ACUSON Sequoia Ultrasound System

Improving diagnostic accuracy in pediatric ultrasound

Crown Edition

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Unique challenges in pediatric ultrasound

Children need to be assessed in their own right and not as small adults. Pediatric patients present unique challenges in conventional radiology imaging and require dedicated imaging protocols to acquire quality images and prevent repeat examinations.

Ultrasound is often employed as the first line of imaging due to the reduced radiation exposure, portability, temporal resolution, and the ability to provide guidance without the need for additional imaging.

1–6 year olds have the highest likelihood of requiring sedation for diagnostic imaging

Children need specialized equipment optimized for pediatrics

Wires

10x

Pediatric patients might be as much as ten times more radiosensitive than adults

Transport of fragile newborns can be complex and hazardous

1 in 3 children are overweight or living with obesity

47% of premature termination of MRI exam on children due to fear, anxiety and claustrophobia
We designed the ACUSON Sequoia to combat the unique challenges of pediatric ultrasound. ACUSON Sequoia has dedicated pediatric transducers and measurement packages. It also scans faster and delivers higher image quality than conventional ultrasound systems.5
Intelligent Imaging

Powerful automation and advanced transducers for easier imaging

Increased patient movement, heart rates and respiratory rates are common when imaging children and pose challenges in the acquisition of high quality B-mode, color and Doppler images.

Ultrasound’s potential has been limited by unwarranted variability

The ACUSON Sequoia’s powerful architecture and specialized transducers are optimized for pediatric scanning. Diagnostic confidence is improved with deeper and clearer images using BioAcoustic imaging. InFocus Imaging technology eliminates the need for manual focal zones to create a fully focused image with faster frame rates than conventional ultrasound when scanning the occasional uncooperative little ones.6
Specialized transducers optimized for pediatrics

Pediatric imaging ranges from premature neonates to adult-sized teenagers. Imaging of pediatric patients requires both small and conventional footprints with adjustable frequencies to adapt to various depths and patient needs.

ACUSON Sequoia transducers and measurement packages are optimized to address the challenges of pediatric imaging and engineered to produce optimal acoustics for each clinical use case to deliver superior signal fidelity.

9C2 single crystal transducer

15% smaller lens surface improves intercostal scanning in children; equipped with Auto Point Shear Wave Elastography (Auto pSWE) and Ultrasound Derived Fat Fraction (UDFF).

11M3 single crystal micro-convex transducer

has a small footprint and superb imaging to manage the tiny acoustic windows and incubator scanning of neonates.
InFocus Imaging delivers image uniformity throughout the field of view without user interaction as seen in this sagittal midline view of the neonatal brain using the 11M3 single crystal micro convex transducer.

Slow Flow uses smart filters and adaptive signal enhancement for imaging micro vascularity like this pediatric kidney.

Versatile Linear Transducers optimized to perform a variety of pediatric clinical use cases as demonstrated in this high-resolution image showing Pyloric Stenosis using the 18L6 transducer.

Exquisite Near Field Resolution demonstrated in this transverse view of the neonatal spine at the level of the kidneys using the 18L6 transducer.

AutoSpectral will automatically optimize relevant Doppler parameters immediately upon freeze for improved spectral analysis and workflow as seen in this transcranial Doppler view.

Trapezoid increases versatility of linear transducers by expanding the field of view as seen using the 10L4 transducers in this pediatric abdomen.
Expanded Insights

Advanced tools and applications to improve diagnostic accuracy

Ultrasound’s advantage in pediatric imaging includes the absence of ionizing radiation, which eliminates the need for sedation as ultrasound is a real-time imaging modality. Advanced applications expand these advantages to new use cases.

ACUSON Sequoia’s exceptional performance in contrast-enhanced ultrasound (CEUS) and exclusive innovations such as Auto Point Shear Wave Elastography (Auto pSWE) and Ultrasound Derived Fat Fraction (UDFF) improve diagnostic accuracy through quantification and characterization of tissue. Delivering industry-leading performance enables healthcare professionals access the clinical information needed for personalized precision medicine.
Auto Point Shear Wave Elastography (Auto pSWE) reduces liver elastography exam time and operator variability by delivering up to 15 valuable pSWE measurements in less than 5 seconds.

Ultrasound Derived Fat Fraction (UDFF) is an easy, reproducible and quantitative ultrasound index with respect to the percentage of liver fat quantification for a clear cut off value to classify hepatic steatosis as an index value greater than 5%.

Virtual Touch 2D SWE displays qualitative and quantitative color maps to measure shear wave speed with precision and repeatability, like this example of the renal interface.

CEUS – Liver Imaging has twice the bubble longevity than previous systems for improved diagnostic confidence when evaluating focal liver lesions.

CEUS – Voiding Urosonography with the ACUSON Sequoia has twice the sensitivity than previous systems for improved diagnostic confidence in voiding urosonography exams.

Fusion Imaging combines imaging modalities like this example of CT and ultrasound fusion for improved diagnostic confidence in the most complex procedures.

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User-Driven Design

Designed by users for a best-in-class operator experience

ACUSON Sequoia’s user interface was designed to reduce complexity and enable users at all levels of experience and proficiency to easily operate.

Designed by the user, for the user
Variability inherent in the ultrasound scanning process can pose a challenge for users. In an effort to eliminate variability, Siemens Healthineers hosted 170 workshops with 365 ultrasound users worldwide to create an ultrasound system designed by users, for users.

3rd party validation of best-in-class usability
The ACUSON Sequoia earned a system usability score (SUS) of 86% and a preference score of 82% in a usability study conducted by Macadamian Technologies².

Average system usability score

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<tr>
<th>Vendor</th>
<th>Average SUS</th>
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<tr>
<td>ACUSON Sequoia</td>
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User preference

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<td>11%</td>
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<tr>
<td>Prefer ACUSON Sequoia</td>
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</tbody>
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See how the ACUSON Sequoia stacked up against similar systems

Learn more
The transport of fragile newborns can be complex and hazardous. Bedside ultrasound in critical care areas is a normal practice for many pediatric experts.

ACUSON Sequoia is a powerful portable ultrasound system designed to improve the ergonomic experience anywhere in the hospital while delivering the highest level of ultrasound imaging and bedside efficiency.

24” Barco monitor
Dual-layer LCD technology with wide viewing angle.

Smaller intuitive touch display
A 13.3” touch access quick keys selected by user – enhanced user interface that improves ergonomics and workflow.

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

Larger storage areas
1 integrated storage bin and storage shelf option.

Central locking and steer pedals
A central locking mechanism eliminates the need to lock each wheel individually, enhancing maneuverability.

Floating control panel
Designed to fit every room and workflow, the control panel can swivel 180 degrees for a seamless workflow.
At Siemens Healthineers, we pioneer breakthroughs in healthcare. For everyone. Everywhere. By constantly bringing breakthrough innovations to market, we enable healthcare professionals to deliver high-quality care, leading to the best possible outcome for patients.

Our portfolio, spanning from in-vitro and in-vivo diagnostics to image-guided therapy and innovative cancer care, is crucial for clinical decision-making and treatment pathways. With our strengths in patient twinning, precision therapy, as well as digital, data, and artificial intelligence (AI), we are well positioned to take on the biggest challenges in healthcare. We will continue to build on these strengths to help fight the world’s most threatening diseases, improving the quality of outcomes, and enabling access to care.

We are a team of 66,000 highly dedicated employees across more than 70 countries passionately pushing the boundaries of what’s possible in healthcare to help improve people’s lives around the world.

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1 MRI Utilization and the Associated Use of Sedation and Anesthesia in a Pediatric ACO Joshua C. Uffman, MD, MBAa,b, Dmitry Tumin, PhDa,c, Vidya Raman, MDa,b, Arlyne Thung, MDa,b, Brent Adler, MDb,e, Joseph D. Tobias, MD


5 Compared to 9C3 transducer

6 Compared to ACUSON Sequoia 512 ultrasound system

7 Ultrasound Machine Comparative Study by Macadamian Technologies

Data on file.