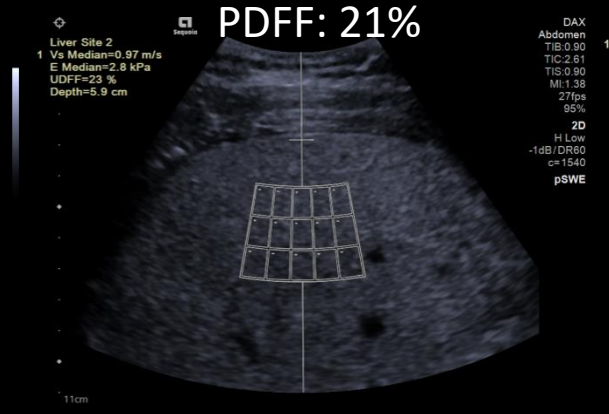
UDFF: 3%
PDFF: 3%



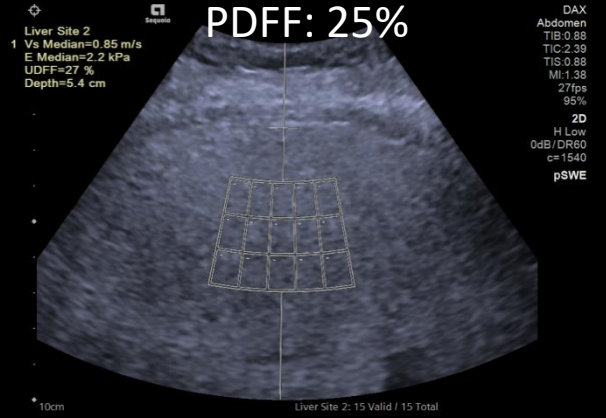
UDFF: 9%
PDFF: 8%

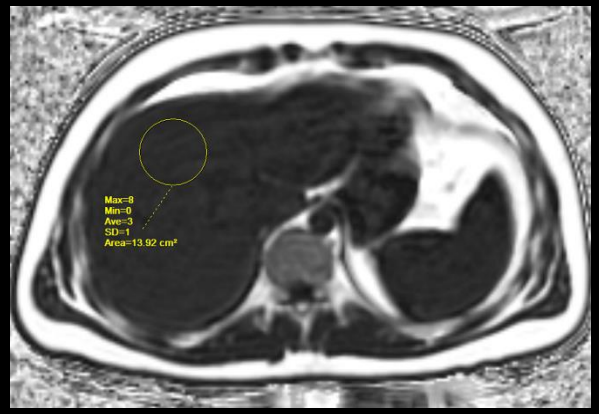


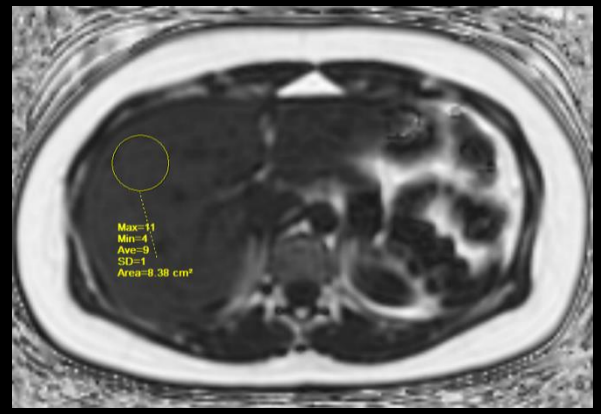
UDFF: 23%
PDFF: 21%

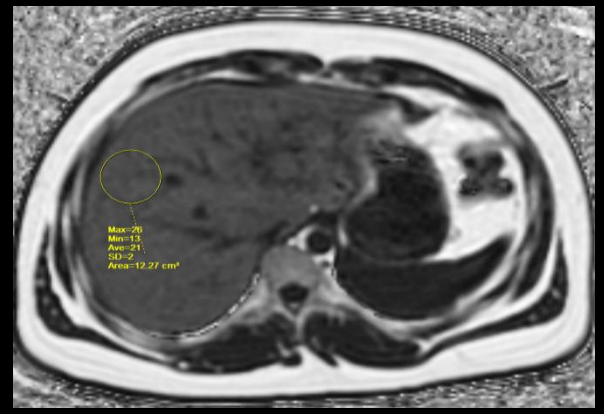


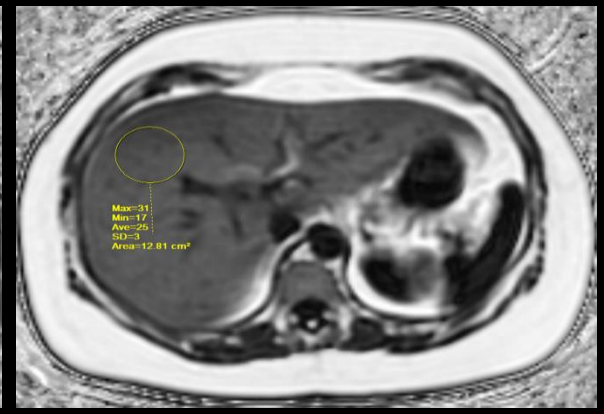
UDFF: 27%
PDFF: 25%









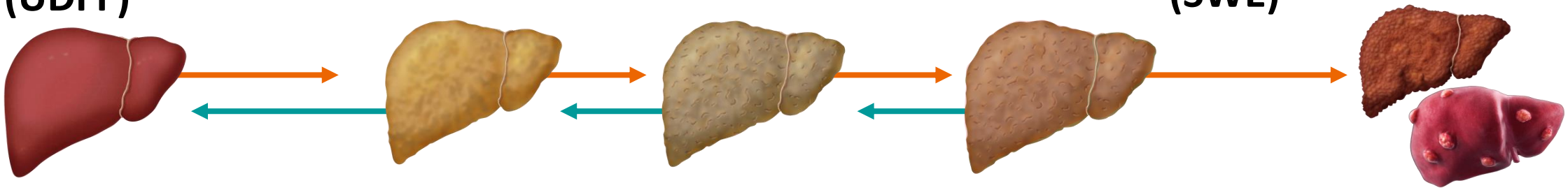


Ultrasound biomarkers

SIEMENS Healthineers

Ultrasound-derived fat fraction (UDFF)

Shear Wave Elastography (SWE)



Healthy

Steatosis

Fat accumulation

Metabolic Dysfunction-associated Steatohepatitis (MASH)

steatosis + ballooning + inflammation

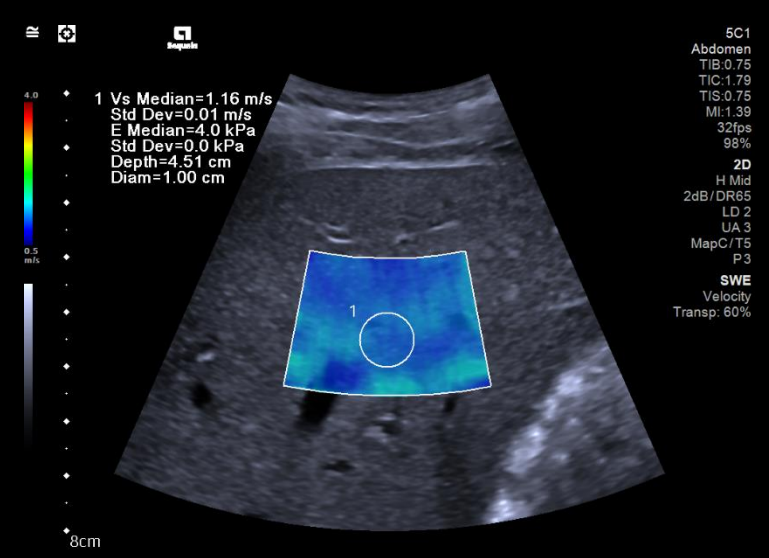
Fibrotic MASH

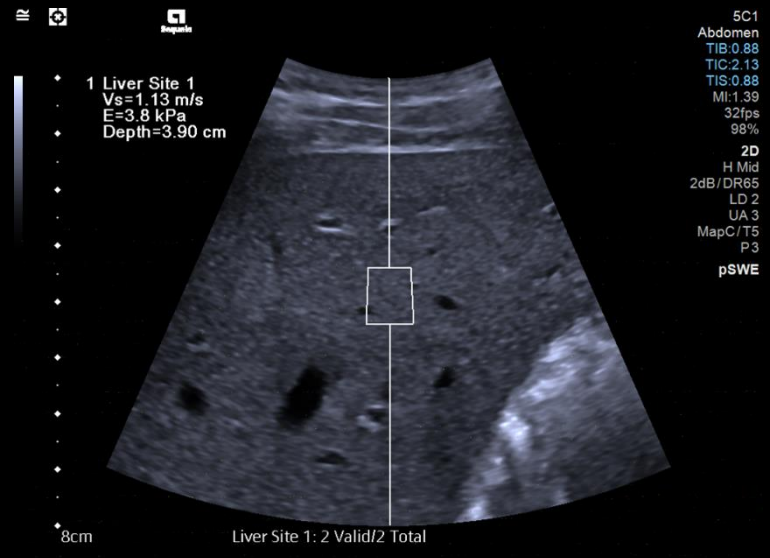
Steatosis + ballooning + inflammation + F≥2

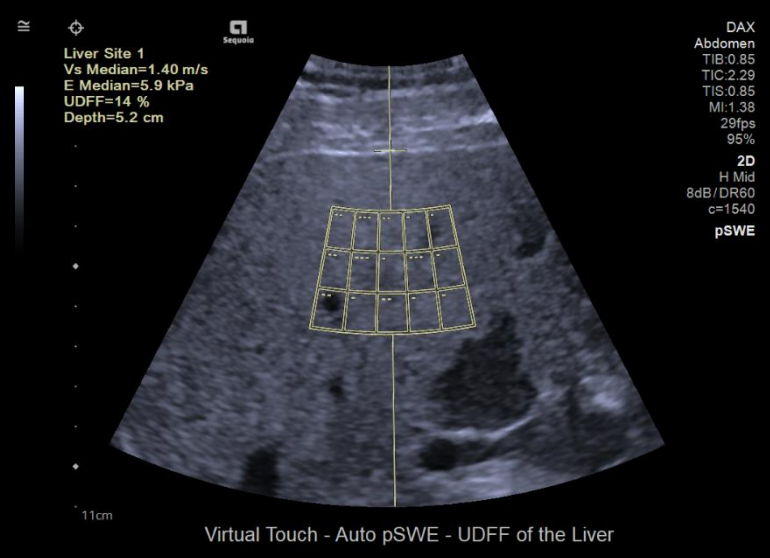
Fibrosis
Cirrhosis
Hepatocellular carcinoma

- **Comprehensive liver assessment**
  - UDFF quantifies fat content
  - SWE quantifies stiffness
  - CEUS for lesion characterization

Liver Elastography is a proven tool in ultrasound tissue evaluation







2D SWE	pSWE	Auto pSWE

Reduce

Unnecessary biopsies

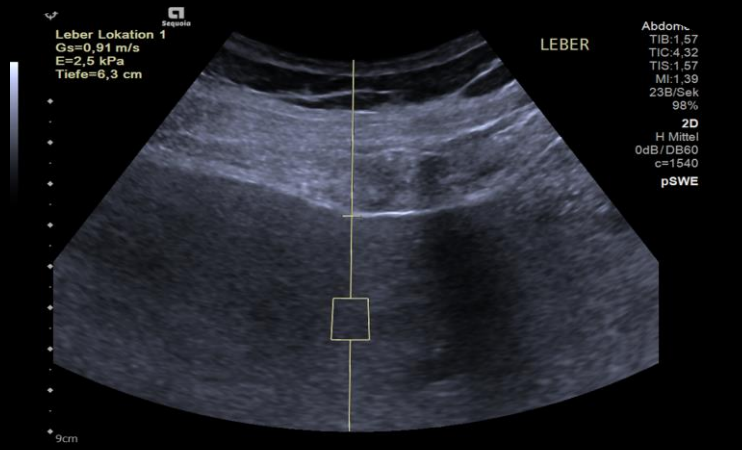
Monitor

Disease progression

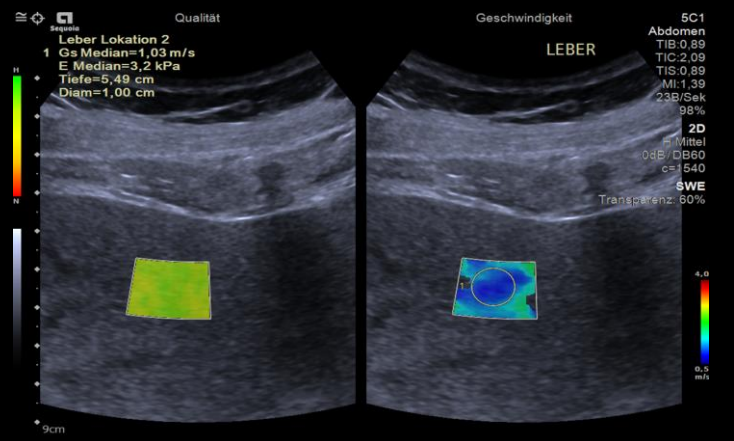
57-year-old female, BMI 46.5 kg/m2
Evaluation for bariatric surgery, liver steatosis on routine US

SIEMENS Healthineers

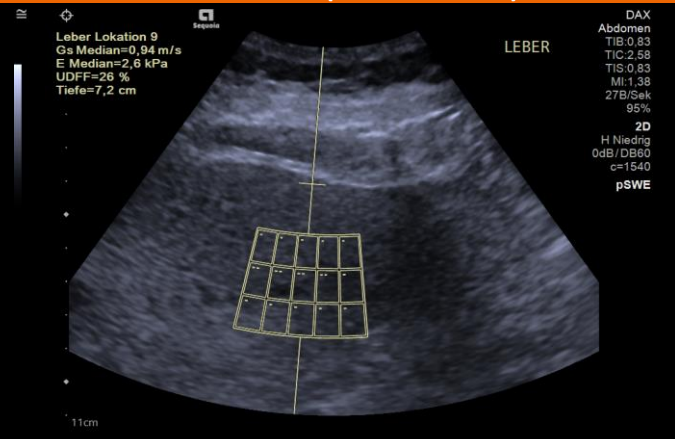
pSWE
Median: 2.6 kPa (no stiffness)



2D SWE
Median: 2.9 kPa (no stiffness)



Auto pSWE + UDFF
Median: 2.6 kPa (no stiffness)
UDFF 26% (Steatosis)



Liver Biopsy Results
- F0 (No fibrosis)
- S2 (Moderate Steatosis)

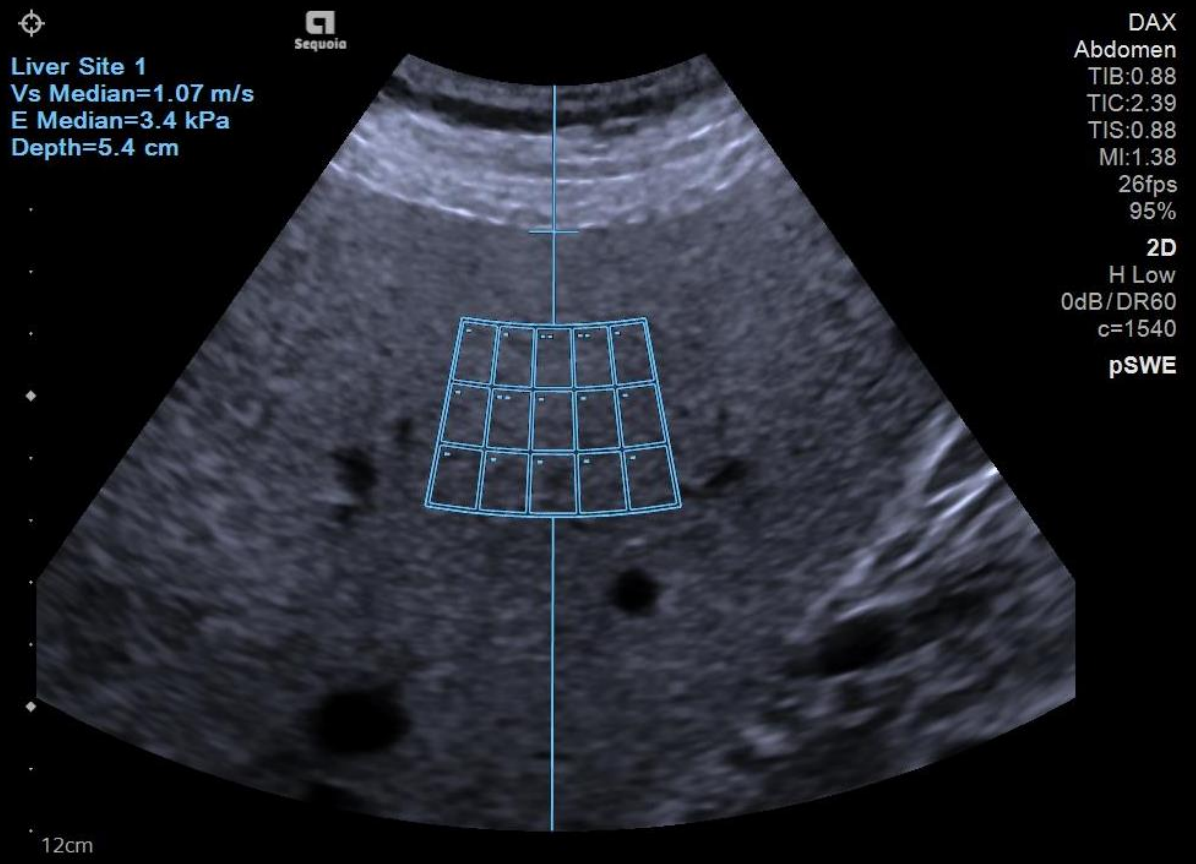
Auto pSWE + UDFF demonstrates concordance with liver biopsy and other elastography methods

Case courtesy of David JM BAUER, MD, Fellow Gastroenterology and Hepatology

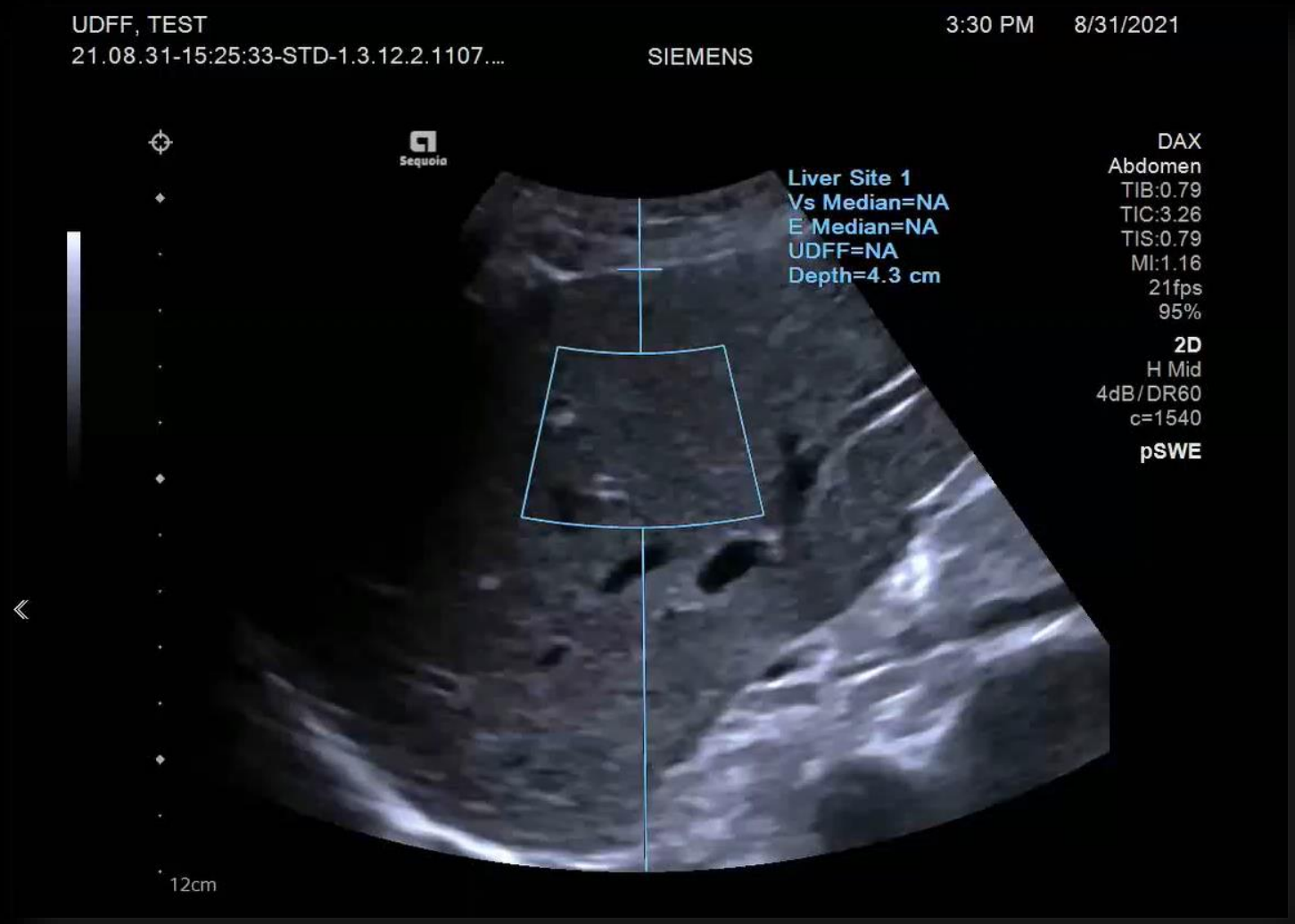
Auto pSWE – Liver elastography workflow enhancement

- Same physics and principals as pSWE
- Acquires up to 15 individual pSWE measurements in a single acquisition
- Automatically removes any invalid measurements
- Dots visually indicate stiffness value in each sub-ROI

# Dots	Stiffness
1	< 5 kPa
2	5-9 kPa
3	9-13 kPa
4	> 13 kPa

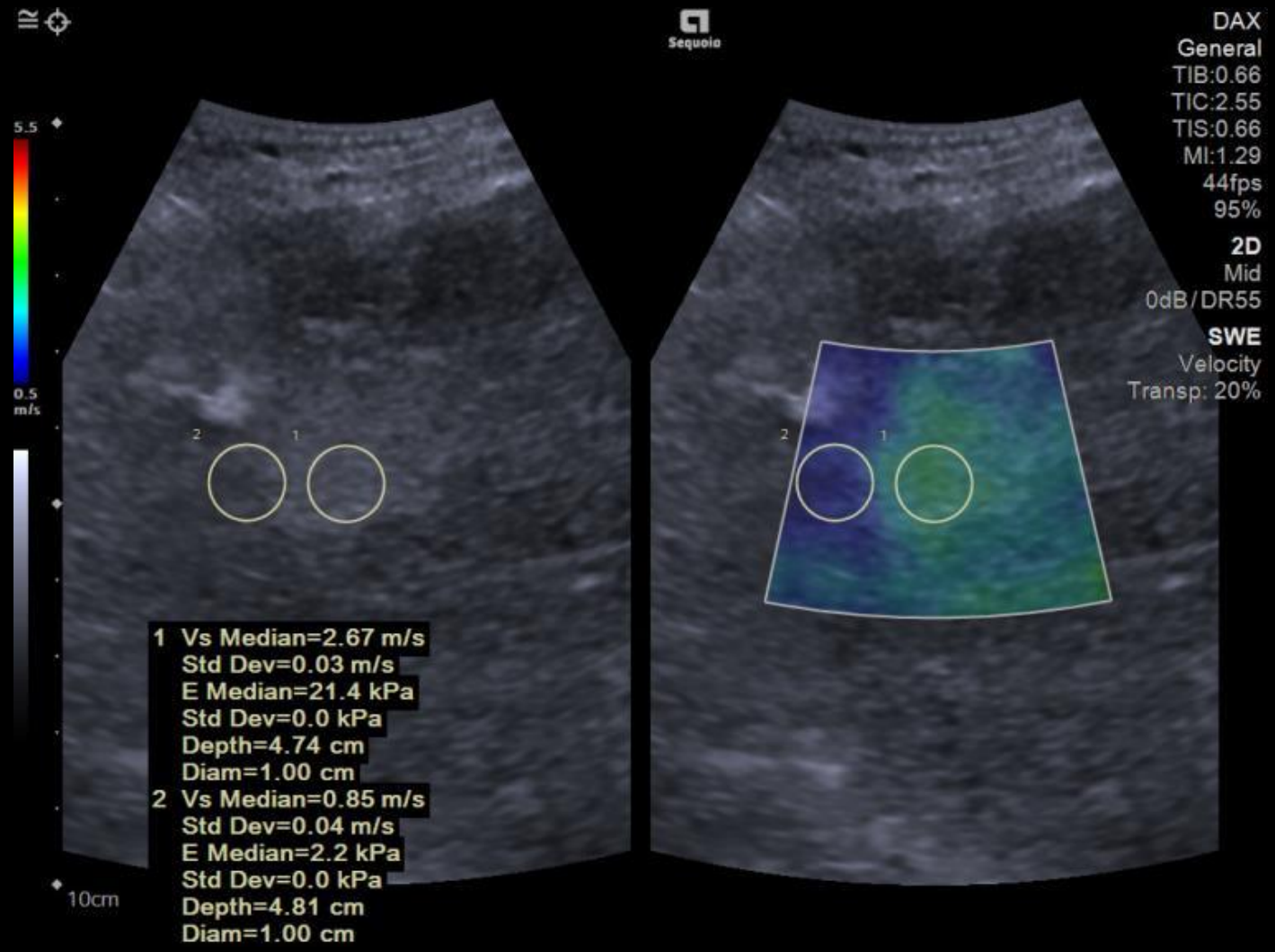


One touch (UDFF + pSWE)

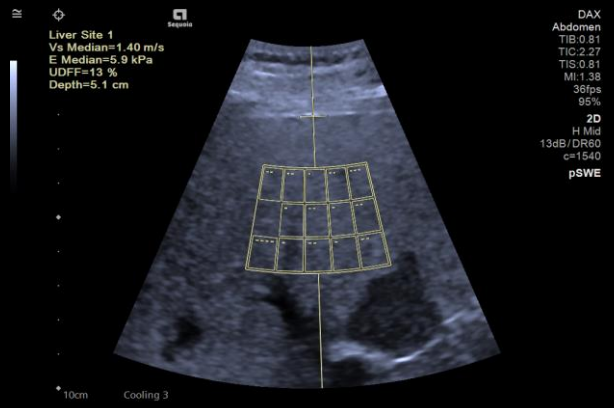


2D SWE: Assessment of focal liver lesions

- The ACUSON Sequoia system offers flexibility for user preference in liver elastography applications.
- 2D SWE can be used to assess stiffness heterogeneity in the liver, while primary liver tumors can vary in their stiffness characteristics, liver metastases are significantly stiffer.
- Studies have shown that the level of variability between consecutive acquisitions, assessed by means of IQR/Median ratio, is the most important quality criterion.



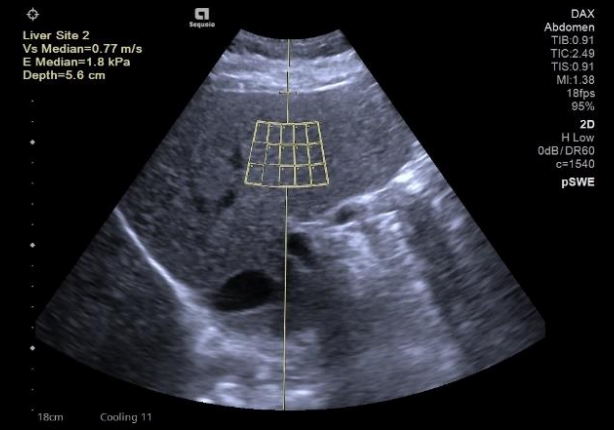
Ultrasound technologies that support liver cancer screening, diagnosis, treatment & monitoring



UDFF

Ultrasound-derived fat fraction

- An accessible and quantitative ultrasound index to aid in the management of patients with hepatic steatosis. UDFF shows good agreement with Magnetic Resonance Imaging Proton Density Fat Fraction (MRI-PDFF) in adults and children[1]
- Cost effective alternative to MRI-PDFF
- Complimentary to liver elastography
- Available on 5C1, 9C2 & DAX transducers



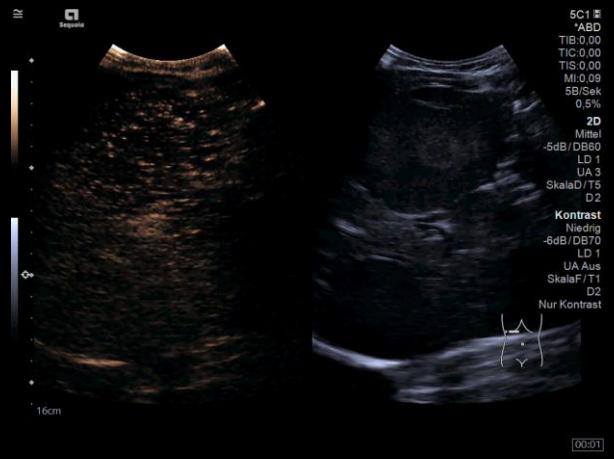
Auto pSWE

Automated Point Shear Wave

- Reduce liver elastography exam time and operator variability by delivering up to 15 valid pSWE measurements in less than 5 seconds
- Automatically removes any invalid measurements
- Dots visually indicate stiffness value in each sub-ROI
- Available on 9C2 & DAX transducers

[1] Comparing ultrasound-derived fat fraction and MRI-PDFF for quantifying hepatic steatosis: a real-world prospective study - PubMed

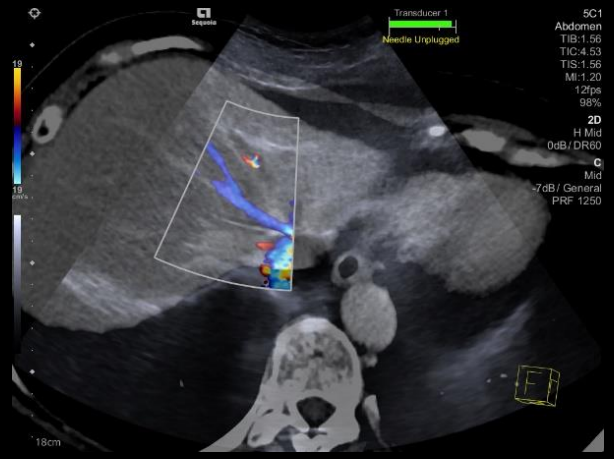
Ultrasound technologies that support liver cancer screening, diagnosis, treatment & monitoring



CEUS

Contrast Enhanced Ultrasound

- Contrast-enhanced ultrasound (CEUS) combines conventional ultrasound with microbubble contrast agents and specialized imaging software
- This advanced application provides blood flow and tissue perfusion information in real-time
- Perfusion characteristics (wash-in or wash-out) provide clinicians with relevant diagnostic information

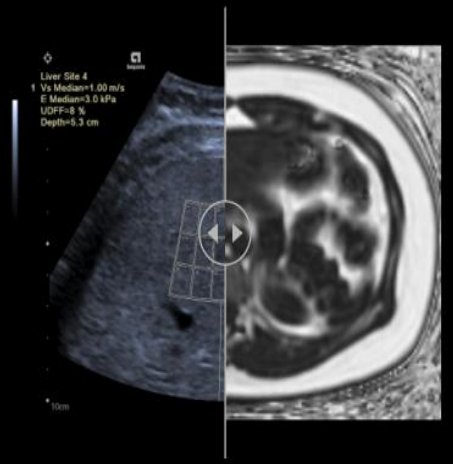


Fusion

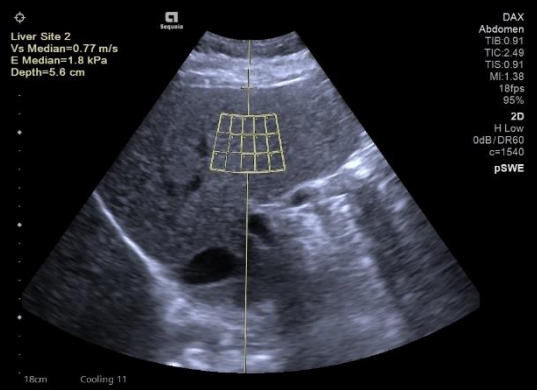
Fusion Ultrasound & Cryoablation

- Anatomic precision on CT or MRI combined with live Ultrasound
- Biopsy planning and guidance
- Ablation therapy guidance
- Serial scan comparisons
- Isoechoic lesion detectability
- Multiple lesion discrimination

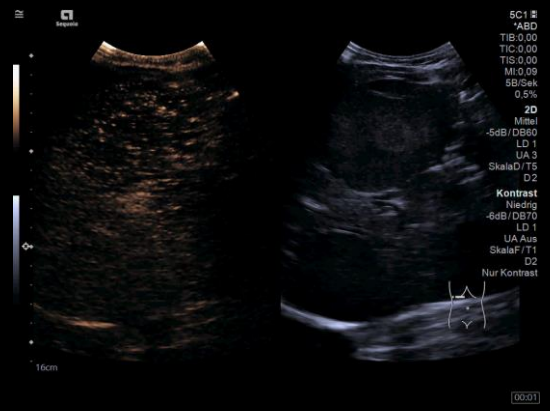
Ultrasound technologies that support liver disease screening, diagnosis, treatment & monitoring



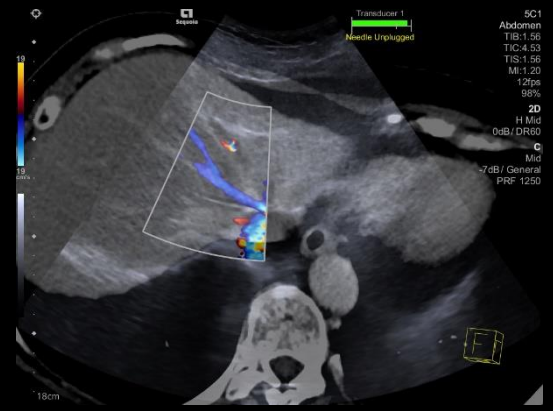
UDFF for Screening
Ultrasound-derived fat fraction



Auto pSWE for Screening
Automated Point Shear Wave



CEUS for Diagnosis
Contrast Enhanced Ultrasound



Fusion for Treatment
Fusion Ultrasound with CT or MR

Growing cancer incidence drives need for ultrasound

SIEMENS Healthineers

Breast cancer is the world's most prevalent cancer

7.8 million women

diagnosed and living with breast cancer over the past 5 years.[3]

Globally, breast cancer now represents

1 in 4

of all cancers in women[3]

Since 2008, worldwide breast cancer incidence has **increased by more than**

>20%[3]

Worldwide, over

2.25 million

new breast cancer cases were diagnosed in 2020[1]

In countries with advanced medical care, **the 5-year survival rate of early-stage breast cancers** is

80-90%[4]

1-3 Data on File

Unexpected visual clarity and confidence for breast care

SIEMENS Healthineers

In women with dense breasts,
cancer is harder to see on mammograms

For dense breasts, ultrasound may be used in addition to mammography for review of certain areas of the breast or findings that are suspicious

Ultrasound can be used for needle guidance by **providing confident needle visualization**

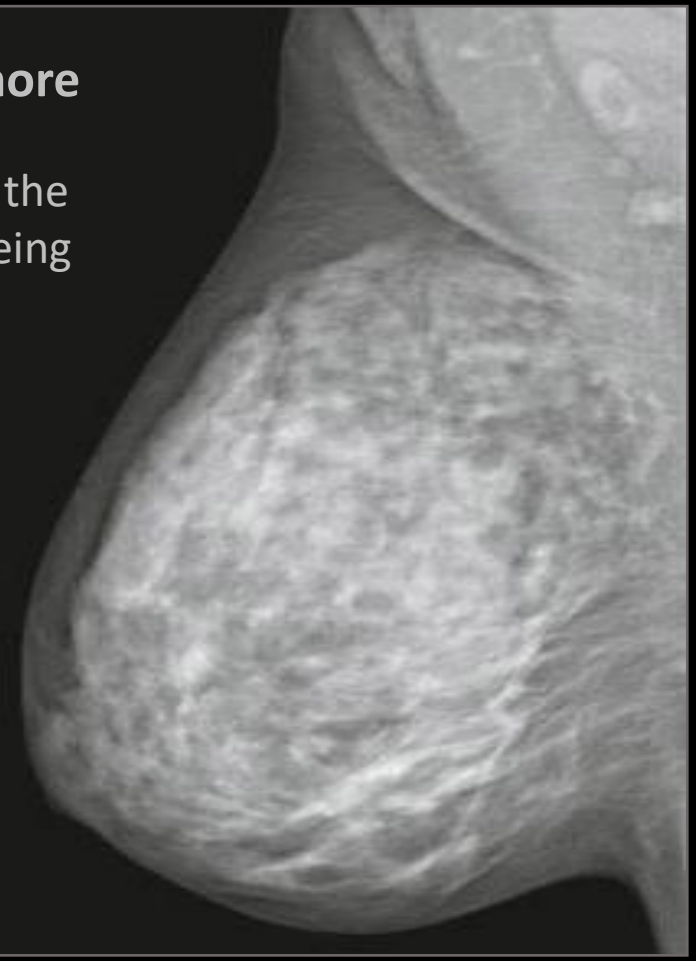
AI-powered measurements **improve measurement efficiency** and reduces variability

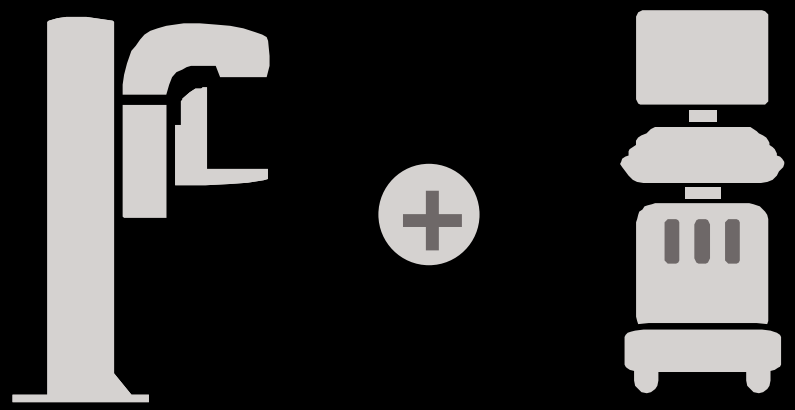
Next Generation 2D Shear Wave **overcomes challenges** associated with false negatives in breast lesion characterization

Dense breast tissue

A challenge for breast imaging

Overlying tissue is **more** prominent in dense breasts, **increasing** the risk of lesions **not** being detected.





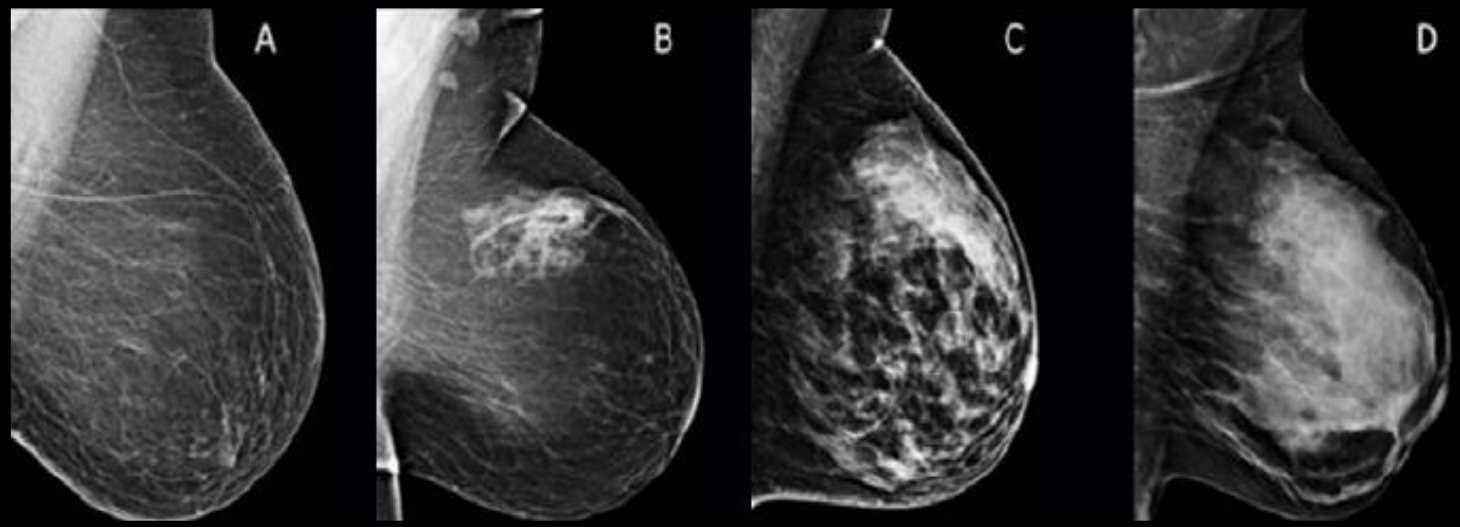
MAMMOGRAPHY ULTRASOUND

Combining ultrasound and mammography addresses this challenge by providing comprehensive clinical information.

Understanding the risk breast density and best practice for imaging

SIEMENS Healthineers

Radiologist classify breast density using a 4-level density scale[1]



Birads A
Almost entirely fatty

Birads B
Scattered areas of fibroglandular denisty

Birads C
Heterogenously dense

Birads D
Extremely dense

40-50%
Of women over the age **of 40 have dense breasts**

3x
Breast cancer is three times more likely in women with extremely **dense breasts than fatty breasts[2]**

27%
Of breast cancers are missed in women with dense breasts **due to lesion obscuration[3]**

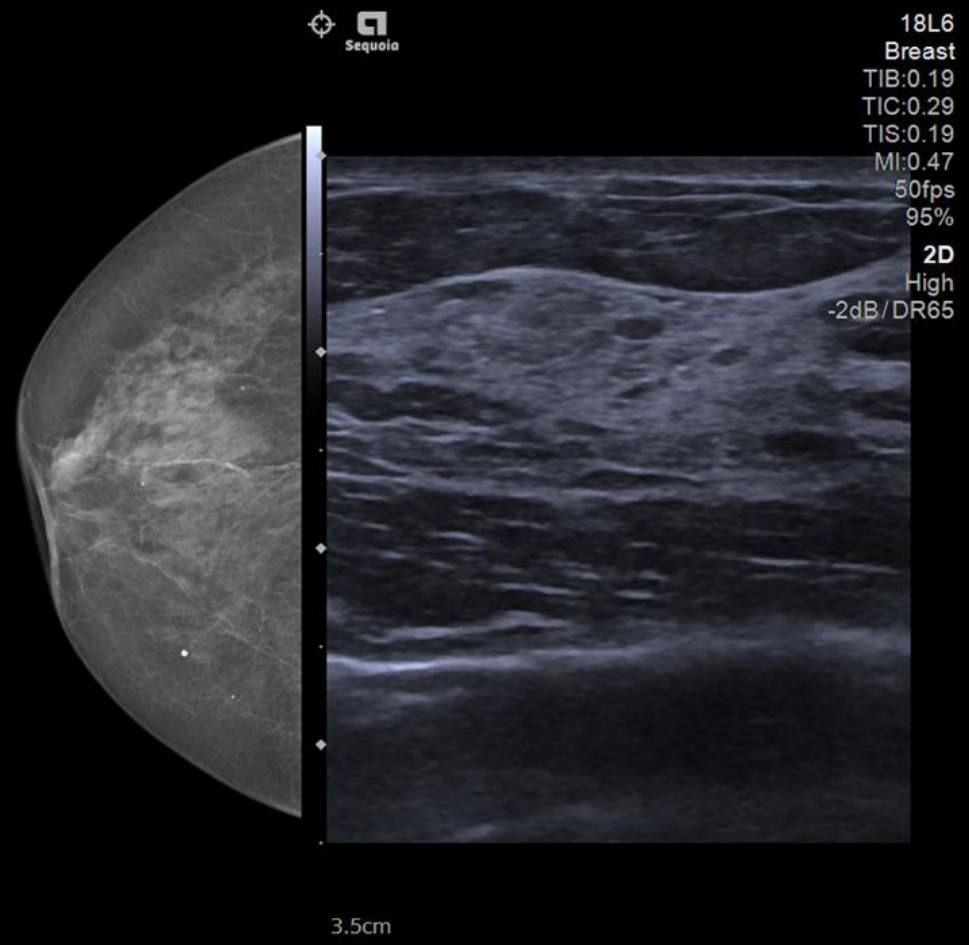
1 Sprague BL, Gangnon RE, Burt V, et al. Prevalence of mammographically dense breasts in the United States. J Natl Cancer Inst. 106(10), 2014.
2 Yaghjyan L, Colditz GA, Collins LC, et al. Mammographic breast density and subsequent risk of breast cancer J Natl Cancer Inst. 2011;103(15):1179–1189.
3 Breast cancer detection using sonography in women with mammographically dense breasts.Okello J, Kisembo H, et al. Med Imaging. 2014 Dec 30; 14():41

Expanded insights features designed to aid clinical confidence
Modality compare

Increase diagnostic confidence during exams by allowing technologist or physician precision when correlating indeterminate pathology, isoechoic lesions or during biopsies

Improve procedural efficiency by potentially eliminating excessive correlation time during biopsies or serial exams

Potentially avoid additional cost by eliminating the need for additional viewing equipment in the procedure rooms, increase efficiency by eliminating excessive correlation time



Unexpected visual clarity and confidence for breast care

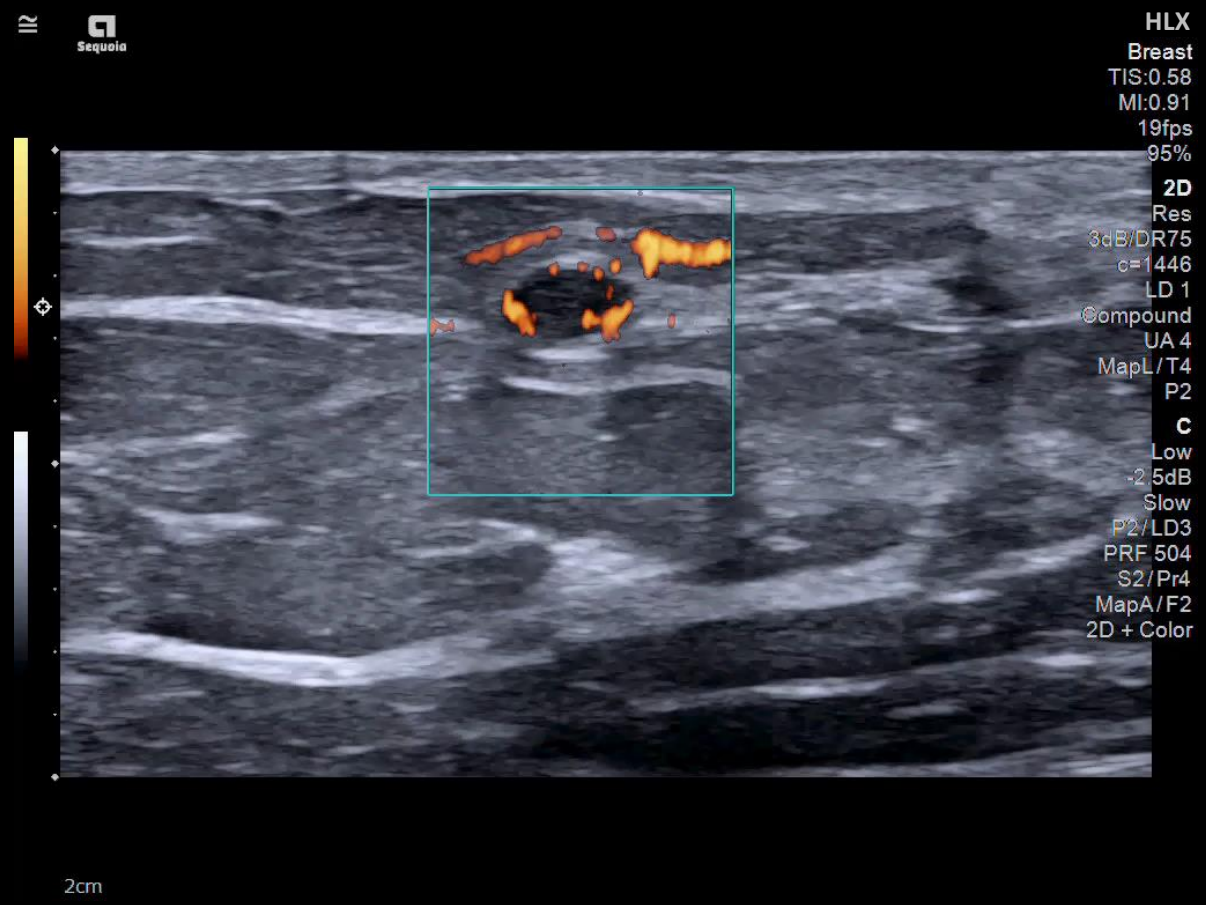
SIEMENS Healthineers

HLX High-frequency linear transducer

Our highest frequency linear transducer, optimized for imaging breast

Delivers resolution and penetration in one high frequency transducer

- Next Generation 2D SWE
- InFocus Imaging
- UltraArt
- Needle Enhancement
- Slow flow color
- Freehand 3D
- Gesture detection
- Trophon compatible



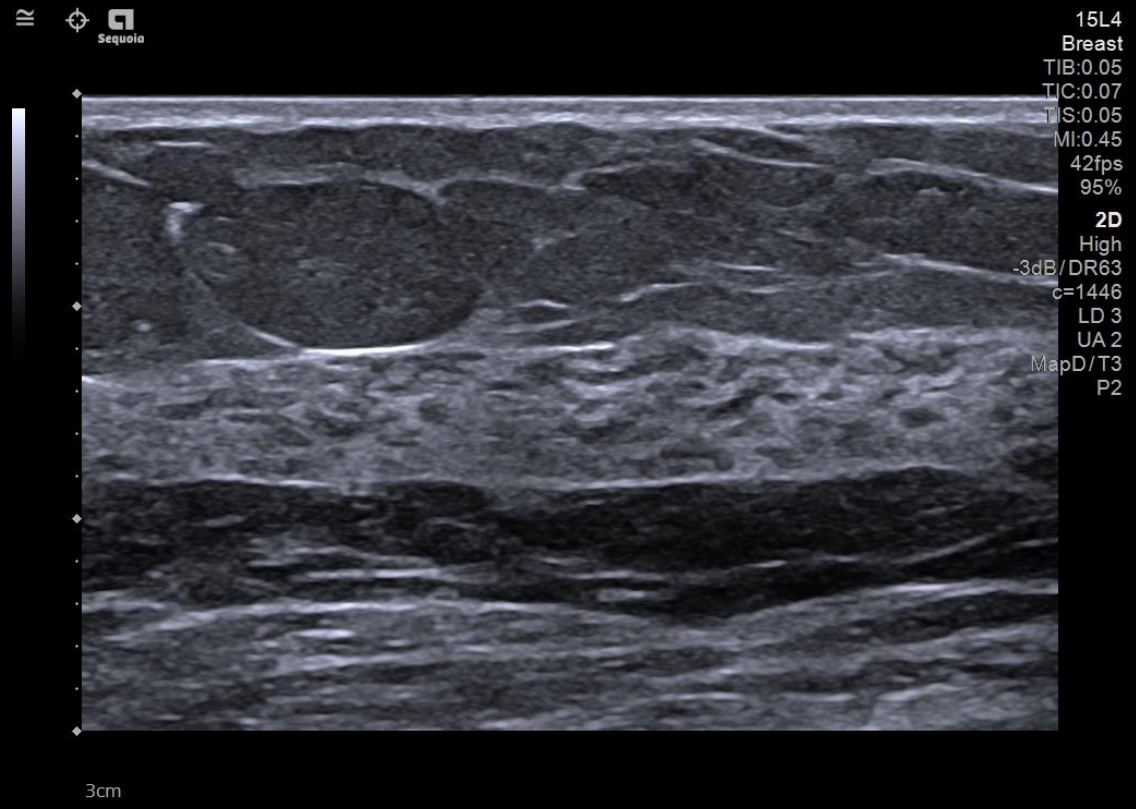
* Data of file

Expanded insights features and technologies that are designed to aid clinical confidence

SIEMENS Healthineers

15L4 Linear transducer

The Versatile 15L4 has **25% deeper 2D penetration*** providing suburb imaging quality and supporting confident clinical decision making



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Volume Imaging expanded insights features and technologies that are designed to aid clinical confidence

SIEMENS Healthineers

7VC2 Abdominal volume transducer

The volume transducer, 7VC2 has **45% deeper 2D penetration*** **and** **30% higher VPS** combined with advanced rendering addressing clinical needs in obstetric imaging

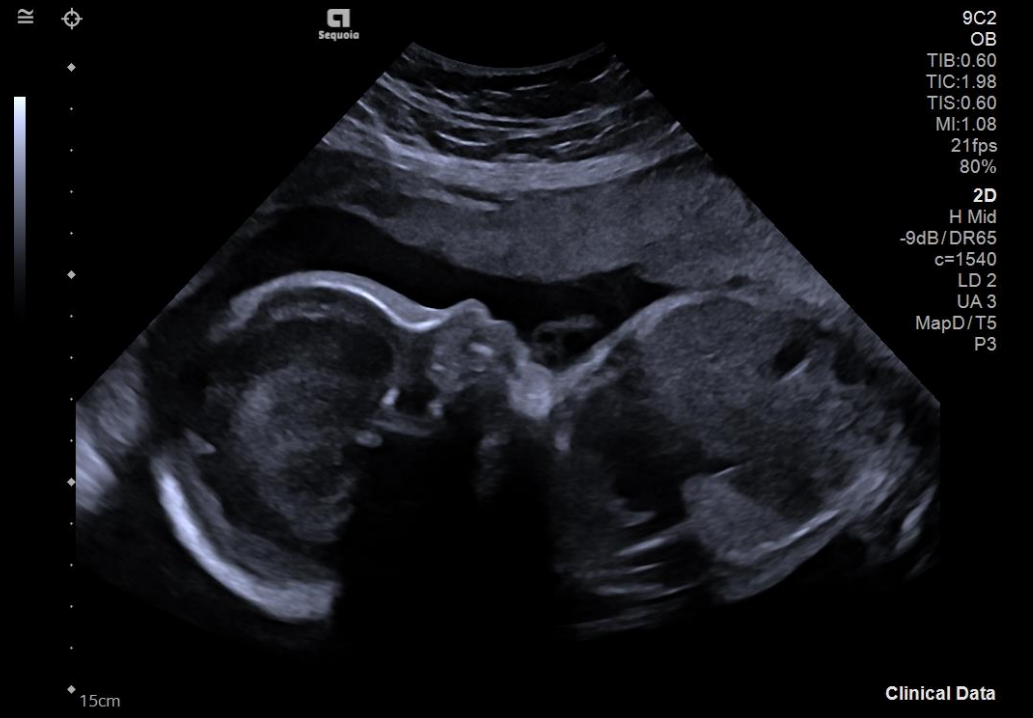
* Data of file

Addressing variations image fully focused from near field to far field

SIEMENS Healthineers

9C2 Curved transducer

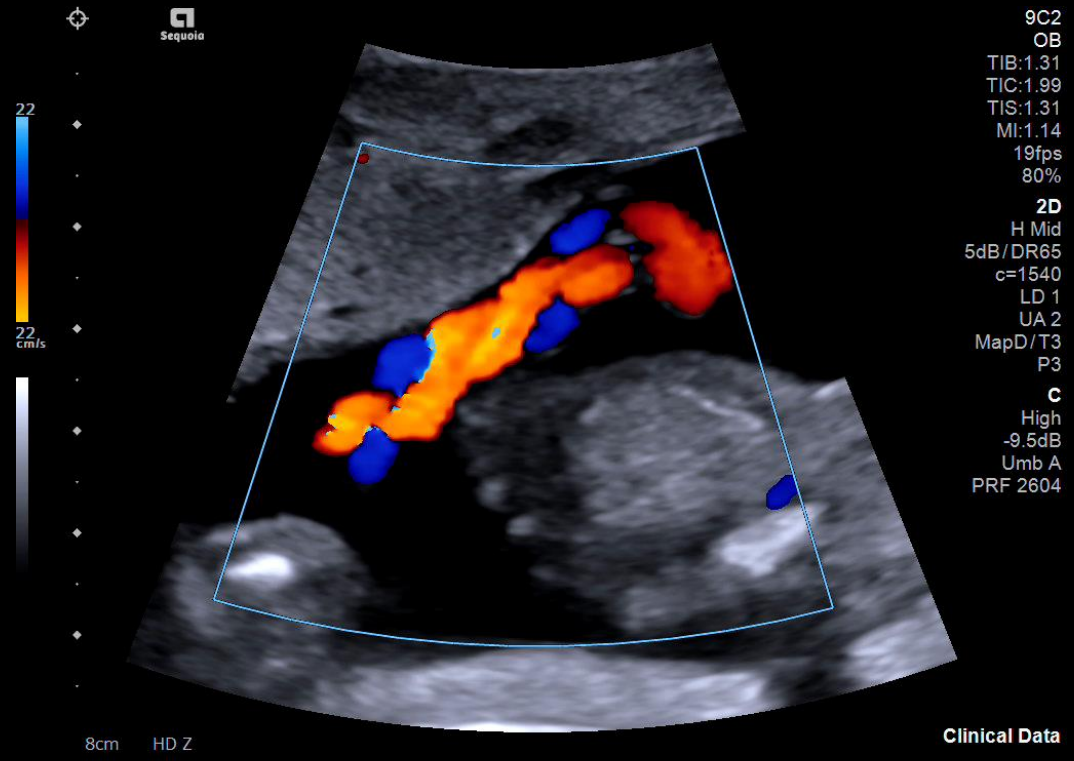
9C2 Curved transducer



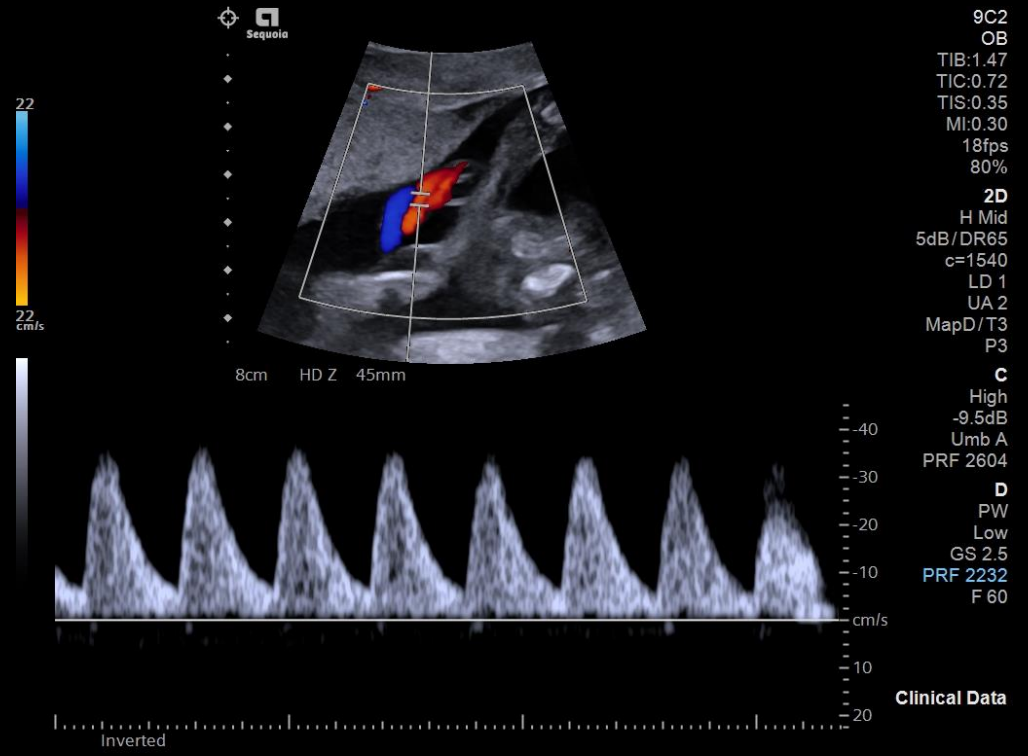
Highest resolution color flow, sensitivity and penetration

SIEMENS Healthineers

9C2 Curved transducer



9C2 Curved transducer

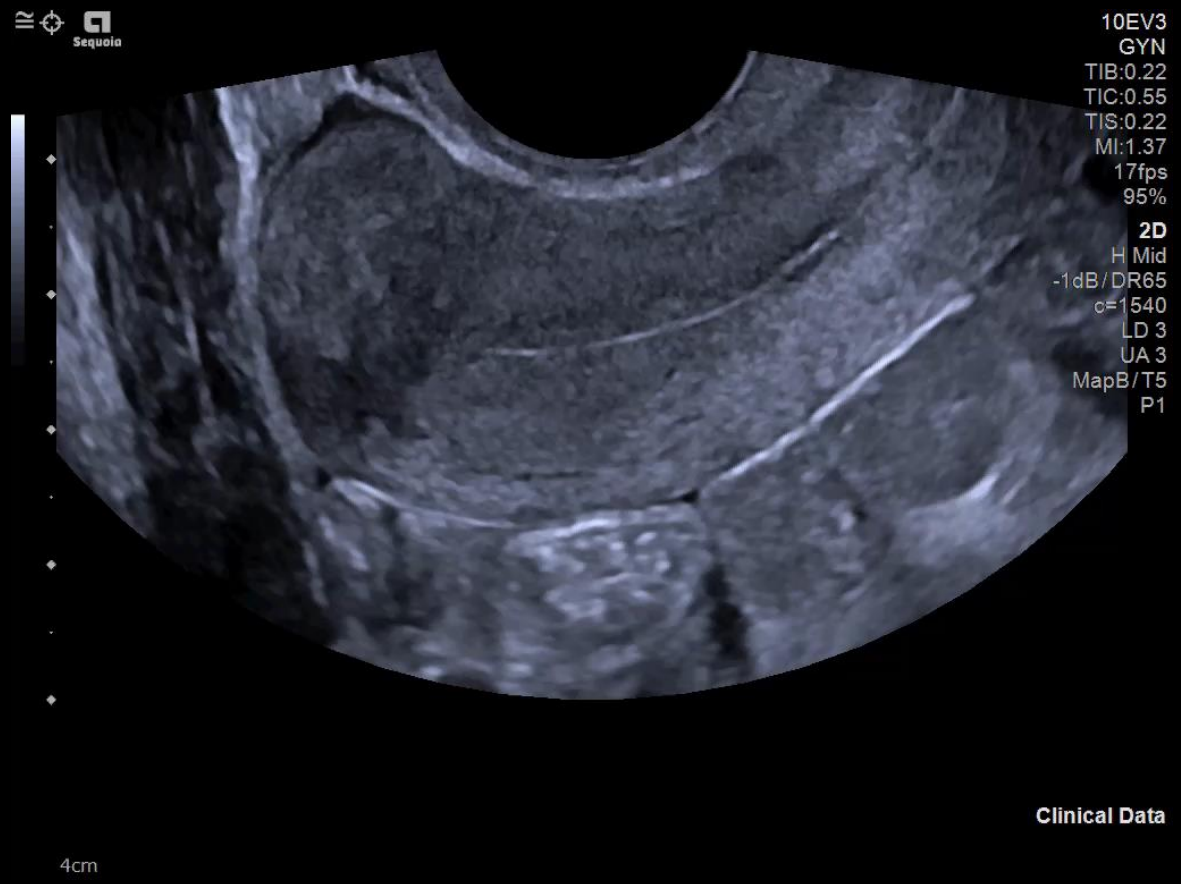


Addressing variations image fully focused

From near field to far field

10EV3 Endocavity Transducer

The 10EV3 wide bandwidth, single crystal, ergonomic form factor and **30% deeper 2D penetration***

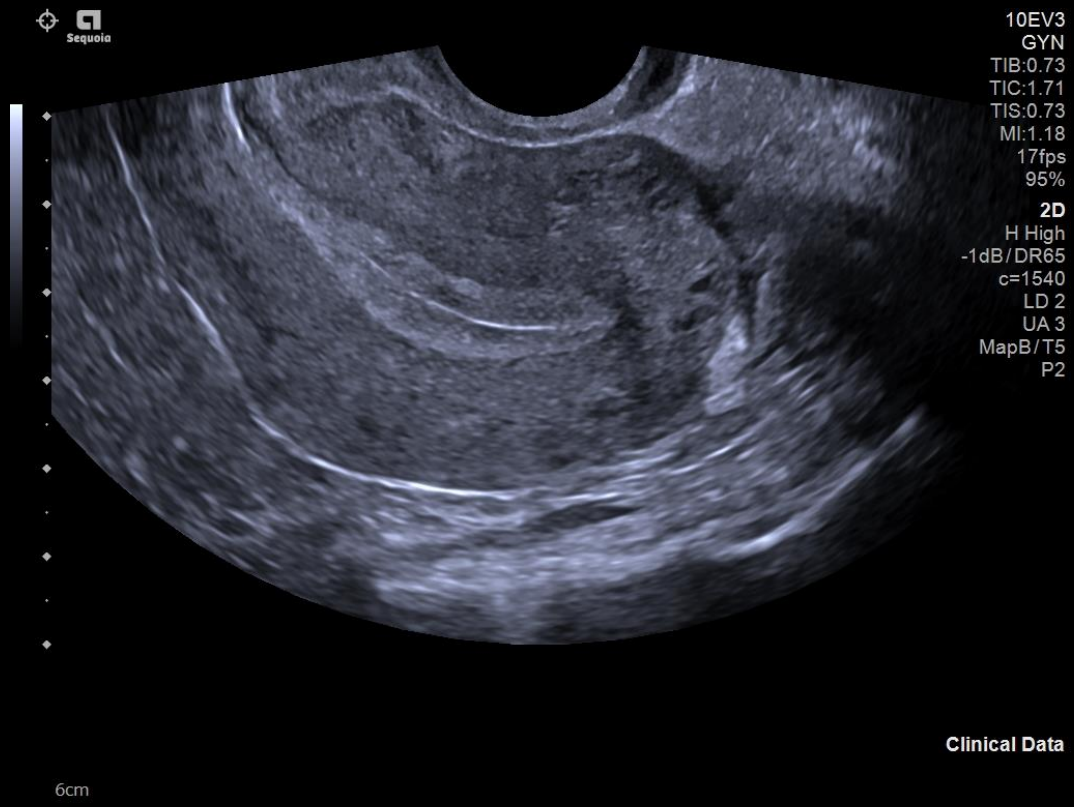


*Compared to 9EC3

Addressing variations image fully focused

From near field to far field

10EV3 Endocavity Transducer

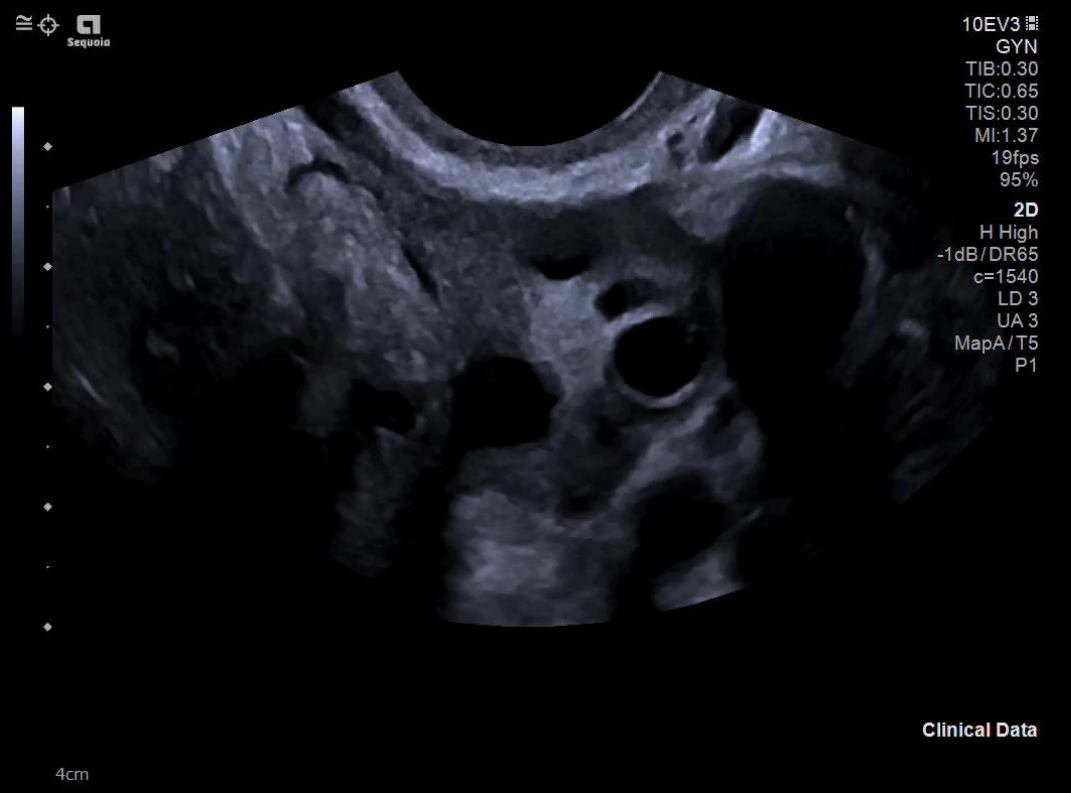


10EV3 Endocavity Transducer

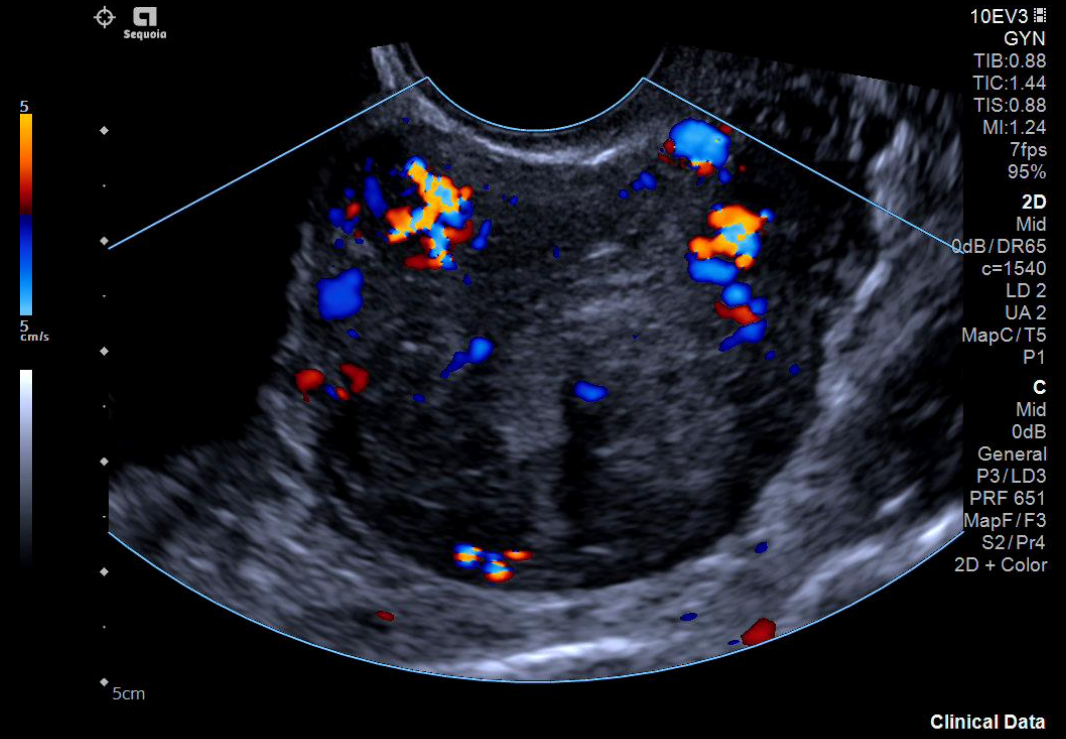
Addressing variations image fully focused from near field to far field
Highest resolution color flow, sensitivity and penetration

SIEMENS Healthineers

10EV3 Endocavity Transducer

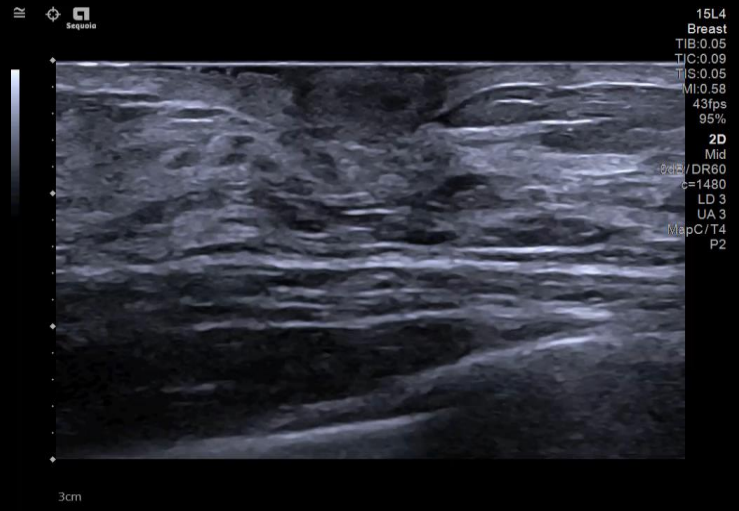


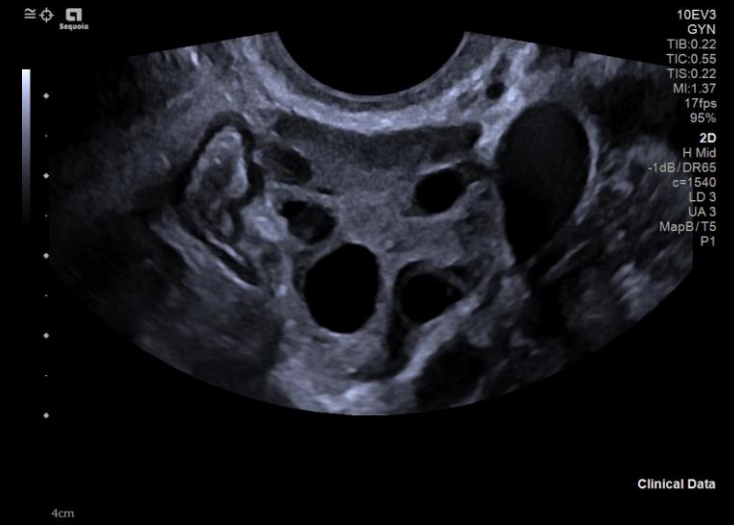
10EV3 Endocavity Transducer

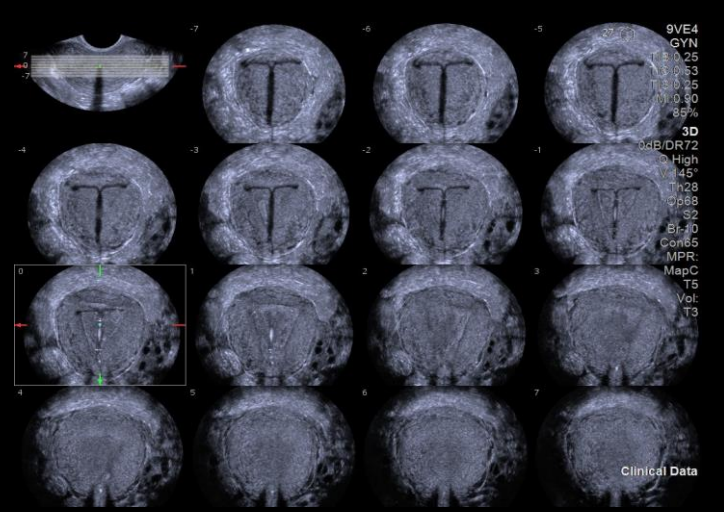


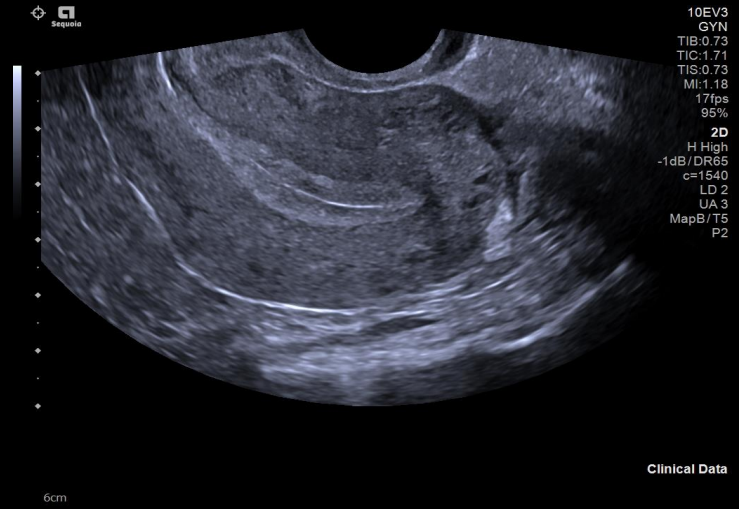
Expanded insights and intelligent imaging with a system designed to aid clinical confidence

SIEMENS Healthineers









The burden of musculoskeletal related conditions

Approximately

1.71 billion

people have musculoskeletal conditions worldwide. (Global Burden of Disease (GBD)) countries.[1]

Because of population increases and ageing, the number of people with musculoskeletal conditions is rapidly increasing.[2]

Musculoskeletal conditions significantly limit mobility and dexterity, leading to **early retirement from work, lower levels of well-being and reduced ability to participate in society.**[3]

The disability associated with musculoskeletal conditions has been **increasing and is projected to continue to increase in the next decades.**[4]

149 billion YLDS

Musculoskeletal conditions are also the biggest contributor to years lived with disability (YLDs) worldwide with approximately 149 million YLDS, accounting for 17% of all YLDs worldwide.[5]

Benefits of musculoskeletal ultrasound

SIEMENS Healthineers

It is comparatively a **lower cost, real-time, dynamic imaging modality** that can be utilized in the clinic or in the field.

Ultrasound can provide **immediate verification of findings** suspected on physical exam.

Easy comparison with the unaffected side can serve as a control in assessing for pathology.

Dynamic studies allow for the **evaluation of pathology during movement.**

Ultrasound can be utilized for needle placement in treatment of the patient.

Where is it used?

- Radiology
- Emergency Department
- Sports Medicine
- Rheumatology
- Anesthesiology
- Oncology
- Pediatrics
- Orthopedics
- Interventional Procedures

Unprecedented visual precision for musculoskeletal care

SIEMENS Healthineers

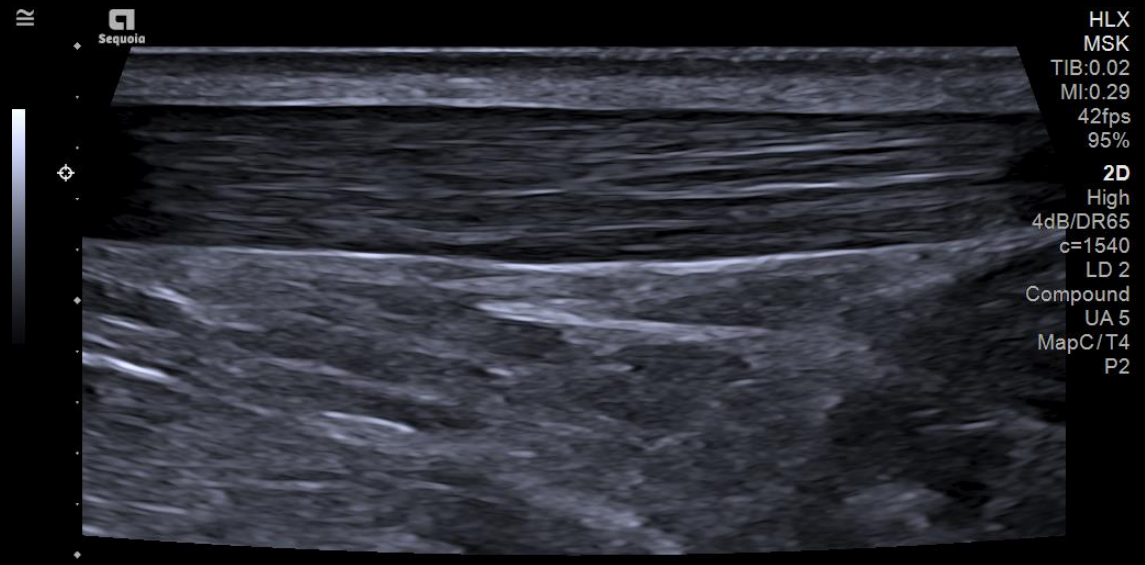
HLX High Frequency Linear Transducer

Our highest frequency linear transducer ever, experience an **unexpected combination of resolution and penetration**—so you no longer have to sacrifice one for the other.

Small footprint gives access to tight spaces.

Ergonomic design and light **weight helps reduce strain and pressure** during scans.

- Next Generation 2D SWE
- InFocus Imaging
- UltraArt
- Needle Enhancement
- Slow flow color
- Freehand 3D
- Gesture detection
- Trophon compatible



Achilles Tendon

Addressing variations image fully focused

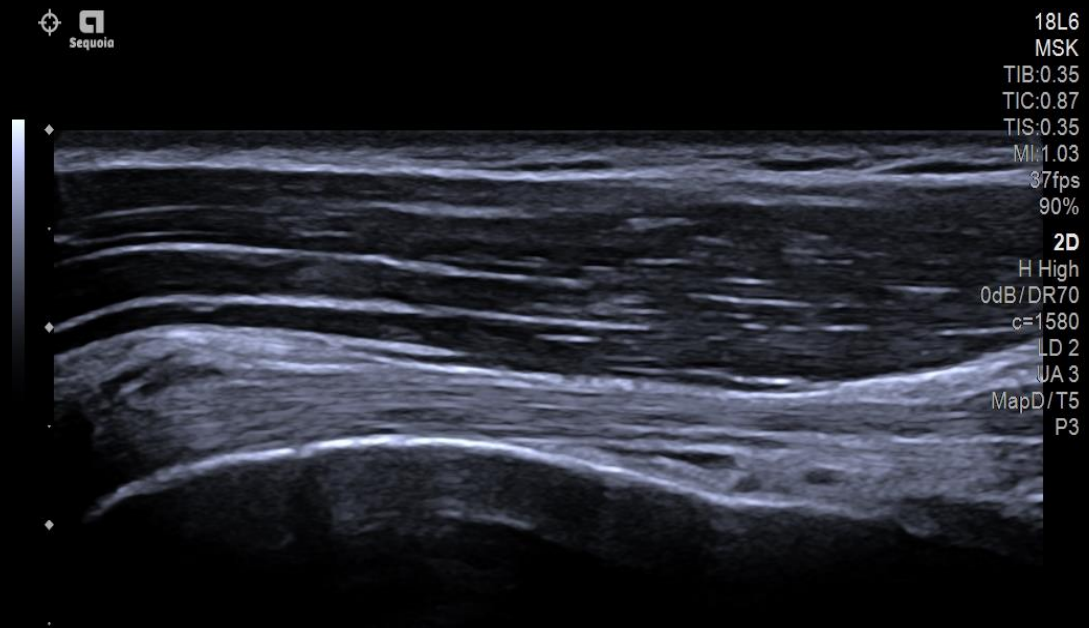
From near field to far field

18L6 High Frequency Linear Transducer

Sagittal view of a Biceps Tendon utilizing the 18L6 transducer.

It has a fine pitch of 0.1mm which provides good lateral resolution and greater steering capabilities which improves compounding.

The large field of view of 57.5 mm clearly demonstrates the superb delineation of the tendon fibers.

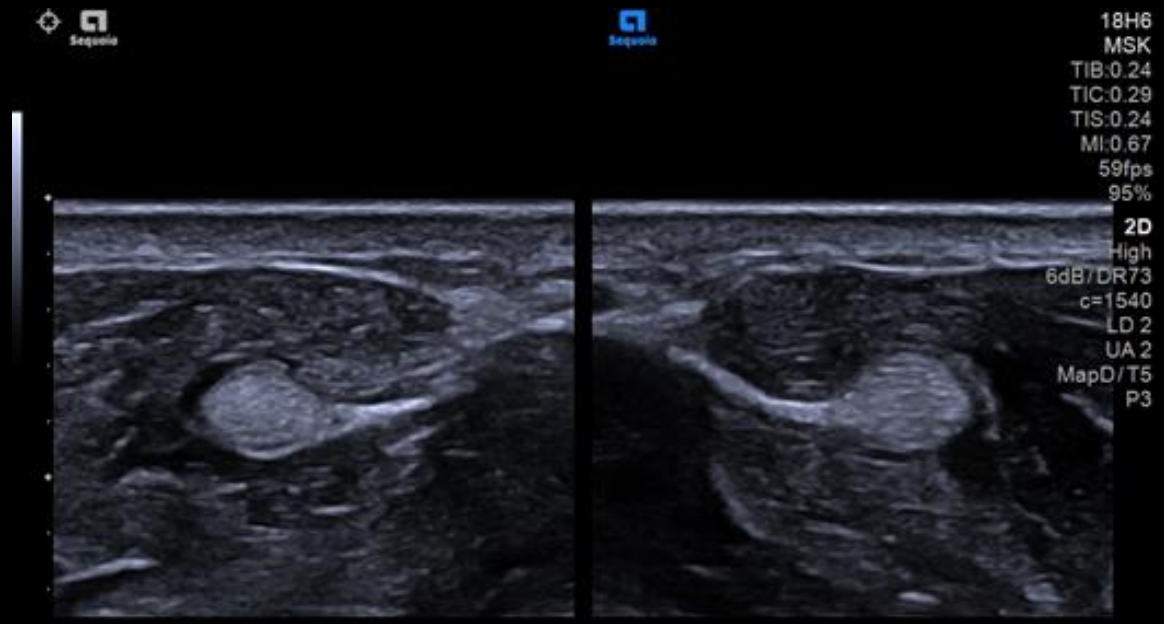


Addressing variations image fully focused

From near field to far field

18H6 Hockey Stick Transducer

InFocus Coherent Image Forming **produces high resolution images** with uniform focus and simplifies image acquisition workflow



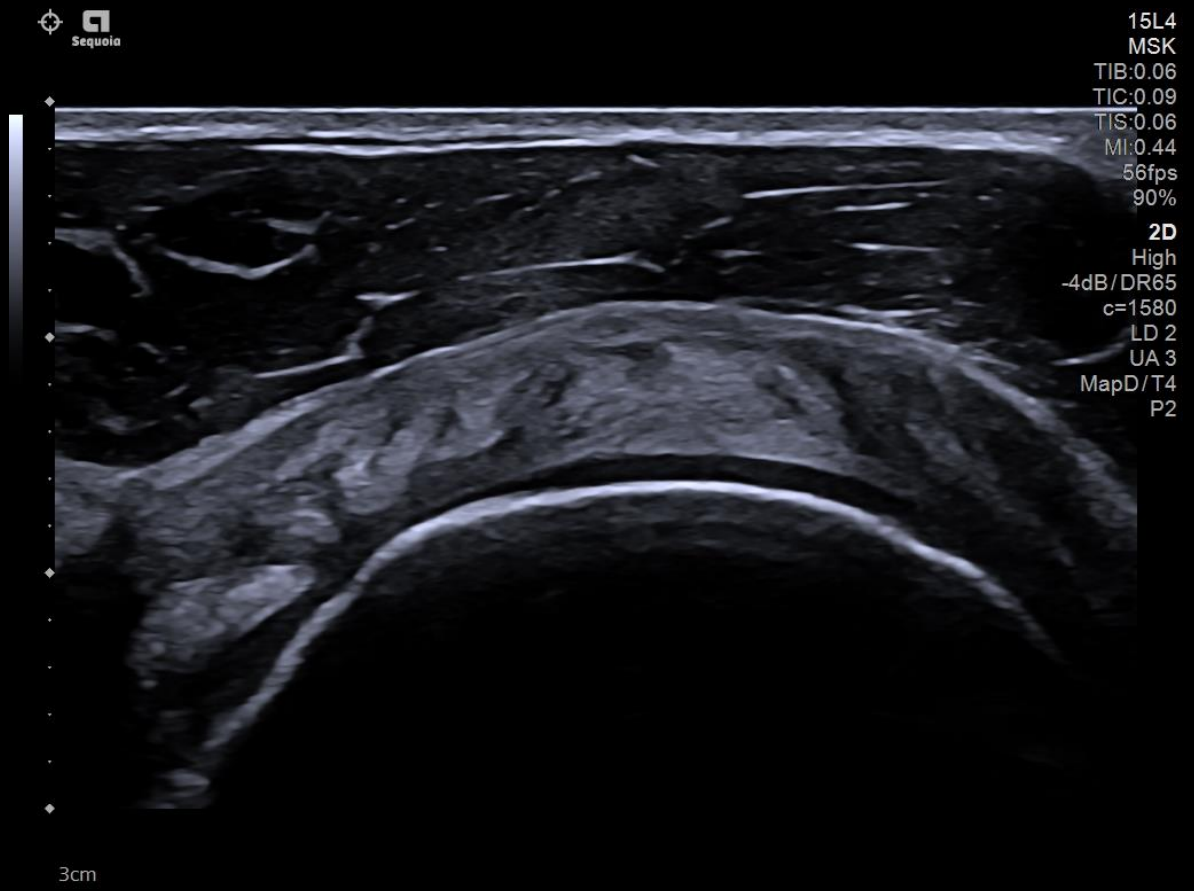
Addressing variations image fully focused

From near field to far field

SIEMENS Healthineers

15L4 Linear Transducer

Dynamic Range Increased by up to 18dB, improving image clarity and penetration*



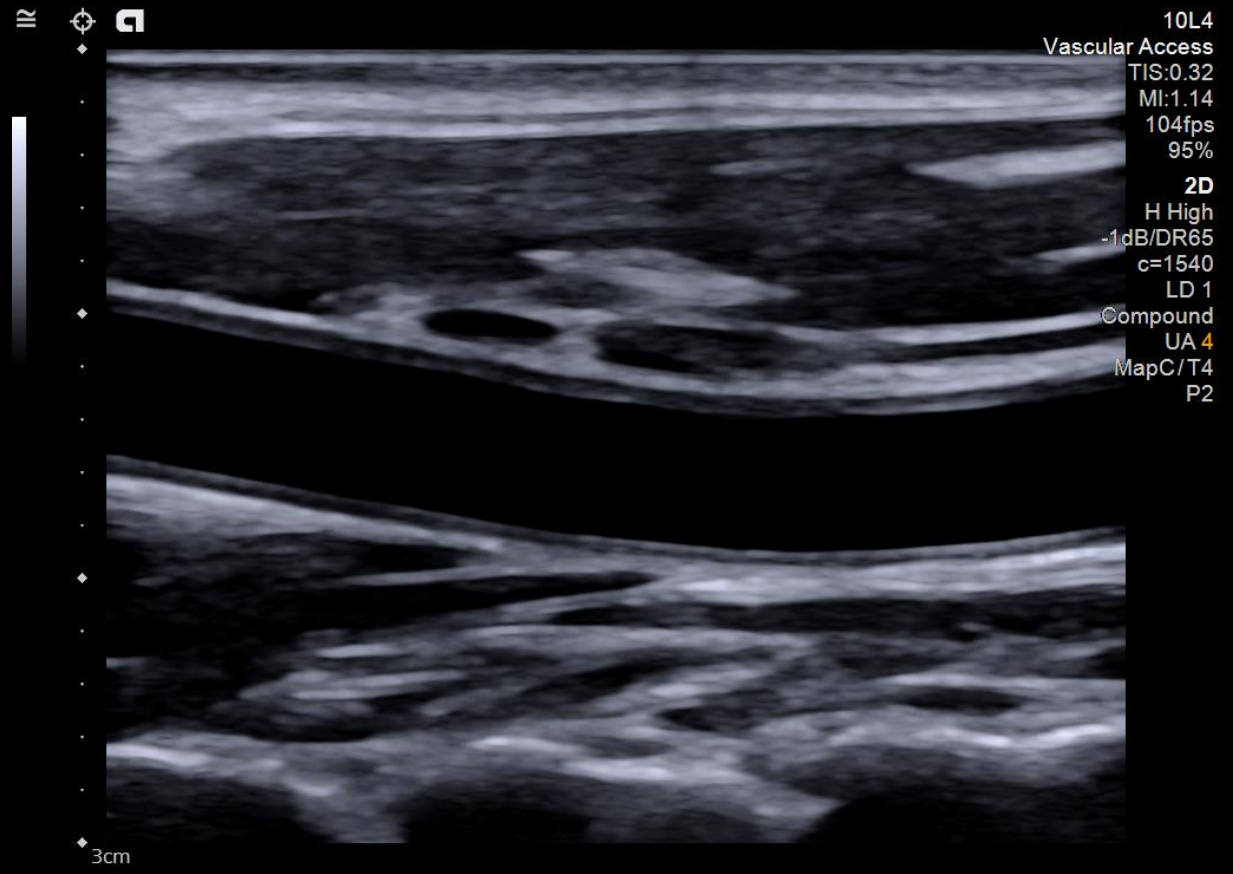
* Compared to the ACUSON S3000 Ultrasound system

A versatile addition to your MSK transducer options

SIEMENS Healthineers

10L4 Linear Transducer

Re-optimized 10L4 transducer includes improved near field imaging, a more uniform pixel presentation, and better contrast resolution.



Expanded Insights features designed to aid clinical confidence
Fusion Imaging

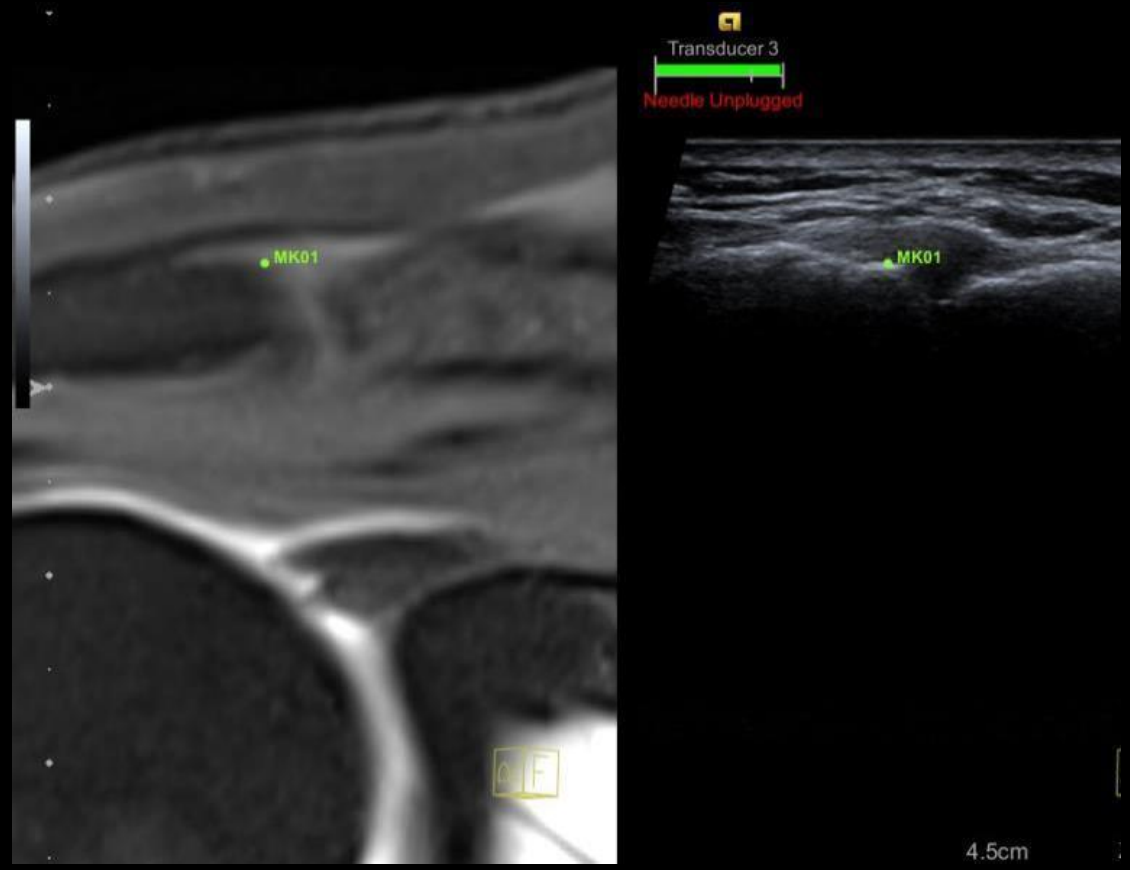
SIEMENS Healthineers

Fusion Imaging

Increase diagnostic confidence during complex interventional procedures by combining the anatomic precision on CT or MRI with live ultrasound, potentially helping to correlate indeterminate pathology or isoechoic lesions

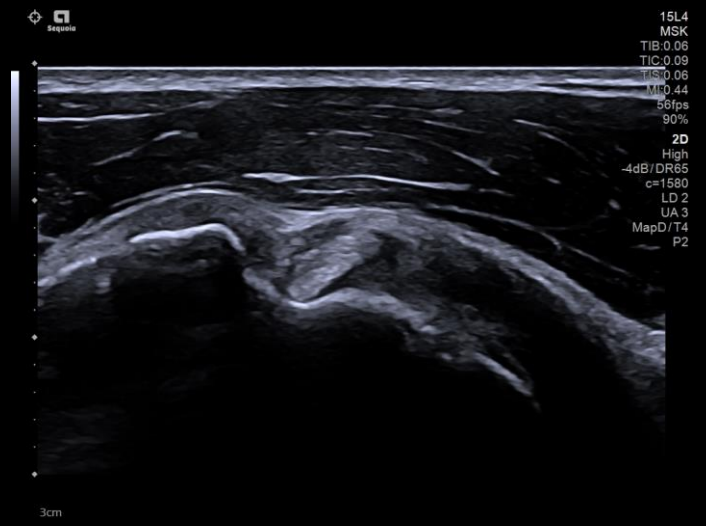
Improve procedural efficiency with exclusive, flexible tools for rapid and accurate alignment

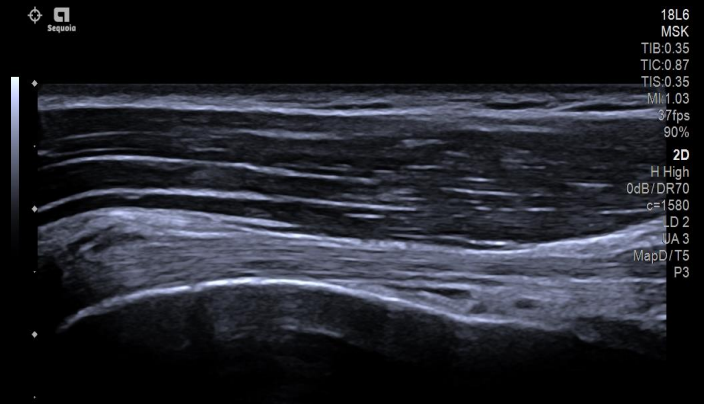
Potentially avoid additional procedure cost, dose exposure and time by increasing access to real-time ultrasound imaging in interventional procedures

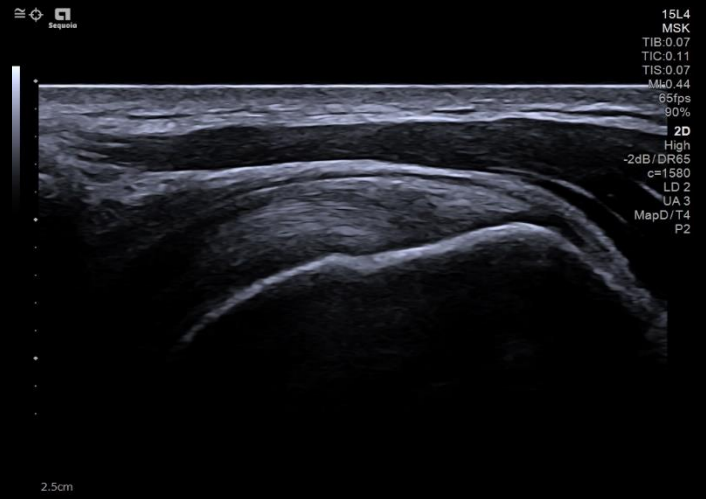


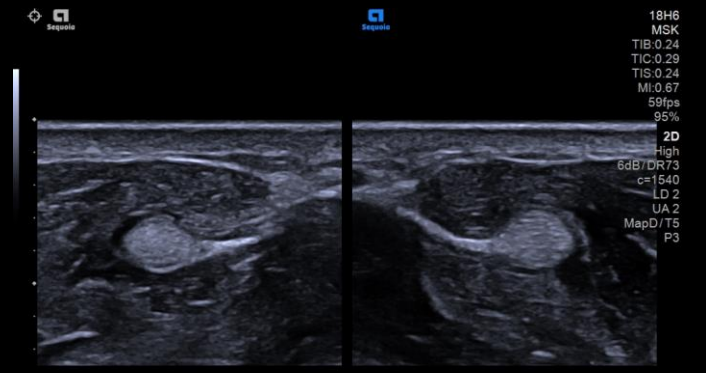
Addressing variations image fully focused

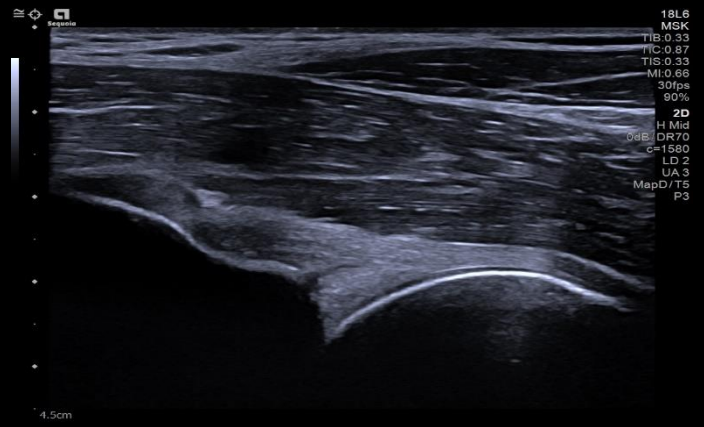
From near field to far field

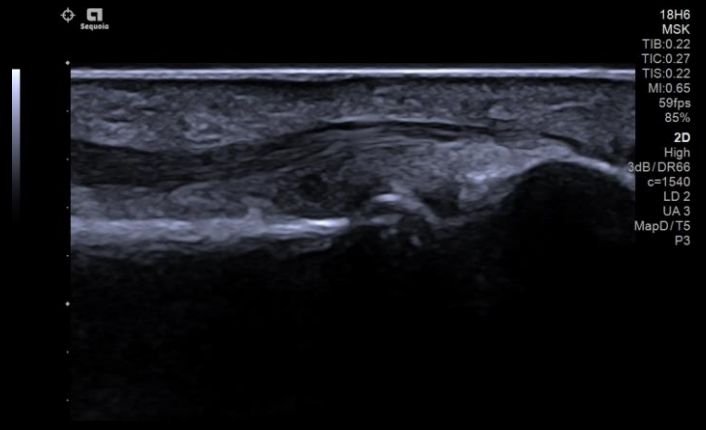












Pediatric ultrasound has unique challenges and advantages

SIEMENS Healthineers

Ultrasound advantages

- Reduced radiation exposure
- Portability
- Temporal resolution
- Diagnosis without need for additional imaging

1–6-year-olds have the **highest likelihood of requiring sedation** for diagnostic imaging.[1]

10x

more radiosensitive than adults.[2]

47%

of premature termination of MRI exam on children due to fear, anxiety and claustrophobia.[3]

254 million

Worldwide children aged 5-19 projected to be obese by 2030.[4]

Pediatric ultrasound must address a wide range of patients.

1-3 Data on file.

An innovative solution for neonatal imaging

SIEMENS Healthineers

11M2 MicroConvex transducer

Single crystal transducer with a **small footprint** delivering superb **detail and temporal resolution** for managing tiny acoustic windows and isolated scanning

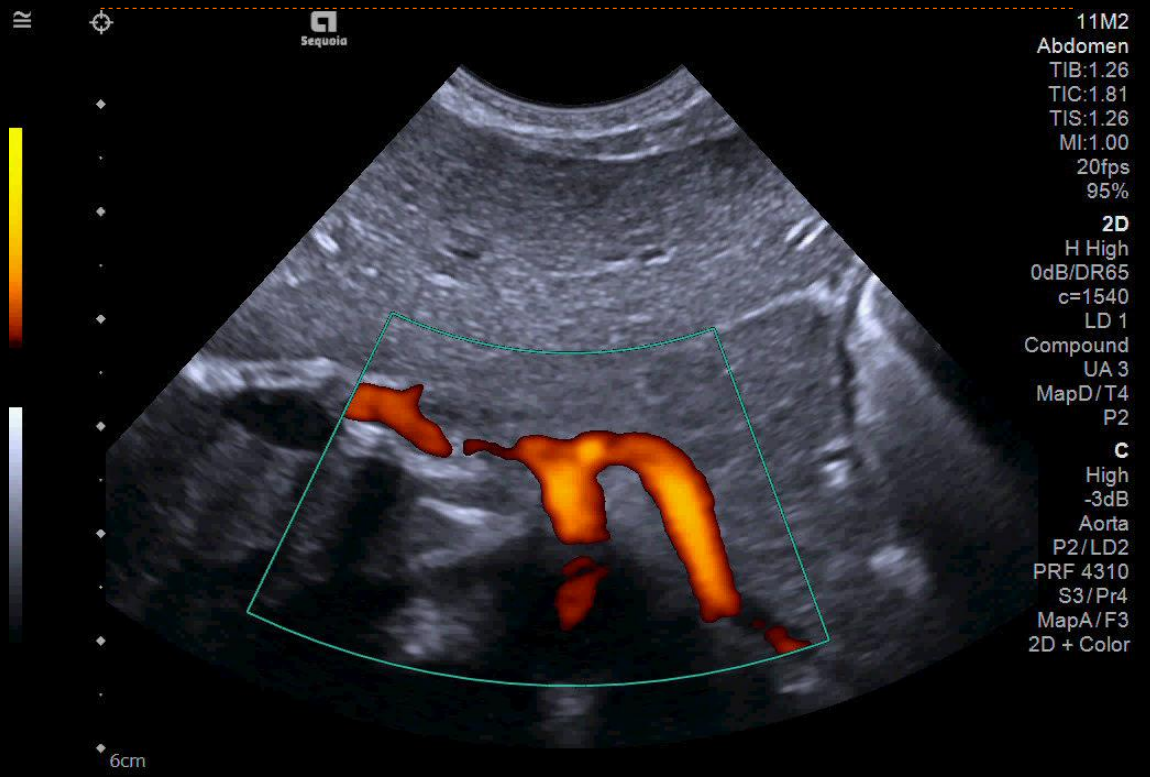
- Workflow enhancing
- Slow Flow color
- Freehand 3D
- UltraArt
- Gesture Detection
- Wide FOV, up to 35%

Addressing variations in imaging

SIEMENS Healthineers

11M2 MicroConvex transducer

11M2 MicroConvex transducer



Small footprint, matrix solution for pediatric imaging

SIEMENS Healthineers

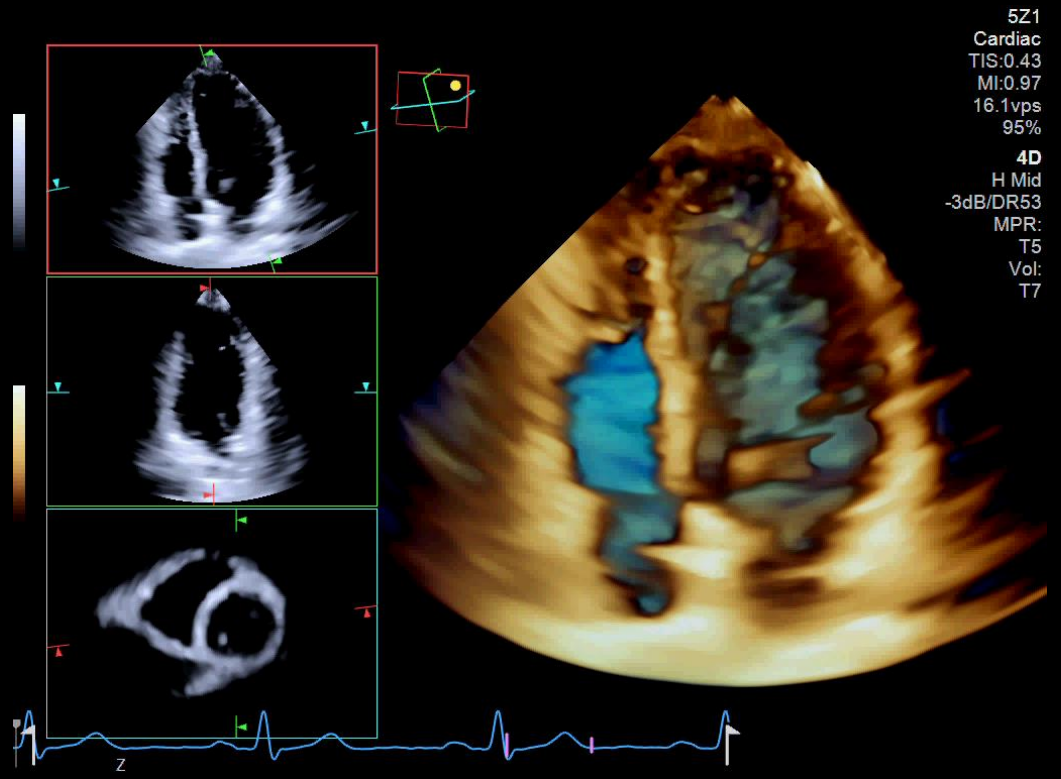
5Z1 Matrix Array transducer

Matrix array transducer for Pediatric abdomen, gynecology, and cardiac imaging

Ergonomic design with a **small footprint**

Active electronics for instantaneous **full volume transthoracic echo (TTE)**

2D Bi-Plane+, 2D Bi-Plane Color, 4D Volume, 4D Color

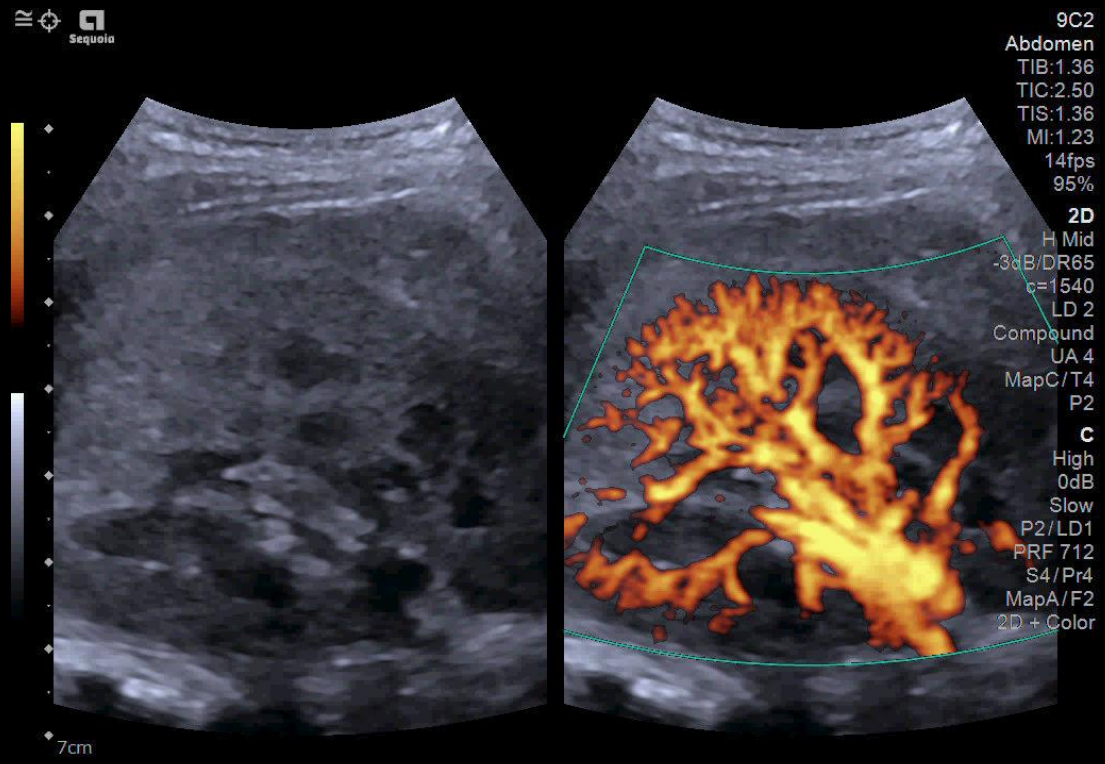


The latest transducer introduction for pediatric imaging

SIEMENS Healthineers

9C2 Curved Transducer

High-resolution abdominal imaging in the pediatric population –**with greater than 15% color penetration than conventional transducers***



* Data of file

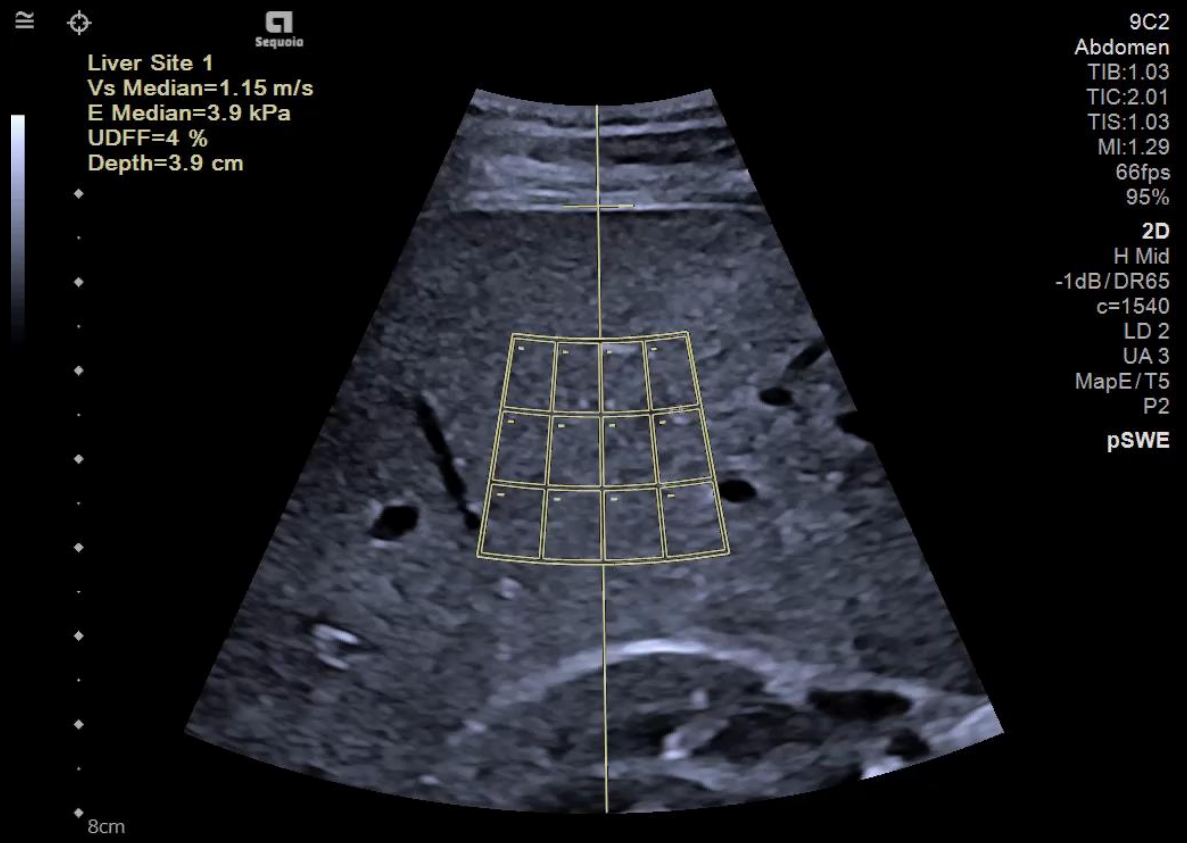
Auto pSWE and UDFF: Expanded insights features designed to aid clinical confidence

SIEMENS Healthineers

9C2 Curved Transducer

Auto pSWE
Reduce liver elastography exam time and operator variability by **delivering up to 15 measurements in less than 5 seconds***

Ultrasound-derived fat fraction
UDFF delivers a similar clinical utility to Magnetic Resonance Imaging Proton Density Fat Fraction (MRI-PDFF) for determining hepatic steatosis



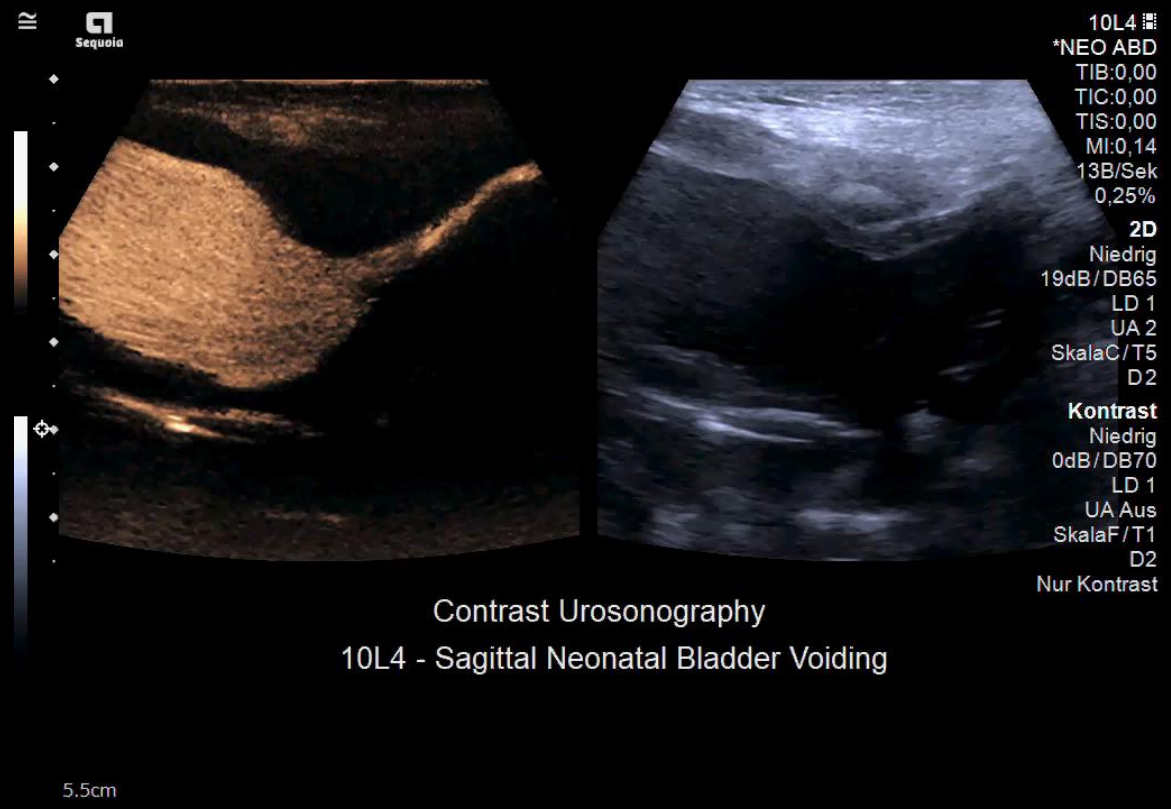
* Data of file

Contrast-enhanced voiding urosonography (ceVUS) is a valuable alternative to VCUG for pediatric urinary tract evaluation

SIEMENS Healthineers

Advantages of ceVUS:

- No ionizing radiation
- Higher sensitivity than VCUG
- Detects higher grades of reflux than VCUG

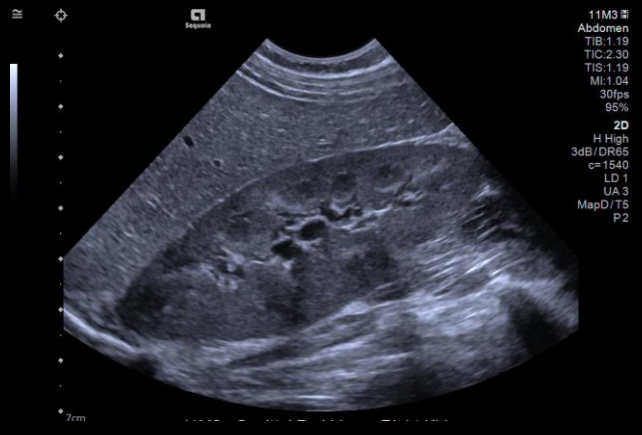


Contrast Urosonography

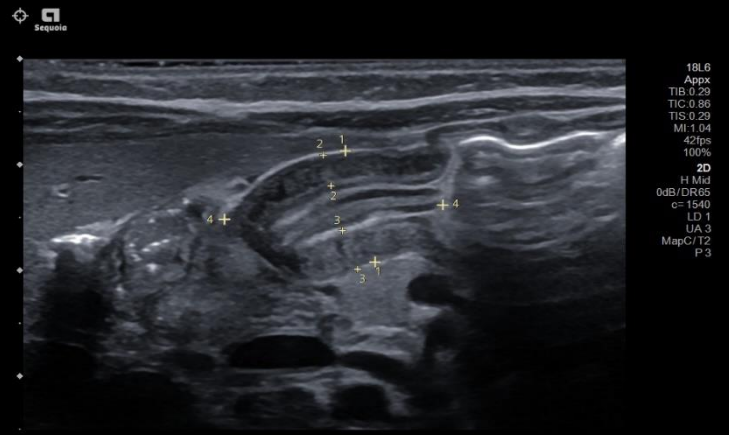
10L4 - Sagittal Neonatal Bladder Voiding

Source: https://pubs.rsna.org/doi/full/10.1148/rg.2017170024

Versatile pediatric transducers optimized to perform a variety of clinical use cases



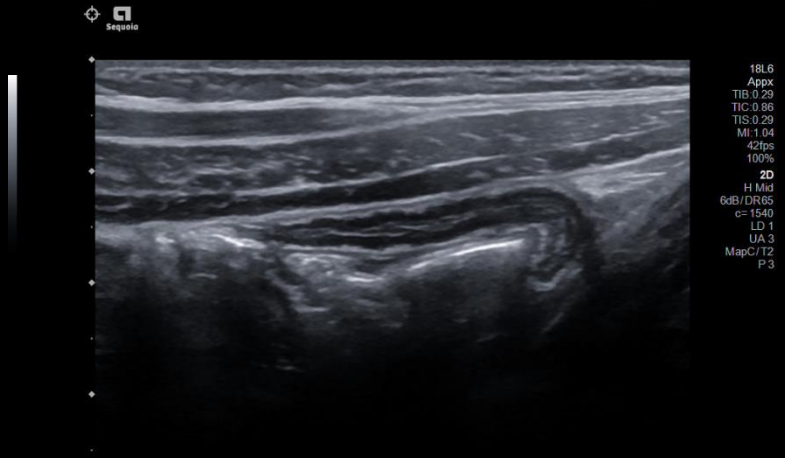
Sagittal Liver, Kidney – 3 years



Pyloric Stenosis– 4 weeks

Sagittal cranial LT Lateral – 3 months

Sagittal Liver, IVC – 7 years



Normal appendix– 6 years

Coronal cranial – 3 months

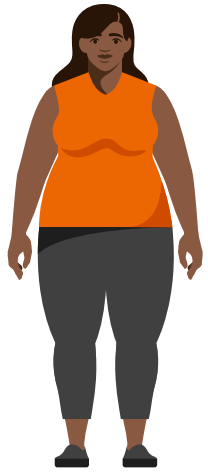
Correlation of obesity to chronic disease

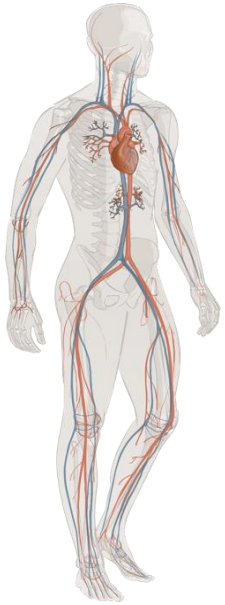
Linked to more than 60 chronic diseases[1]

SIEMENS Healthineers

60-70% Hypertension

In adults is attributable to adiposity[2]





Deep Vein Thrombosis (DVT)

2.5x More likely to develop DVT

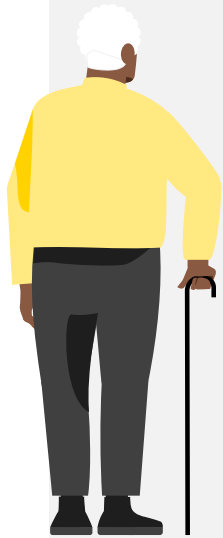
Peripheral Artery Disease (PAD)

1.5x More likely to develop PAD[3]

Stroke

Primary risk factor is **obesity and overweight**[4]

1 in 4 will have a stroke in their lifetime[1]



12.2 M
new strokes per year[2]

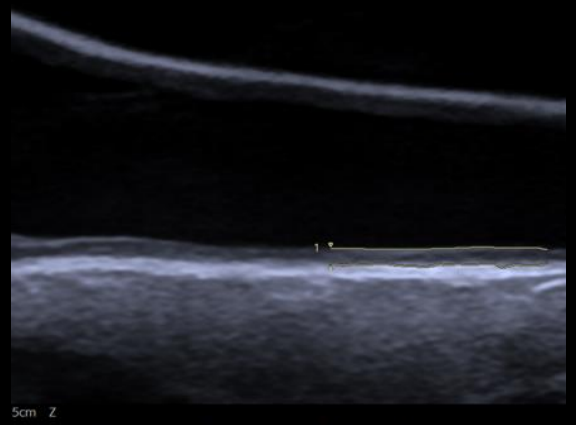
101 M
living with stroke aftermath[4]

6.5 M
die from stroke annually[3]

$451 billion
estimated worldwide **costs of stroke**[5]

1-5 Data on file.

ACUSON Ultrasound systems offer the technology you need for confident assessment

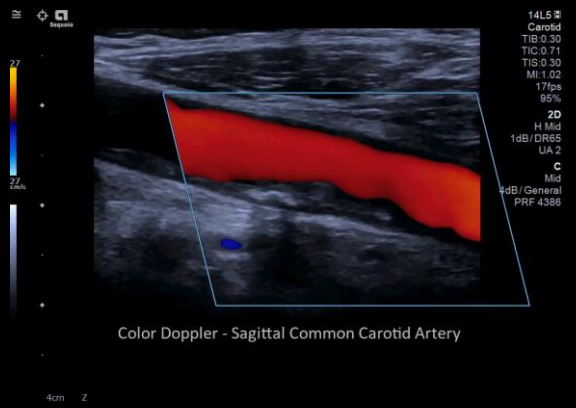


Auto Intimal Media Thickness (IMT) with Preview Function

Auto IMT

Intima Media Thickness Measurement

- Establishes cardiovascular risk profiles
- This technology will help to establish risk profiles, and to classify patients with intermediate vascular disease

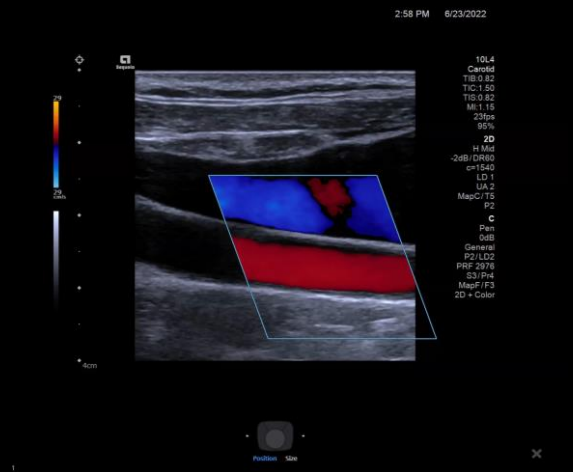


Color Doppler - Sagittal Common Carotid Artery

Carotid Ultrasound

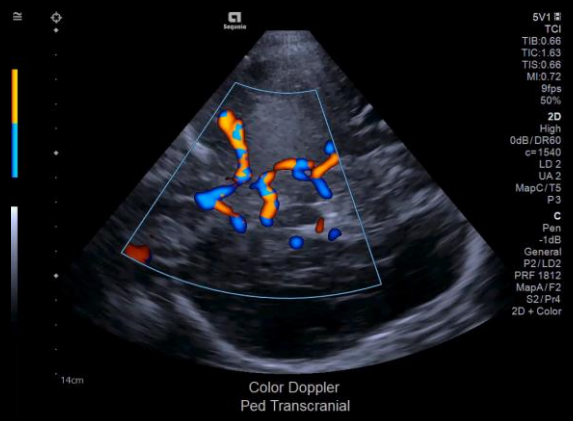
- Screening patients for atherosclerotic buildup of plaque within these vessels which increases the risk of stroke
- Useful diagnostic tool for assessing cervical carotid artery disease

ACUSON Ultrasound systems offer the technology you need for confident assessment



Auto Doppler

- Enables automated placement with angle adjustment for Color and PW with no user interaction
- Reduction in keystrokes and operator variability potentially improving time to diagnosis



TCD Ultrasound

Transcranial Doppler Imaging

- Low-cost exam to detect medical conditions that affect blood flow in the brain
- Early and accurate detection of arterial occlusion guides emergency management in patients with acute ischemic cerebrovascular accident

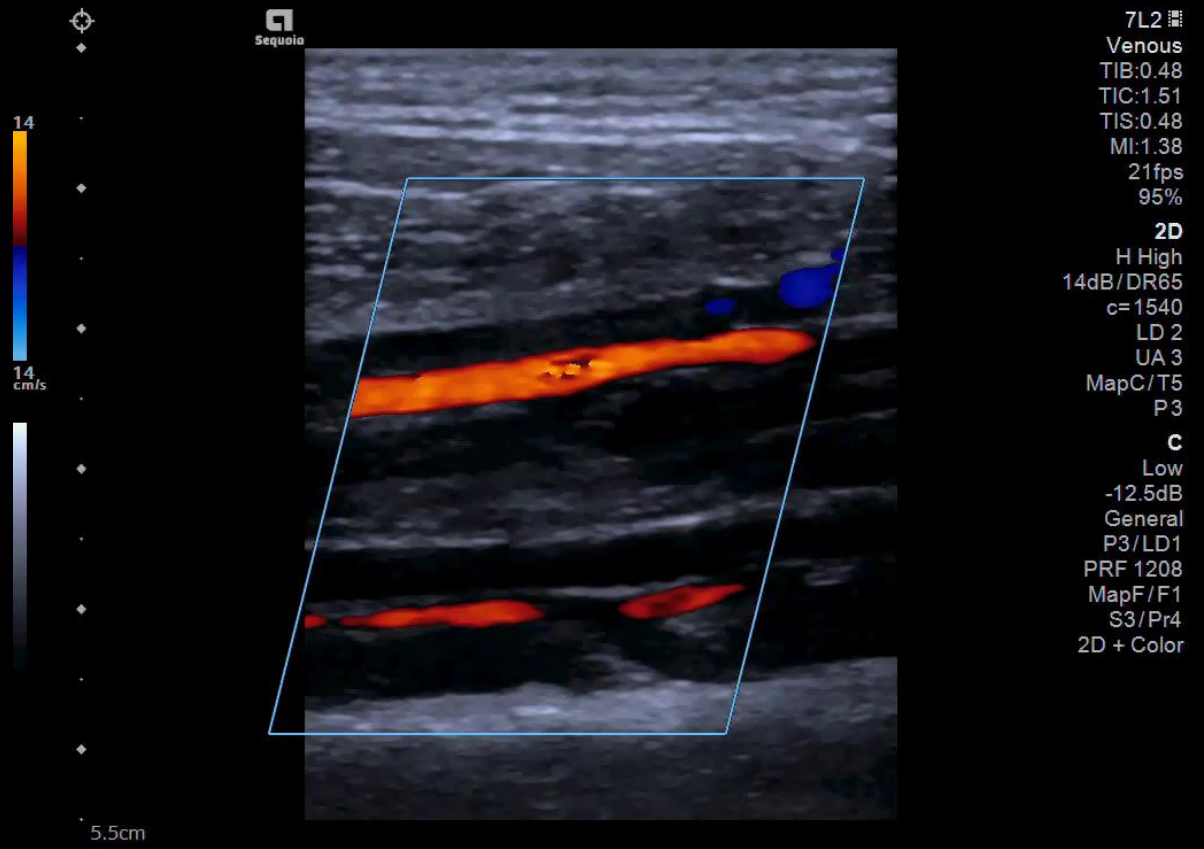
Increased versatility with a low frequency linear transducer alternative

SIEMENS Healthineers

7L2 Deep linear transducer

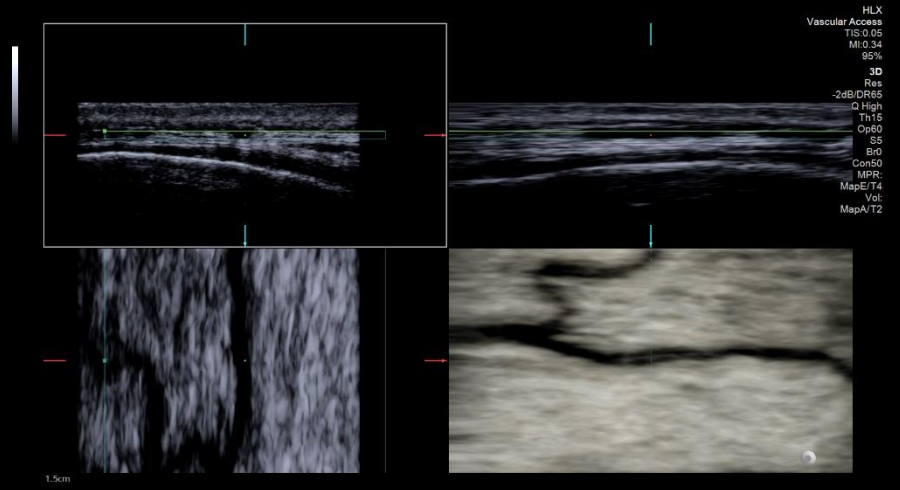
Single crystal transducer **58% deeper color** mode penetration than the conventional 9 MHz linear transducer.*

Deeper penetration when needed for more difficult exams



*Compared to ACUSON S Family 9L4 transducer

HLX transducer provides superior near field imaging of superficial vessels (radial, temporal)



Optimized for superficial vascular applications

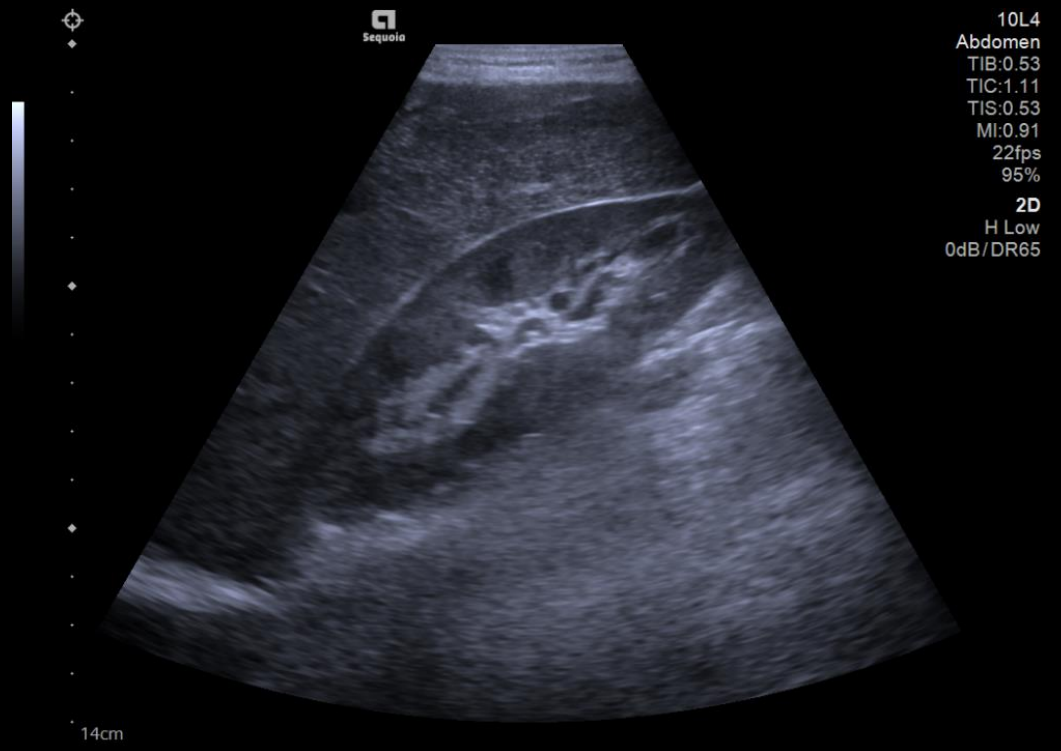
- Our highest frequency linear transducer
- Slow Flow technology to visualize smaller, slower flow vessels
- Freehand 3D allowing spatial visualization of vessel branches not seen in 2D

Helps reduce strain & pain

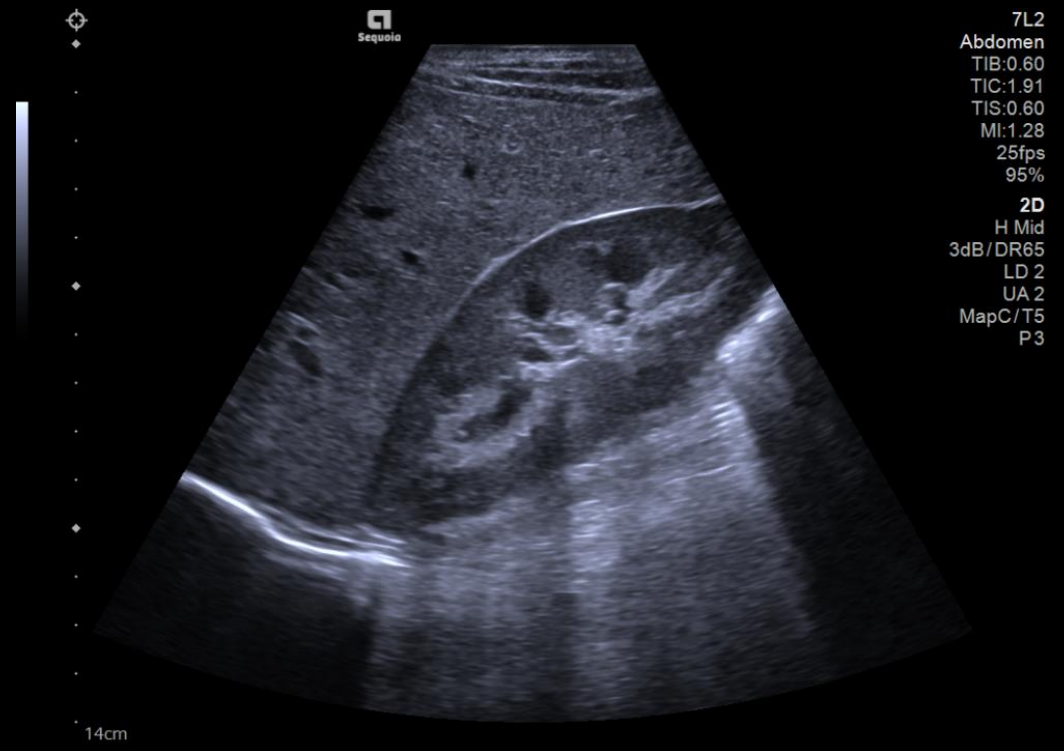
- Small footprint for tight access
- Ergonomic grip and narrow shape for constant light pressure
- Complements the vascular portfolio with the 14L5 and 10L4 probes

Increased versatility with a low frequency linear transducer alternative

ACUSON Sequoia (10L4)



ACUSON Sequoia (7L2)



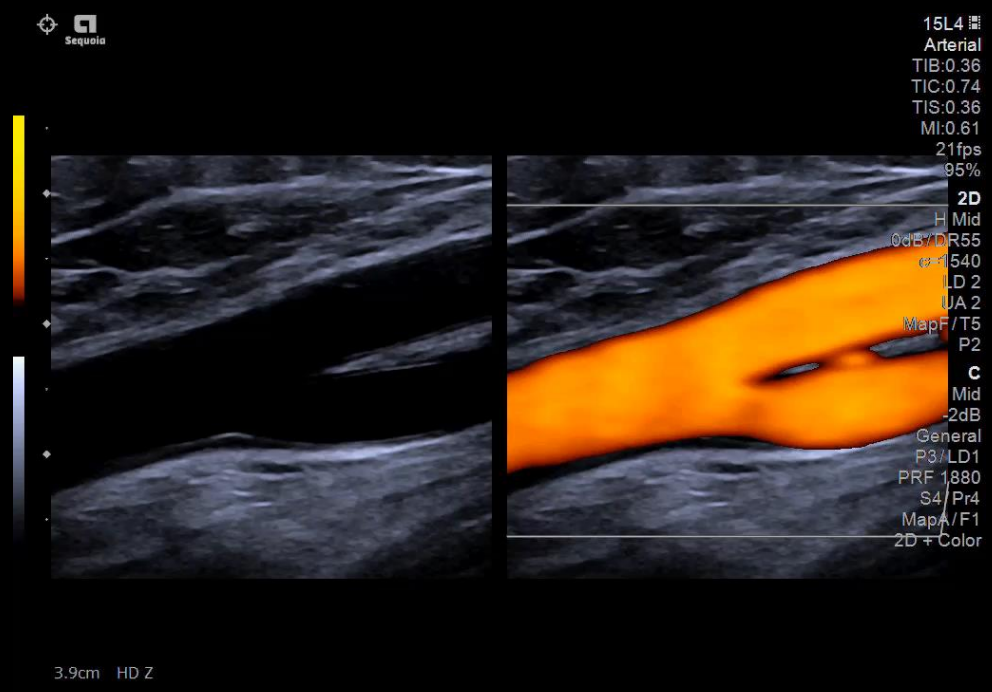
The 7L2 transducer provides **35% deeper** B-mode penetration*

*Compared to ACUSON S Family 9L4 transducer

Highest resolution color flow, sensitivity, and penetration

SIEMENS Healthineers

ACUSON Sequoia (15L4)



ACUSON Sequoia (5C1)

Addressing variations image fully focused from near field to far field
Highest resolution color flow, sensitivity, and penetration

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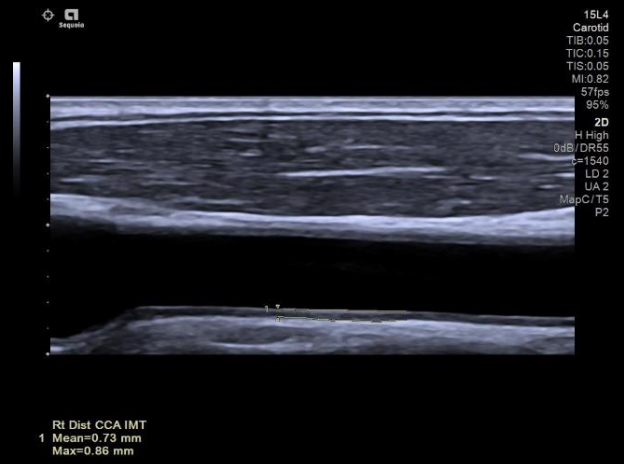

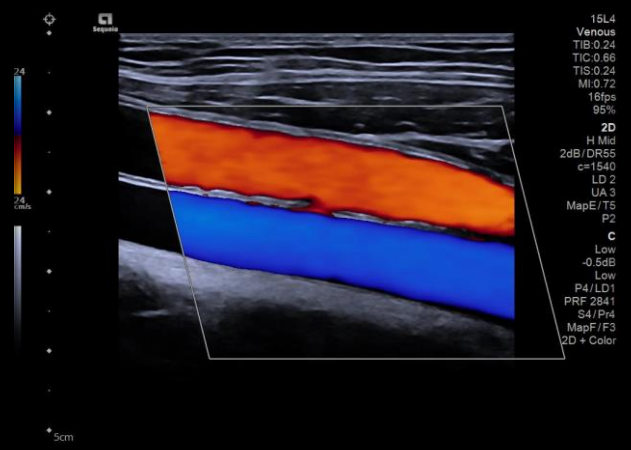

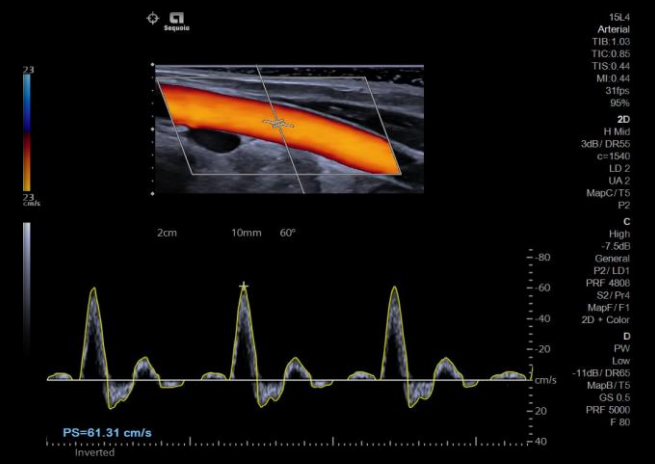

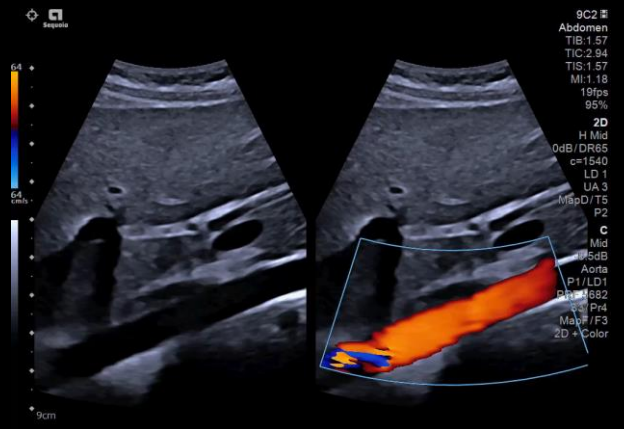

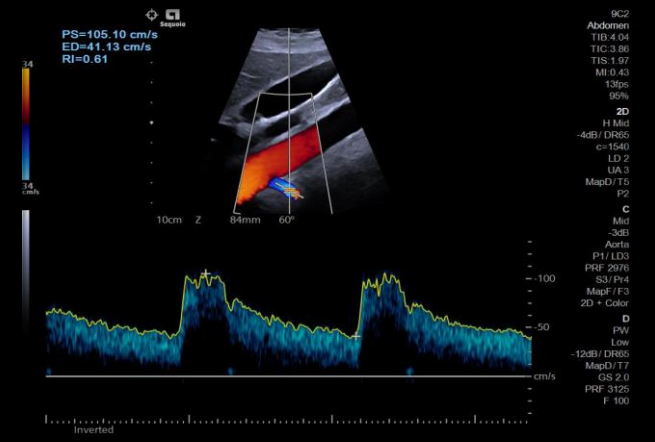

ACUSON Sequoia is designed to help you improve diagnostic confidence and patient outcomes

SIEMENS Healthineers

Intelligent Imaging

Experience powerful imaging and reduced variability with automation in each major mode and a wide selection of advanced transducers.

- InFocus Imaging
- UltraArt
- Freehand 3D
- Advanced transducers

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Expand your expertise with advanced tools and AI innovations designed to improve diagnostic confidence and patient outcomes.

- AI Abdomen
- AI Cardiology
- 2D Next-Gen SWE
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User Driven Design

Embrace advanced productivity with AI powered tools and an intuitive design for the ultimate user experience.

- Walk-up Usability
- Workflow
- Gesture Detection

Thank you

SIEMENS Healthineers

The ACUSON family enables improved access to care across departments

Maximize return on investment

Standardize workflow

Enable unparalleled Remote Service

Protect from cyber threats

ACUSON Sequoia **ACUSON Redwood** **ACUSON Juniper** **ACUSON Maple** **ACUSON P500**

The statements by Siemens Healthineers' customers described herein are based on results that were achieved in the customer's unique setting. Because there is no "typical" hospital, clinic or laboratory and many variables exist (e.g., hospital size, samples mix, case mix, level of IT and/or automation adoption) there can be no guarantee that other customers will achieve the same results.

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