



**POWERED BY AI
ELEVATED BY YOU**

Vivid™ S70N
Ultra Edition



vivid

gehealthcare.com/vivid



By 2030,
▲ 40.5%

of the US population is projected to have some form of Cardiovascular Disease (CVD)¹

▲ ~108m

annual echo exams performed globally²

WORKLOAD IS HIGH. WHILE ENERGY AND DETERMINATION PERSIST.

Demand for cardiovascular ultrasound exams is high and will continue to increase, with a mix of routine, follow-up and complex cases.

Using advanced clinical capabilities traditionally required extra effort and expertise - often resulting in delays and increased workload.

We strive to maximize efficiency with a system that helps you see more, easily achieve accurate measurements and minimize errors.

10-15%

of echo exams result in sub-optimal images³

▲ **90%**

of sonographers experience symptoms of Work Related Musculoskeletal Disorders (WRMSD)⁴

\$120+

billion yearly
direct and indirect costs for employers⁴

Vivid S70N Ultra Edition



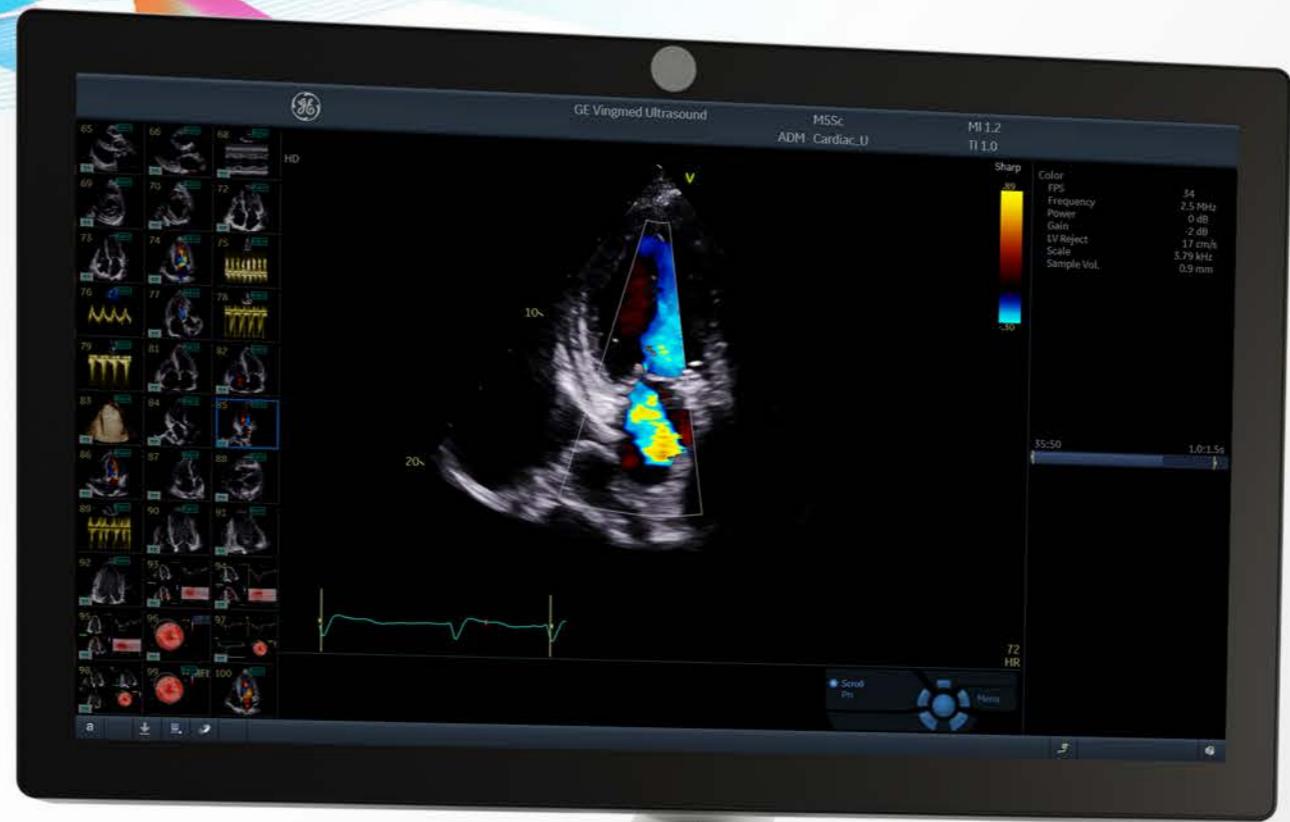
Powered By
Edison

Designed to provide you with uncompromised image quality, advanced visualization capabilities and easy measurements – while helping reduce tedious tasks and inter-observer variability.⁵

Leverage the cSound imaging platform

We are committed to support the vital work you do with patients every day. Leveraging artificial intelligence powered by GE Healthcare's Edison™ platform, we've taken the extraordinary processing capacity of our breakthrough software beamformer, cSound™, to a whole new level.

Empower your care team with the expanded advantages of artificial intelligence of the Vivid™ S70N Ultra Edition system.



Achieve clinical excellence

Advanced quantification tools provide you with the ability to evaluate problems and pursue the path forward. Count on a full suite of intuitive tools to make your work easy and efficient. Accomplish reproducible results with advanced capabilities for quantifying heart function and valve anatomy in 2D and 4D.

Master complex exams

Due to a growing population of difficult to scan patients, XDclear™ probes combined with cSound beamformer technology make a difference in many of your exams, helping you quickly and easily acquire diagnostic images with confidence and without contrast.

Optimize your practice

Standardized and simplified procedures help increase patient throughput and optimize productivity.

Help maximize efficiency with Automated Functional Imaging (AFI), assessment of the LV strain on all datasets, regardless of the system it was acquired on (i.e. vendor independent). Vivid S70N Ultra Edition also offers vast flexibility enabling superb performance in a range of exams including: stress-echo, vascular, abdominal, OB/GYN and small parts.



MODERN ERGONOMICS

A familiar, yet modern and efficient design.

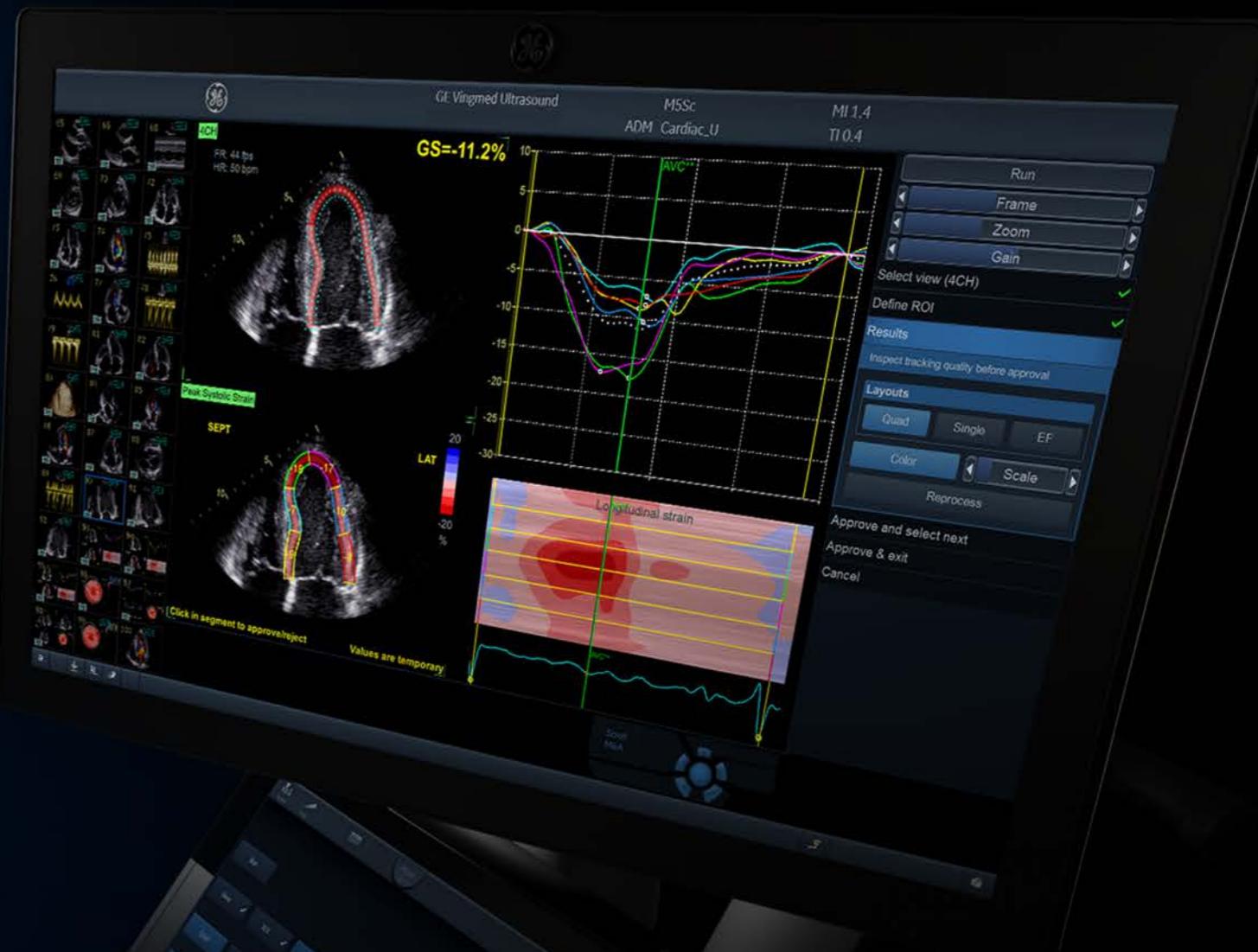
Your time is precious.
Save it.

DETECTABILITY⁵

AI 98%

AI AFI LV with AI View Recognition

Fully automatic recognition of the apical imaging views and measurements of GLS and segmental longitudinal Strain for LV.



POWERED BY AI

Improve diagnostic speed and accuracy

Vivid S70N Ultra Edition introduces the latest AI-based technology to help reduce tedious tasks and improve workflow efficiency. Diagnose more confidently and accelerate exams via automated (AI-driven) Cardiac Doppler and 2D LV measurements.

The results are impressive. Exam time is reduced, and operator fatigue minimized with up to 80% less clicks to get 2D measurements, and inter-observer variability diminished.⁵

Discover the many innovations brought by the Vivid Ultra Edition, and more importantly, how these can contribute to make clinical practice - Elevated by You.

Ultra Fast.
Ultra Precise.
Ultra Efficient.

AI Cardiac Auto Doppler with AI

REDUCED TIME
PER MEASUREMENT

UP TO
93%

Fewer Keystrokes⁶

LOWER INTER
OPERATOR VARIABILITY



Standardized exams with
greater reproducibility⁶

ACCELERATED
WORKFLOW



Productivity improvement

POWERED BY AI ELEVATED BY YOU

At GE Healthcare we strive to empower you by reducing wasted time and effort. We aim to remove tedious tasks and help make every moment count for your patients – seeing problems clearly and quickly, performing procedures with great precision... and providing quality of care for all.



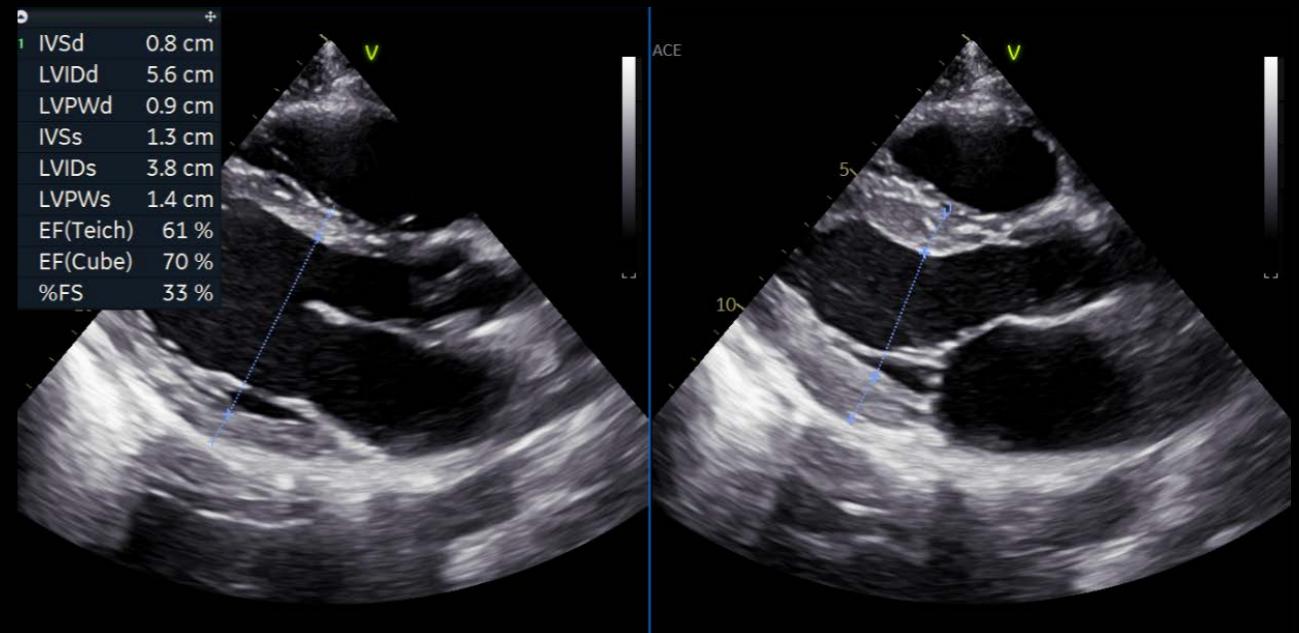
CLINICAL EXCELLENCE for the Echo Lab

LESS CLICKS, UP TO⁵

-80%

AI AI Auto Measure 2D

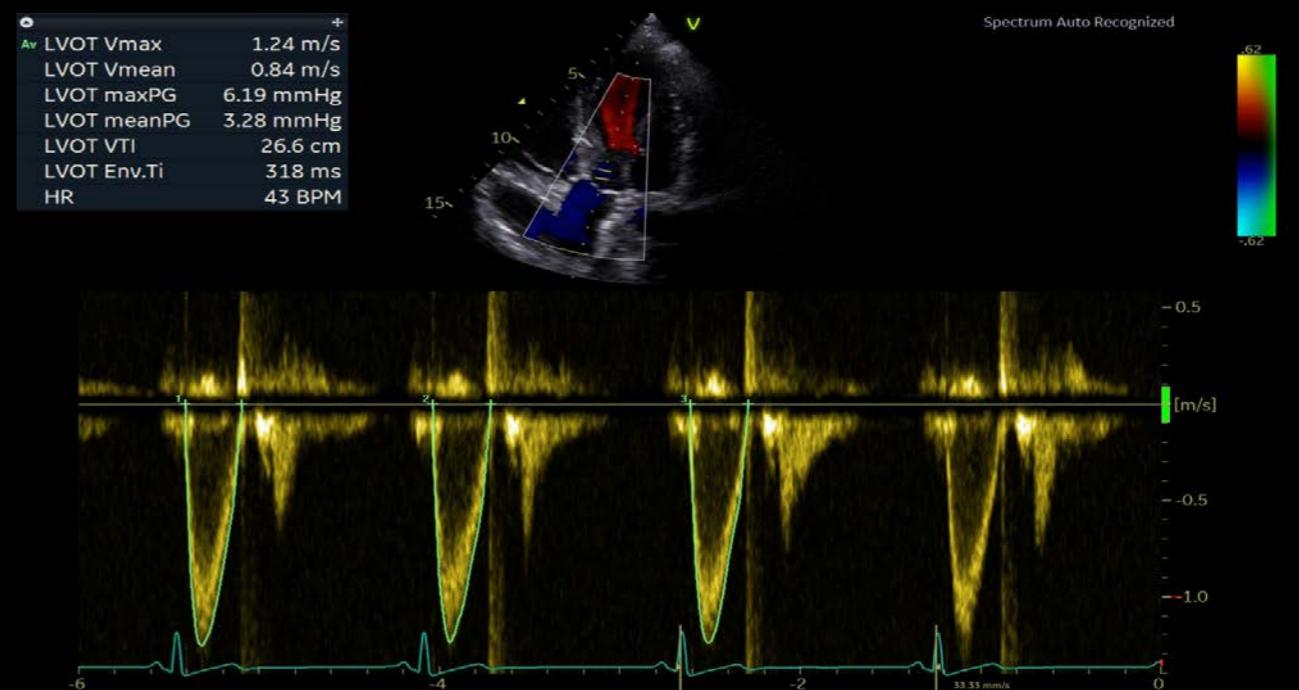
With the power of AI, the manual caliper measurements can be completed with 3 clicks: **Freeze – Measure – Auto**. A full set of reproducible measurements will instantly appear on the screen.



ACCURACY⁵
98%

AI AI Auto Measure Spectrum Recognition

With the power of AI, a wide range of Doppler measurements can be completed with 2 clicks: **Freeze – Measure**. A Doppler trace and full set of associated measurements will instantly appear on the screen.





CLINICAL EXCELLENCE

for Interventional Procedures

Demand for interventional procedures is growing and so are expectations of the heart team. Grow your capacity and capabilities with advanced ultrasound and conquer difficult cases.

Structural heart procedure success depends on preparation, collaboration and clear communication. This complex task is rewarding, and the entire team contributes.

Vivid S70N Ultra Edition offers precise and uncomplicated tools to plan your interventions. With new visualization and navigation techniques, the heart team can see clearly, communicate quickly, and perform procedures with great precision.

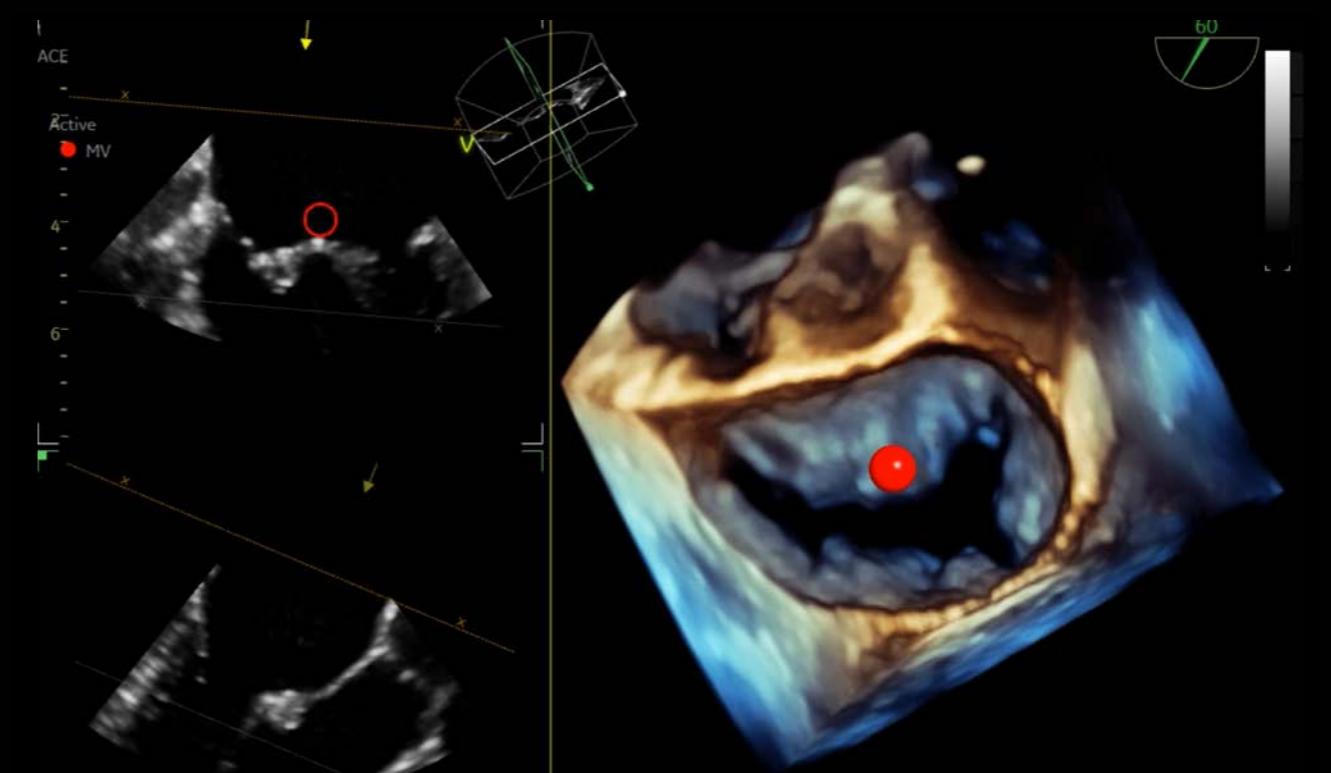
HD Color

HD Color is a 4D color flow rendering technique for volumetric flow perception and semi-transparent visualization of origin and size of high velocity jets



4D Markers

Make annotations that are viewable from all angles on 4D ultrasound volume data sets and their 2D views, facilitating communication in the echo lab, cath lab and OR.





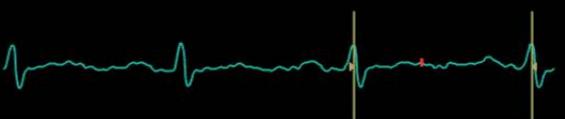
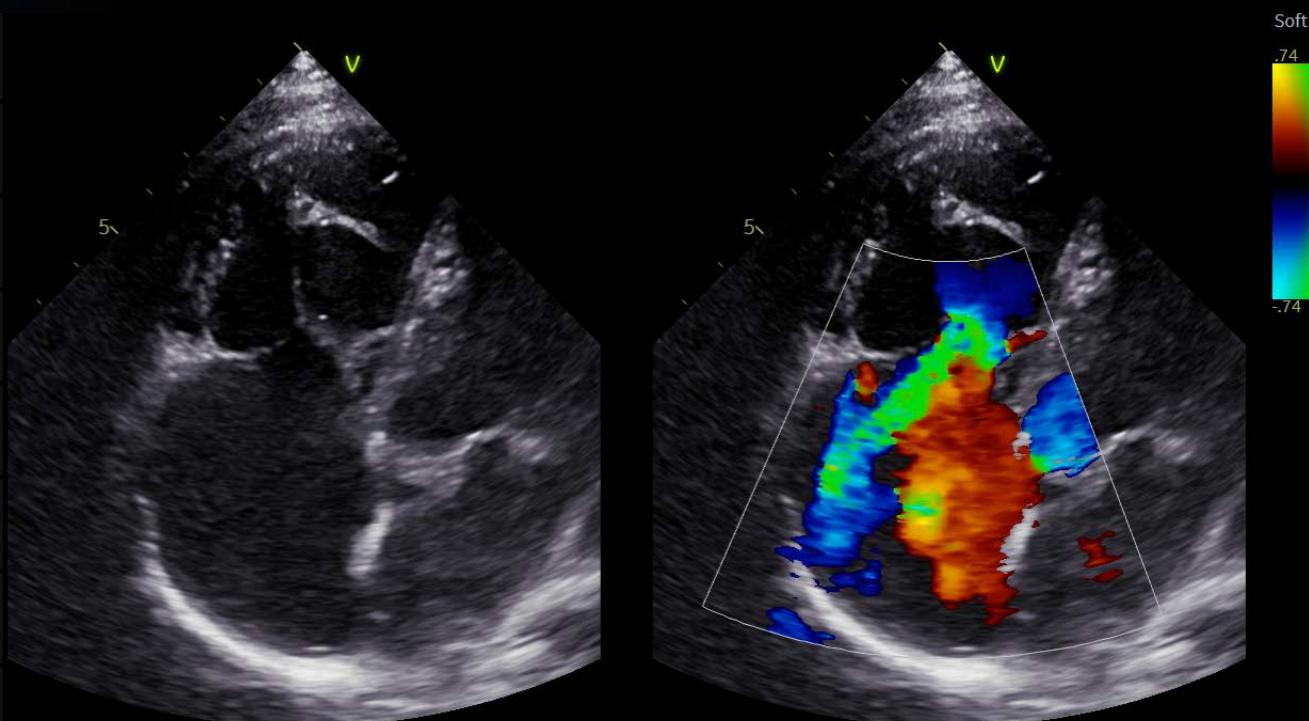
CLINICAL EXCELLENCE for Pediatrics

The smallest cardiac patients can pose the biggest care challenges with difficult to diagnose, severe conditions.

That's why GE Healthcare designed the high-end Vivid S70N Ultra Edition with the extraordinary processing power of cSound to help you evaluate and navigate the complexities of pediatric hearts with speed, clarity and confidence.

Pediatric imaging

Visualize small anomalies with speed, clarity and confidence thanks to Vivid S70N Ultra Edition's superb high-resolution imaging and dedicated pediatric probes.



96
HR



CLINICAL EXCELLENCE

beyond Cardiology

The demand for multi-purpose, cost efficient ultrasound systems with uncompromised image quality is growing. Your Vivid S70N Ultra Edition will exceed your expectations across a wide range of applications.

While Vivid S70N Ultra Edition has been designed to address your needs for cardiac imaging, it proves very versatile as well, capable of providing you with superb images thanks to cSound technology, and diagnostic capabilities for a wide range of applications beyond the heart.

Vivid S70N Ultra Edition's efficient workflow, wide probe range and quantification tools ensure the confidence you need for speedy and accurate diagnosis also under challenging conditions.

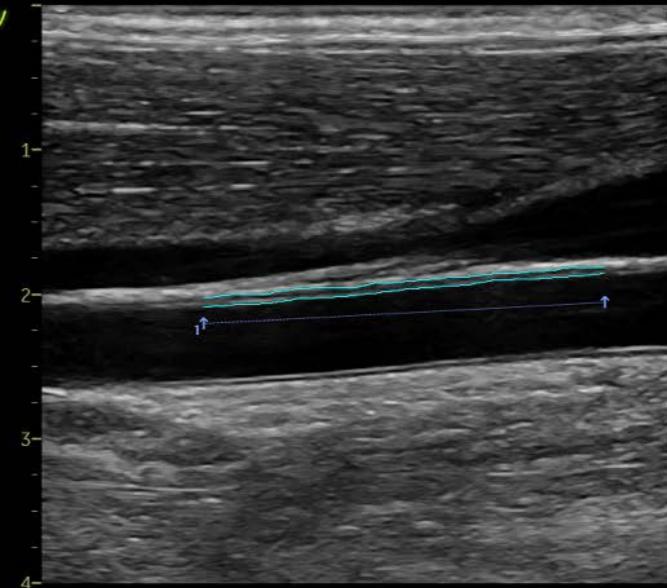
Lightweight and slim, the Vivid S70N Ultra Edition is easy to maneuver. This facilitates your movements as you walk in the corridors from one department to another, and if need be, gives access to scanning at patient bedside.

Accurate diagnostics and precise measurements are achievable with premium image quality, dedicated presets and tools on your Vivid system.

Vascular quantification

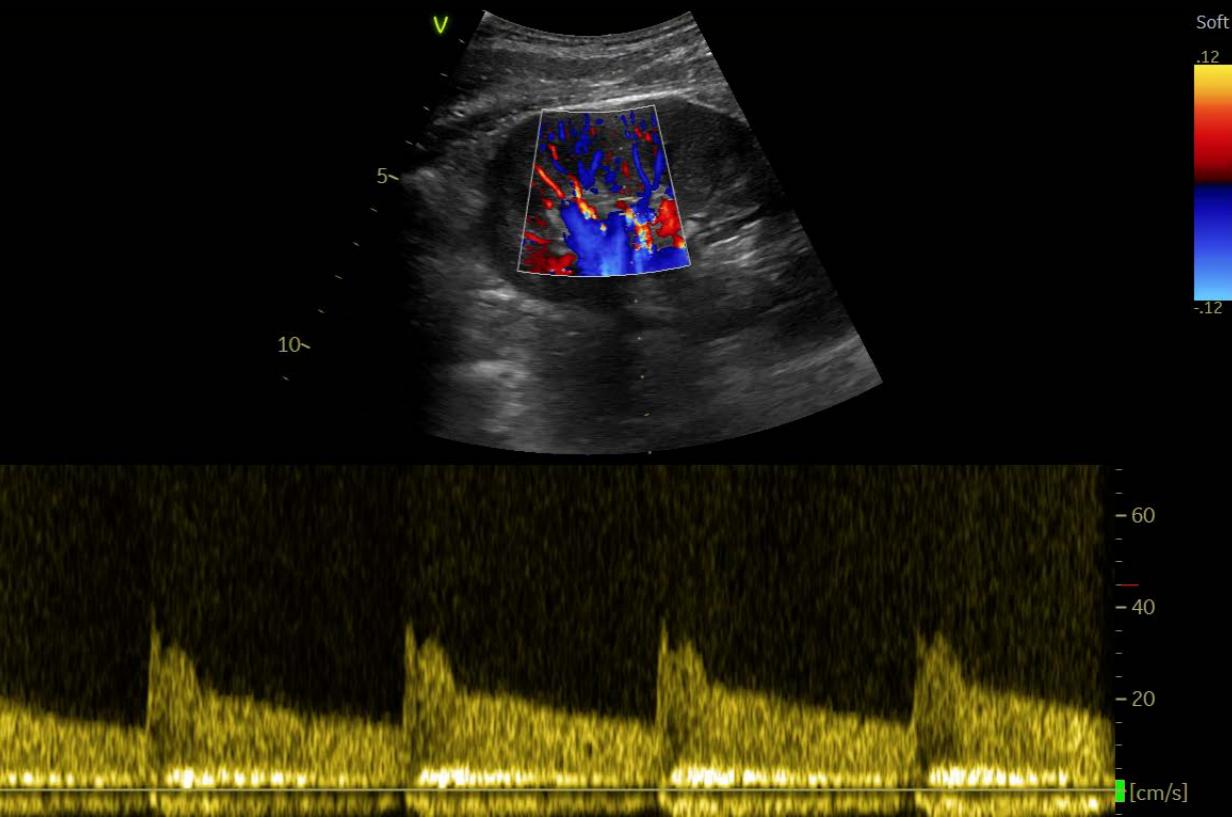
Develop fast and complete quantitative assessment of vascular anatomies, such as the Intima Media Thickness, with dedicated vascular measurement tools.

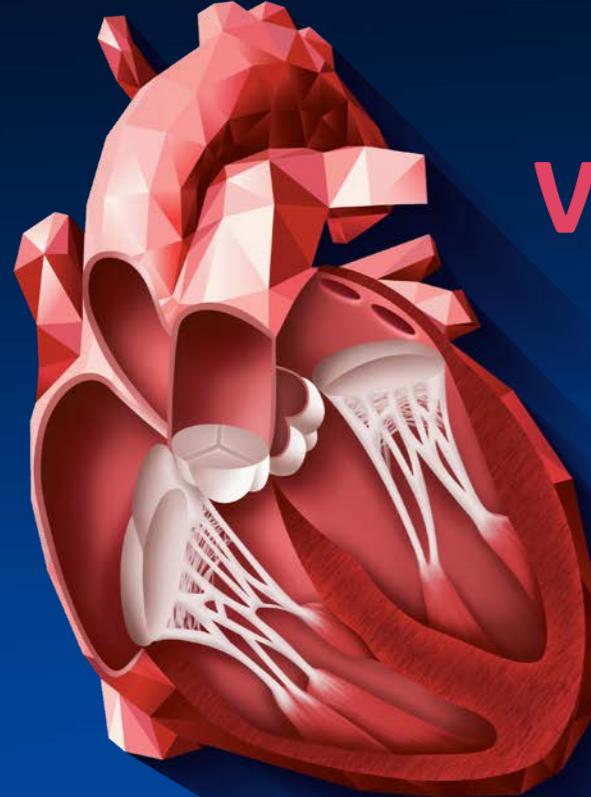
d	0.12 cm
IMT A Avg	0.59 mm
IMT A Max	0.76 mm
IMT A Min	0.40 mm
IMT A SD	0.08 mm
IMT A Pts	694



Abdomen diagnosis

Visualize tissues and flow patterns with greater details thanks to Vivid S70N Ultra Edition's high-resolution imaging.





VIVID HEART APPLICATIONS

A wide range of clinical applications for use in Core Echo Lab, Interventional and Pediatrics.

FLOW QUANTIFICATION

Cardiac Auto Doppler

Ultra Edition

AI Auto Measure Spectrum Recognition

AI

VALVES AND CHAMBERS QUANTIFICATION

4D Auto AVQ

4D Auto MVQ

4D Auto LVQ

VISUALIZATION AND NAVIGATION

4D Markers

FlexiSlice

FlexiViews

View-X

Ultra Edition

HD Color

Ultra Edition

AI Auto Measure 2D

Auto EF

AFI FUNCTIONAL IMAGING

Ultra Edition

AFI LV with AI View Recognition

AFI RV

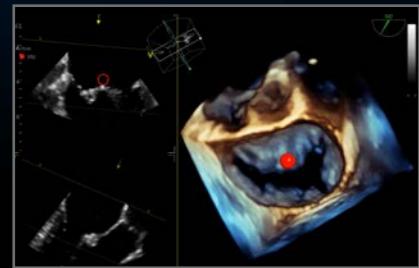
AFI LA



VIVID HEART
APPLICATIONS

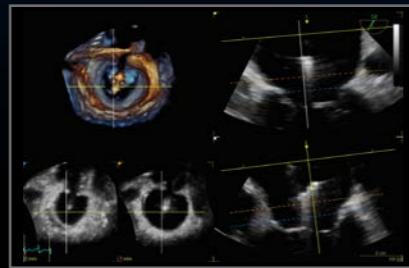
VISUALIZATION AND NAVIGATION

Why guess? When you can see.



4D Markers

Make annotations that are viewable from all angles on 4D ultrasound volume data sets and their 2D views, facilitating communication in the echo lab, cath lab and OR.



FlexiSlice

With a distance gauge and two viewing layouts, this interactive tool for obtaining 2D or render views in live or replay mode may provide enhanced insight as well as save time.



FlexiViews

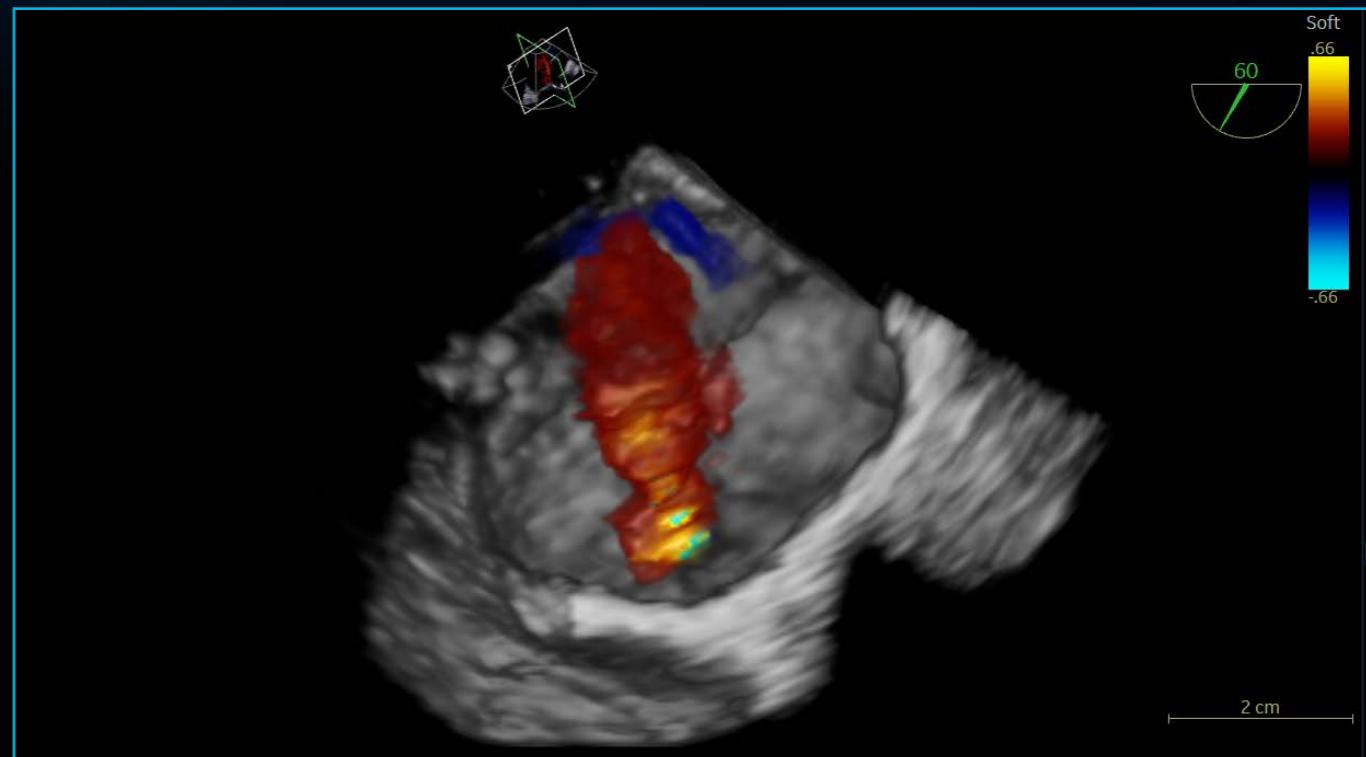
Gain quick access to predefined 4D/ multiplane views during live mode, potentially reducing scan time during complex interventional procedures.



View-X

See X-ray from fluoroscopy in real time right on your Vivid S70N Ultra Edition screen as a picture in picture, facilitating communication between team members.

New in Ultra Edition



Ultra Edition

HD Color

4D color flow rendering technique for semi-transparent visualization of origin and size of high velocity jets.

Benefits:

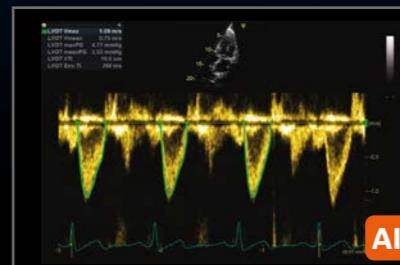
- Enhance spatial relationships between flow and the surrounding structures
- Suppress non-diagnostic low flow information
- Work seamlessly with other visualization techniques such as 4D markers
- Supports 4D color flow data also from previous releases



VIVID HEART
APPLICATIONS

FLOW QUANTIFICATION

Your time is precious. Save it.



Cardiac Auto Doppler

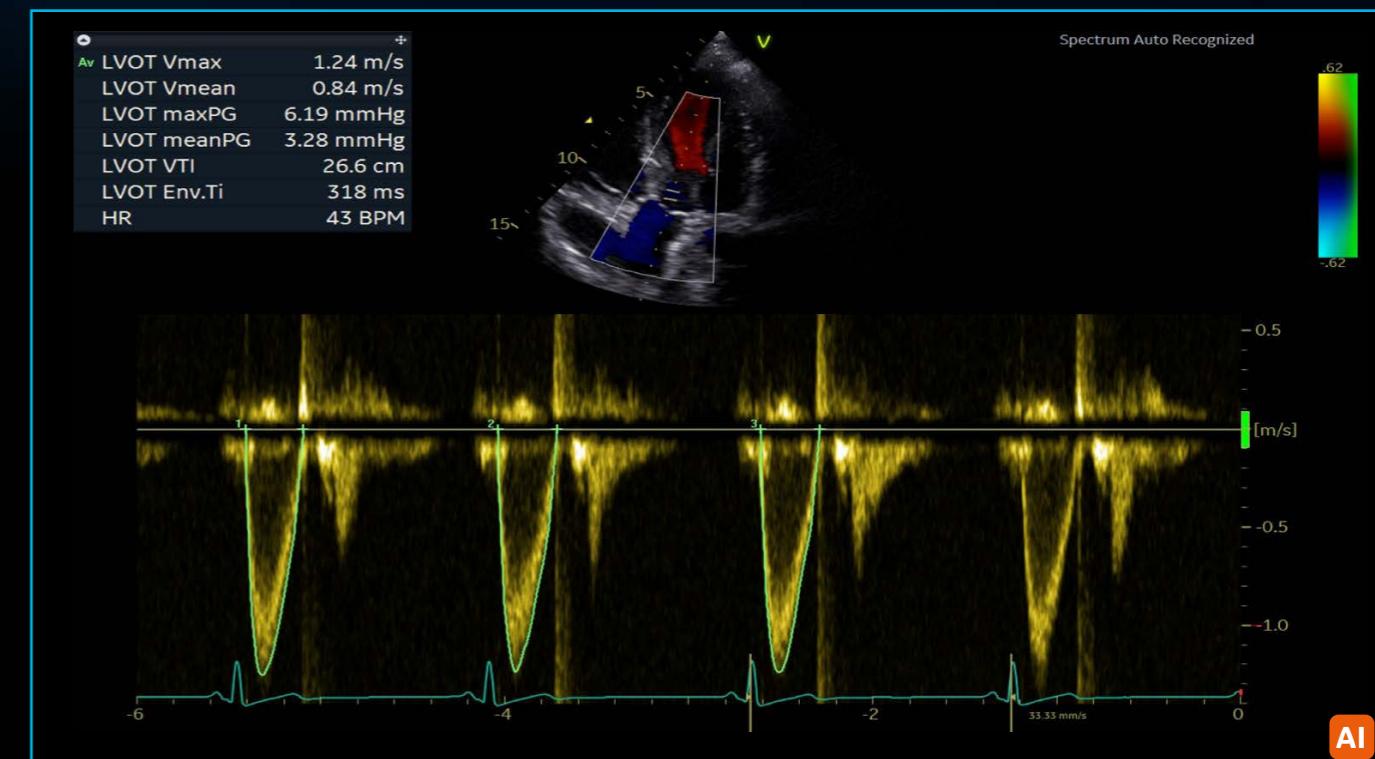
Semi-automatic Cardiac Doppler measurements.

Benefits:

- Enhances reproducibility of follow-up studies when used in automated mode⁶
- Offers Doppler measurement in multiple cardiac cycles as recommended by guidelines for irregular heart rhythms^{7,8}
- Supports less experienced users with advanced automation



New in Ultra Edition



Ultra Edition

AI Auto Measure - Spectrum Recognition

Semi-automatic selection of appropriate spectral Doppler measurement tool.

Benefits:

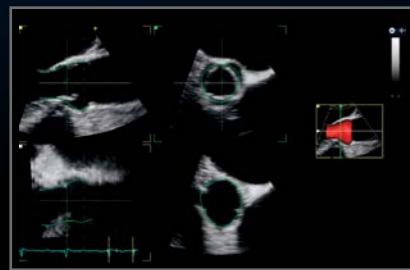
- Enables fewer manual interactions by automatically opening the appropriate measurement tool⁵
- Works seamlessly with Cardiac Auto Doppler
- Enhances reproducibility of follow-up studies when used in automated mode⁵
- Supports less experienced users with advanced automation



VIVID HEART
APPLICATIONS

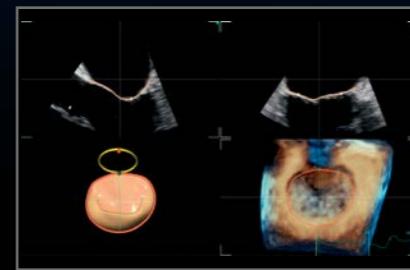
VALVES AND CHAMBERS QUANTIFICATION

Precision at the heart of quantification.



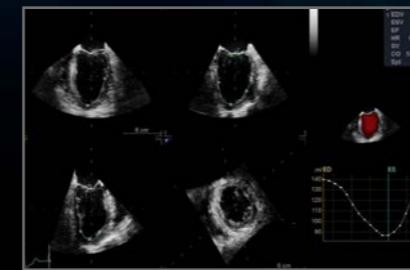
4D Auto AVQ

Automatically segment, align and quantify the aortic outflow tract – vital to device sizing and orientation for TAVI/TAVR procedures.



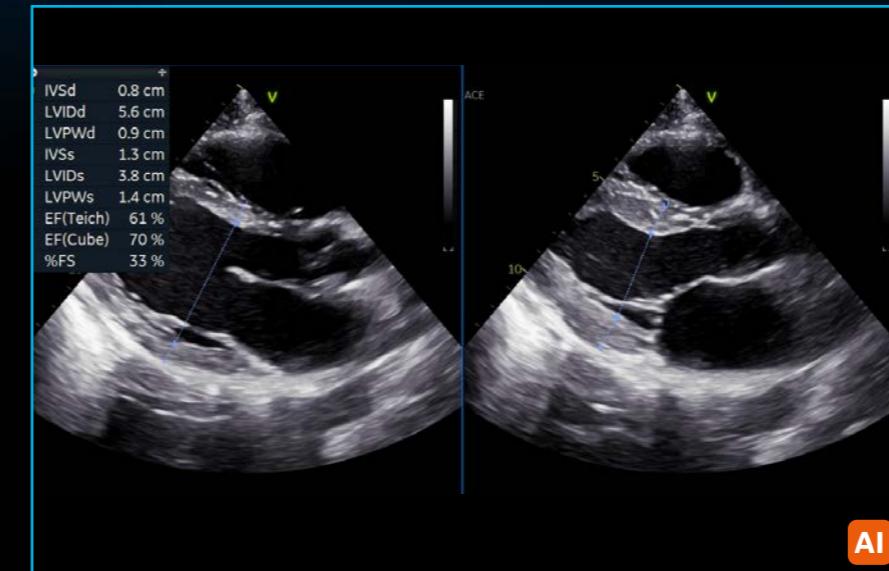
4D Auto MVQ

Supporting TEE images, this integrated package helps visualize and quantify the mitral valve via a semi-automatic, surface-detecting algorithm.



4D Auto LVQ

Adapted to work with full volume data sets acquired with the 4D TEE transducer, 4D Auto LVQ for TEE brings you a fast and easy automated method for left ventricle quantification, including volumes and ejection fraction.



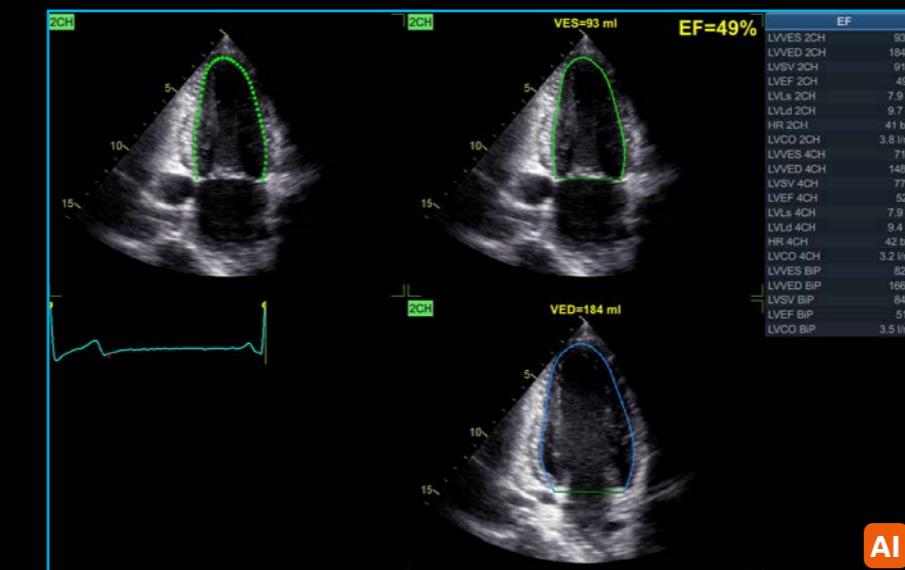
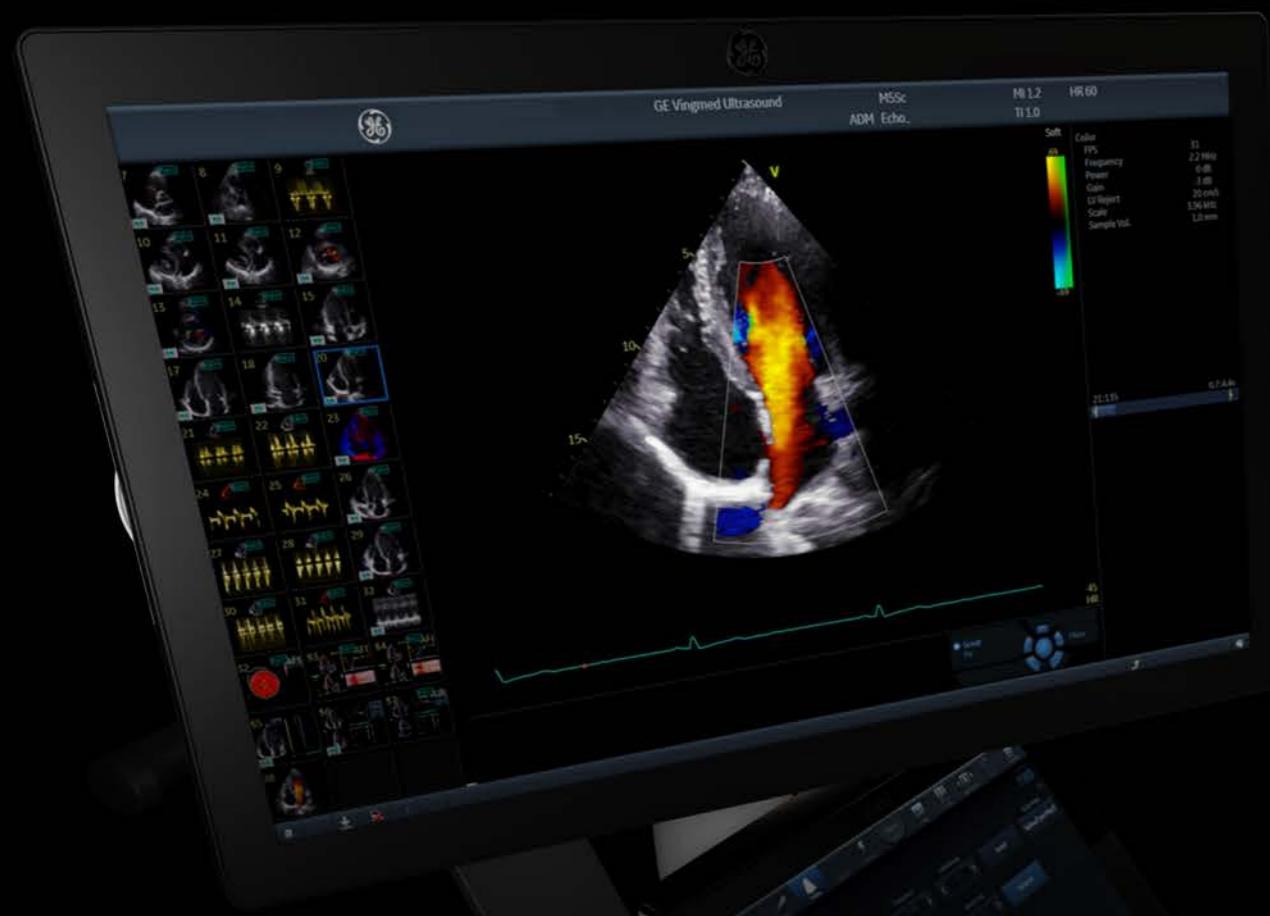
Ultra Edition

AI Auto Measure 2D

Semi-automated LV dimension measurements (2D calipers) in the parasternal long axis view, reducing manual interactions.

Benefits:

- Achieves fast measurements of left ventricle dimensions:
 - Up to 80% less clicks⁵
 - No need to scroll to look for ED and ES frames
 - Reduce manual workflow during analysis of cardiac images
- Improves reliability and repeatability of measurements – potentially increasing reproducibility for follow-up studies



Ultra Edition

Auto EF

Powered by AI-based View Recognition, Auto EF provides semi-automated quantification of left ventricular volumes and ejection fraction.

Benefits:

- Achieves fast measurements of ejection fraction
- DICOM® support. Assessment of the left ventricle ejection fraction also on data sets acquired on other vendors' systems



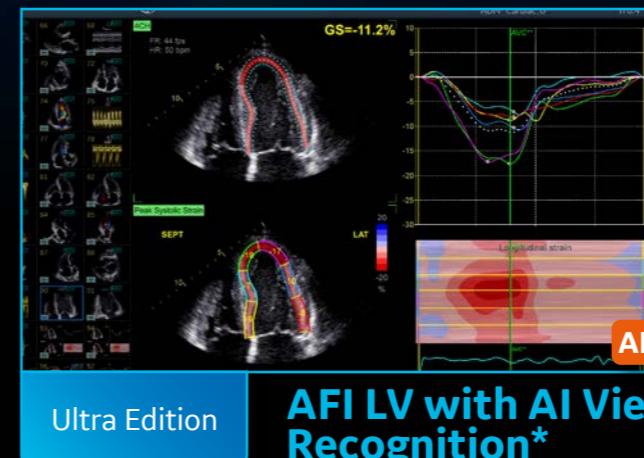
VIVID HEART
APPLICATIONS

AFI FUNCTIONAL IMAGING

From diagnosis to prognosis.



New in Ultra Edition



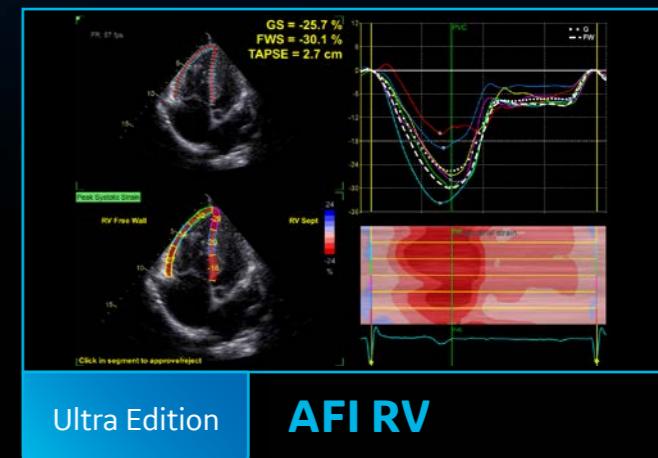
Ultra Edition

AFI LV with AI View Recognition*

Powered by AI-based View Recognition, AFI LV provides semi-automated quantification of left ventricular global and segmental strain.

Benefits:

- Offers advanced industry pioneered speckle tracking algorithm for quantifying myocardial deformation
- Works seamlessly - integrated ejection fraction calculation
- Supports Adult and Pediatric TTE and Adult TEE images
- Provides time savings via automatic selection of the appropriate 4-chamber, 2-chamber and APLAX images for analysis
- DICOM support. Assessment of the left ventricle ejection fraction also on data sets acquired on other vendors' systems



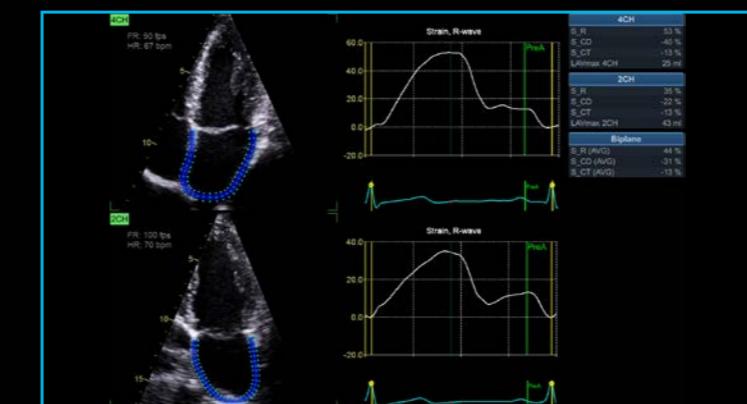
Ultra Edition

AFI RV

AFI RV is a novel tool to assess the right ventricular function by advanced speckle tracking echocardiography.

Benefits:

- Offers renown Vivid AFI user interface and workflow to allow current and new users easy adoption
- Supports right ventricle free wall strain, global strain and Tricuspid Annular Plane Systolic Excursion (TAPSE)
- Follows the 2018 EACVI-ASE Strain Standardized Task Force guidelines
- Supports right ventricle images also from previous releases



Ultra Edition

AFI LA

AFI LA Strain is a novel method to assess the left atrial function allowing global strain to be measured using speckle tracking echocardiography.

Benefits:

- Offers Vivid renown AFI user interface and workflow allowing users to easily adopt
- Supports left atrium strain, volumes and emptying fraction measurements
- Follows the 2018 EACVI-ASE Strain Standardized Task Force guidelines
- Supports left atrium images also from previous releases

*View Recognition is only applicable to images acquired with TTE probe on GE systems



SEAMLESS WORKFLOW INTEGRATION

POST PROCESSING & REVIEW

OPEN STANDARDS

INTEGRATION WITH YOUR WORKFLOW

EchoPAC Software Only and EchoPAC Plug-in:

- Analyze and review data from GE Healthcare Vivid family of scanners, as well as DICOM images from other ultrasound systems.
- Access all Vivid measurement and review tools utilizing GE Healthcare Raw Data or industry standard DICOM data
- DICOM Image transfer with optional GE Healthcare Raw Data transfers images easily in your existing workflow
- DICOM SR Measurement Transfer including standard and custom measurement allows seamless integration with GE Healthcare and other industry reporting systems and EMRs¹¹

EchoPAC Plug-in is available for:

- GE Healthcare Centricity™ Cardio Enterprise with Intelligent Reporting (IR).
- GE Healthcare ViewPoint™ 6 with EchoPAC Suite¹⁰
- As a plug-in to third party PACS

With Centricity Cardio Enterprise IR, routine adult echo reports are

83% **complete before
the physician opens
the exam to review.⁹**

SonoDefense

ADVANCED CYBERSECURITY AND DATA PRIVACY PROTECTION

Healthcare institutions are under growing threats of cyberattacks – and the implications for data security, patient privacy, and the quality and cost of care are staggering.



Protecting against these threats and safeguarding your patients and your institution requires more than anti-virus protection. SonoDefense is GE Healthcare's multi-layer strategic approach to cybersecurity and patient data privacy for ultrasound.

SonoDefense is designed to:

- Keep the ultrasound machine safe and functional in the face of cyberthreats
- Protect patient data on the machine from unauthorized access
- Enable you to successfully implement patient data and security policies, while still managing product daily workflows

SonoDefense strategy applies to Vivid portfolio:

- Windows® 10 IoT Secure Operating System provides multi-layered security
- Application whitelisting prevents malware execution
- Configurable user security provides user authentication and access control
- Data encryption protects stored data and during transmission
- Network firewall disables unneeded operating system services
- Integrates with existing facility security infrastructure

The SonoDefense strategy consists of SIX LAYERS, with each layer enhancing the overall security of the system and help protect patient data.





Healthcare is a soft-target for hacking and ransomware.¹²

\$4B cost added in 2019¹³



Ultrasound is especially vulnerable to operator-dependence leading to

VARIABILITY between exams¹⁵



Constrained budgets increase pressure to

DO MORE with less¹⁴

and to optimize assets



Probe mishandling can lead to damage which can cause faulty data and may lead to incorrect medical decisions^{16, 17}



Ready to make your Vivid **POP?**

Complete lifecycle solution for clinical, operational & financial outcomes.

You take care of your patients, we'll take care of you.

[POP] PERFORMANCE OPTIMIZATION PARTNERSHIPS

Purchasing a GE Healthcare ultrasound is not only getting access to a high-technology or remarkable clinical applications. It's about enjoying a new user experience, at every step of ownership. We help you to outperform today, while preparing your department for tomorrow's challenges.

STAFF EXCELLENCE

A comprehensive portfolio of training for clinical and technical users.

Helping you and your team build customized development plans to foster excellence and increased confidence.

ASSET OPTIMIZATION

Customizable dashboards for asset utilization and consulting services to provide actionable insights.

Achieving more with your assets to improve patient care and realize department strategic plans.

PROACTIVE MANAGEMENT

Use digital technology and tools to minimize expensive and disruptive unplanned downtime.

Proactive monitoring to help reduce cost and revenue loss from unplanned failures and automated updates for peace of mind.

IMPROVED UPTIME

Best-in-class repair services to drive uptime. Fully scalable from full coverage to shared maintenance.

Thoroughly aligned with your own in-house capabilities, providing the right balance between staff autonomy and our expertise.

DEVICE PROTECTION

Keep your device state-of-the-art with software upgrades, new applications and security patches.

Optimizing your device to drive clinical and operational benefits and help you stay ahead of the game, without changing your equipment.

PROBE PERFORMANCE

Customizable portfolio of solutions for probe lifecycle needs to improve availability and performance.

Proactive probe care that may help you increase diagnostic quality, decrease cross-contamination risk and expand the life span of the transducers.

PARTNERSHIPS DRIVE RESULTS

GE Healthcare is by your side to overcome these risks, helping you to:

- ✓ Keep your systems up and running, safe from breaches and cyberattacks
- ✓ Achieve more with your existing systems, without changing your investment plan
- ✓ Improve your activity, exam flow and staff planning, based on comprehensive data and reports
- ✓ Create comfort zone for your teams, reaching operational efficiency and clinical excellence
- ✓ Achieve high standard in probe-related cross-contamination and diagnostic errors

UNLEASH THE POWER OF CONNECTED DEVICES

Your Vivid system has been designed to provide you with an optimal user experience. Connectivity is the key element to enjoy it fully, whenever and wherever you need it, regardless of site access restriction and planning constraints.

Discover a new world of services, included in every package:

REMOTE TECHNICAL SUPPORT

Access to experts anytime, anywhere

InSite™ connectivity enables OnDemand and real-time access to remote GE Healthcare experts

- Reduce disruptions
- Decrease system downtime
- Improve asset usage and staff productivity

It provides secure remote connectivity without requiring any open inbound ports or VPN connection.

PREDICTIVE MAINTENANCE

Know the failure before it occurs

Transform unplanned downtime into planned service events with **OnWatch** technology. It provides automated, 24/7 system monitoring, capable of detecting a system failure before it occurs. Any deviation alerts our GE Healthcare engineers, who proactively work to keep your operations running smoothly.

DATA DRIVEN INSIGHTS

All the insights you need to decide, at your fingertips

Better decisions start with better data **iCenter™** is a secure, cloud-based asset management tool that offers comprehensive data analytics for your systems. It provides insights to make informed decisions and helps improve operational performance, optimize patient flow and maintain compliance standards.

UpdateMe is a complementary app that gives you access to the data 24/7 directly on your smartphone. You can receive notifications and create a service request anytime, anywhere.

REMOTE FIX



UP TO
40%

issues fixed remotely
with InSite¹⁸

COST SAVINGS



UP TO
90%

cost reduction, based on
OnWatch alerts¹⁸

NEW REMOTE SUPPORT

Real-time and interactive applications support

Digital Expert¹⁹ and **STAR** provide an interactive, real-time, flexible & convenient way to get education and support.

- May help improve training outcomes
- Increase capacity and efficiency
- Train staff on a short timeline



NEW AUTOMATED UPDATES

No need to worry about your system safety

Get automated software updates with **eDelivery** along with safety patches enabled by remote software download.

SonoDefense provides the highest level of cybersecurity to keep your systems up-to-date, with no impact on your operations. No on-site intervention needed.





About GE Healthcare

GE Healthcare is a leading global medical technology and digital solutions innovator. GE Healthcare enables clinicians to make faster, more informed decisions through intelligent devices, data analytics, applications and services, supported by its Edison intelligence platform. With over 100 years of healthcare industry experience and around 50,000 employees globally, the company operates at the center of an ecosystem working toward precision health, digitizing healthcare, helping drive productivity and improve outcomes for patients, providers, health systems and researchers around the world.

Follow us on [Facebook](#), [LinkedIn](#), [Twitter](#) and [Insights](#), or visit our website www.gehealthcare.com for more information.

1. Forecasting the Future of Cardiovascular Disease in the United States, AHA Policy Statement, 2011, source: CIR.Ob013e31820a55f5
2. Source: Healthcare Infrastructure and Procedural Volume for Ultrasound Imaging, Frost & Sullivan, 2018. Approx. 108.12 million echo exams are performed annually; Calculation based on 26% total global prevalence of CVD cases (422 million) undergoing echo exam; extrapolated from US study indicating roughly 26% of total prevalent CVD cases underwent echo exams percentage value validated from reports. https://www.prb.org/wp-content/uploads/2015/12/2015-world-population-data-sheet_eng.pdf
3. Kurt M, Shaikh K, Peterson L, et al. Impact on contrast echocardiography on evaluation of ventricular function & clinical management in a large prospective cohort. J Am Coll Cardiol. 2009; 53(9):802-810
4. Work Related Musculoskeletal Disorders In Sonography, Society Of Diagnostic Medical Sonography, 2018, Susan Murphrey, BS, RDMS, RDGS, CEDC <https://www.sdms.org/docs/default-source/resources/work-related-musculoskeletal-disorders-in-sonography-white-paper.pdf?sfvrsn=8>
5. The Role of AI in Streamlining Echocardiography Quantification White Paper, Kristin McLeod - JB80498XX
6. Based on results of time and motion study conducted by GE "JB49055XX - Cardiac Auto Doppler"; study results indicated time savings related productivity increase up to ~8 on an annual basis for a facility per sonographer
7. European Association of Echocardiography recommendations for standardization of performance, digital storage and reporting of echocardiographic studies (Eur Journal of Echo 2008 – Evangelista, Badano, Monaghan, Zamorano, Lancellotti).
8. Recommendations for Quantification of Doppler Echocardiography: A Report From the Doppler Quantification Task Force of the Nomenclature and Standards Committee of the American Society of Echocardiography (JASE 2002)
9. Centricity Cardio Workflow v7 Intelligent Reporting out-of-the-box configuration compared to 2017 IAC guidelines excluding doppler. CCW Intelligent Reporting Outcome - JB74831XX
10. EchoPAC Suite is a marketing name for EchoPAC Plug-in
11. With the DICOM SR support, Measures & Analysis (M&A) for an exam can be sent at the end of the exam or when exported from local archive. The destination can be either a server on the network (Storage SCP) or a removable media (DICOM Media) depending on the DICOM dataflow selected. Custom measurements supported only for Adult Echo (TID5200) and Pediatric Heart (TID5220).
12. <https://www.ncbi.nlm.nih.gov/pubmed/27689562>
13. Data Breaches Will Cost Healthcare \$4B in 2019, Threats Outpace Tech, healthitsecurity, source: t.ly/xrAA
14. 5 Tips for Controlling Costs in Hospitals and Biomed Shops, source: t.ly/l9n7
15. Errors in Sonography, DOI: 10.1007/978-88-470-2339-0_8. https://www.researchgate.net/publication/279616130_Errors_in_Sonography
16. e. a. M. Mårtensson, «High incidence of defective ultrasound transducers in use in routine clinical practice», European Journal of Echocardiography, vol. 10, no. 3, pp. 389-394, 2009. <https://academic.oup.com/ejhicimaging/article/10/3/389/2396618>
17. A multicentre survey of the condition of ultrasound probes, Ultrasound. 2016 Nov; Published online 2016 Aug 1. doi: 10.1177/1742271X16662301. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5098704/>
18. GE internal data
19. Digital Expert is only offered in the USA

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