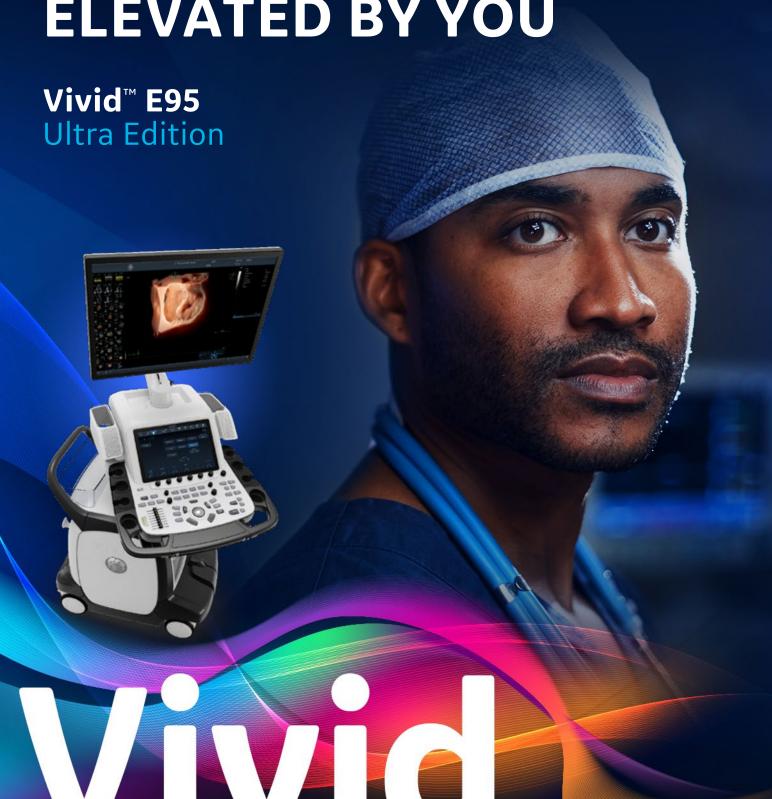


POWERED BY AI ELEVATED BY YOU



gehealthcare.com/vivid

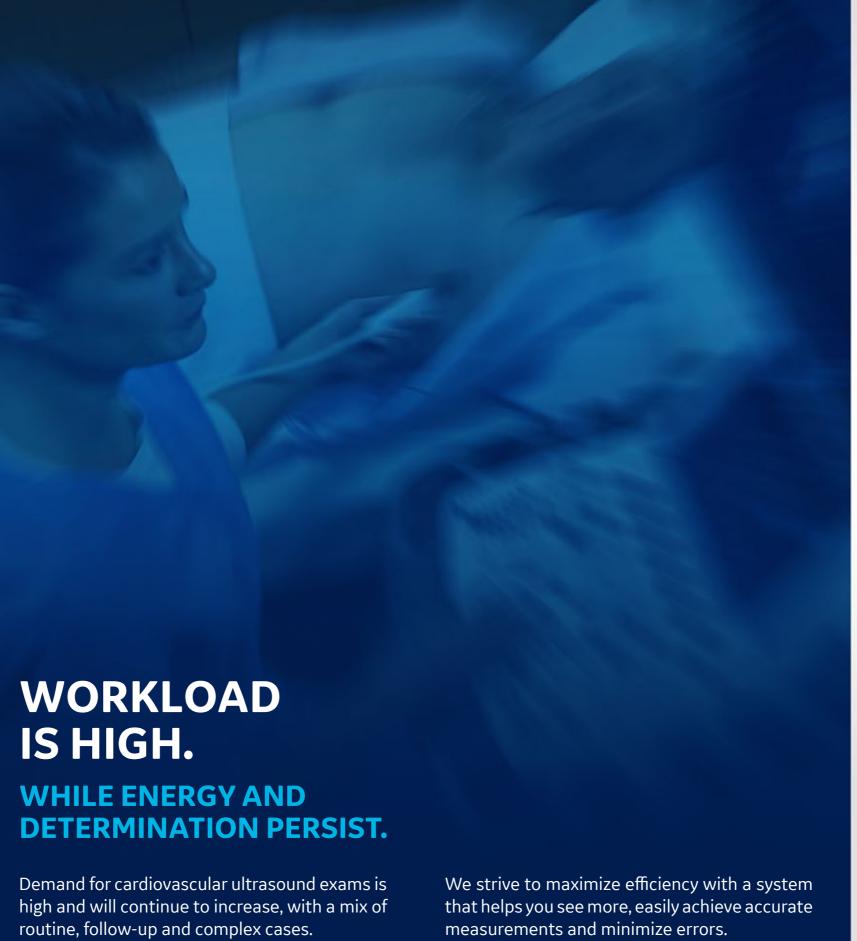
By 2030,

40.5%

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

_~108m

annual echo exams performed globally²



Using advanced clinical capabilities traditionally required extra effort and expertise - often

resulting in delays and increased workload.

10-15%

of echo exams result in sub-optimal images³

490%

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

\$120+

billion yearly

direct and indirect costs for employers⁴

Vivid E95 Ultra Edition



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™ E95 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

Help maximize reimbursements with Automated Functional Imaging (AFI). Vivid E95 Ultra Edition also offers vast flexibility enabling superb performance in a range of exams including: stress-echo, vascular, abdominal, OB/GYN and small parts applications. Standardized and simplified procedures help increase patient throughput and optimize productivity.





POWERED BY AI

Improve diagnostic speed and accuracy

Vivid E95 Ultra Edition introduces the latest AI-based technology to help reduce tedious tasks and improve workflow efficiency. You can 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

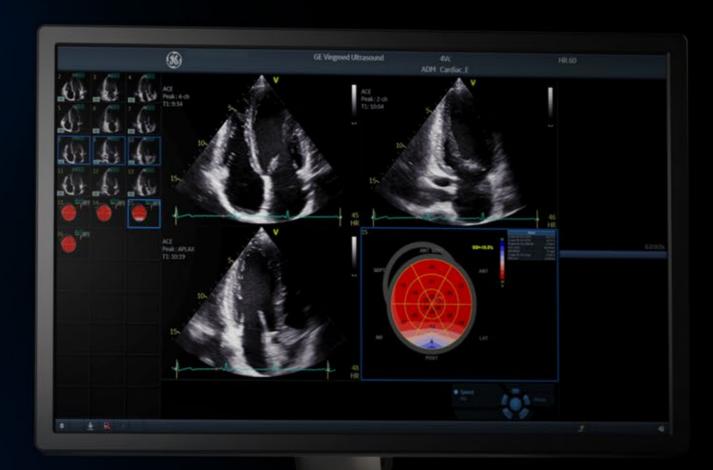
Discover the many innovations brought by the Vivid Ultra Edition, and more importantly, how these can contribute to make clinical practice - Elevated by You.

Ultra Fast.
Ultra Precise.
Ultra Efficient.

DETECTABILITY⁵ 98%

AI AFI LV with View Recognition

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



Al Cardiac Auto Doppler with Al

REDUCED TIME PER MEASUREMENT



Fewer Keystrokes⁶

LOWER INTER
OPERATOR VARIABILITY



Standardized exams with greater reproducibility ⁶

ACCELERATED WORKFLOW



Productivity improvement

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.



LESS CLICKS, UP TO⁵



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.

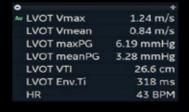




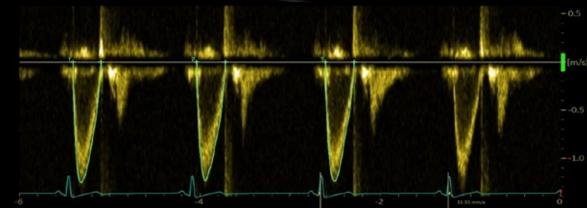


Al Auto Measure Spectrum Recognition

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











CLINICAL EXCELLENCE

for Interventional Procedures

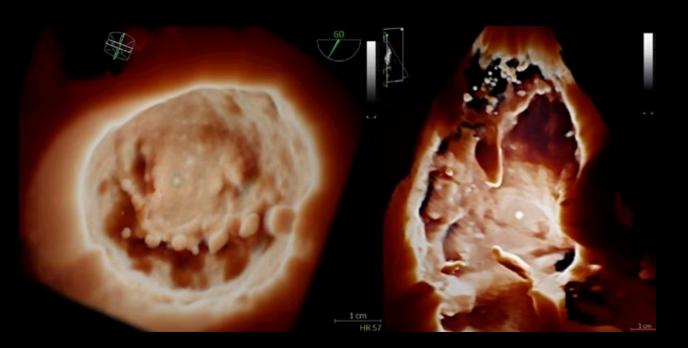
Demand for interventional procedures is growing and so are expectations of the heart team. Grow your capacity and capabilities with advanced ultrasound and conquer difficult cases.

Structural heart procedure success depends on preparation, collaboration and clear communication across the entire heart team.

Vivid E95 Ultra Edition offers precise and uncomplicated tools to plan your interventions. With new visualization and navigation techniques and uncompromised image quality, the heart team can see clearly, communicate quickly, and perform procedures with great precision.

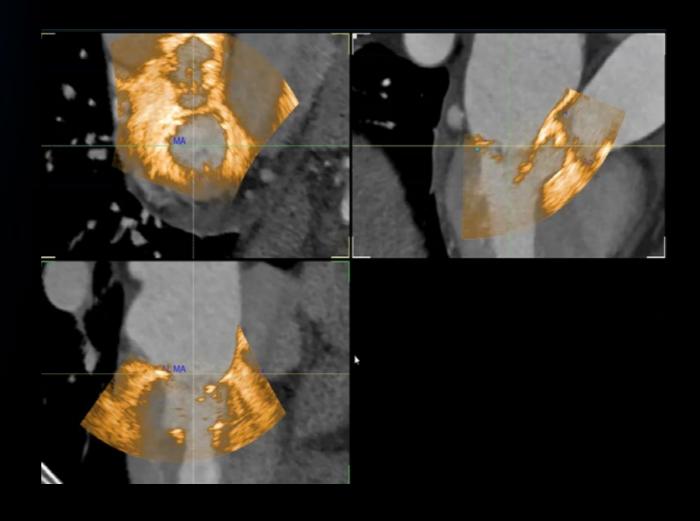
FlexiLight

Rendering technique for photo-realistic light-source based illumination of heart structures.



CT Fusion

Live co-registered navigation in 4D ultrasound and CT data helping extend field-of-view beyond 4D ultrasound for better understanding of heart anatomy.







Recognizing the Clinical Research Community

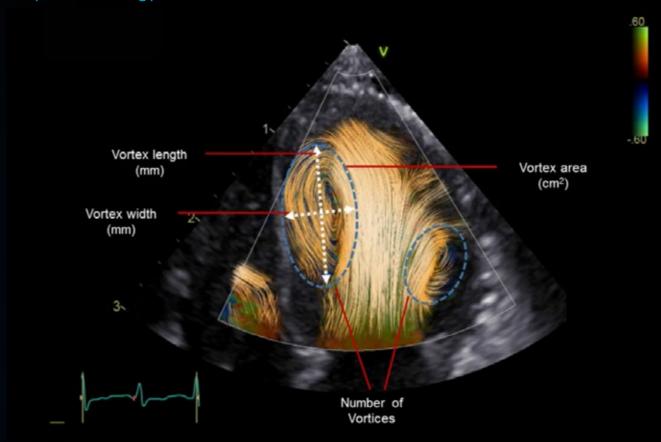
You are at the forefront of clinical research and need to rely on a leadership technology platform. You want to explore new ways of doing things, be the 1st one to publish on a topic and help the scientific community to push boundaries of what is possible.

The Vivid Ultra Edition introduces many new innovative applications, empowering leading institutions to unleash their capacities.

Amplify the quantity and quality of your cardiovascular research to support future patients.

BSI 2.0 (Blood Speckle Imaging)

Left ventricle vortex formation and size can be analyzed with BSI and has the potential to complement existing parameters of cardiac health.



4D Auto TVQ

Innovative semi-automatic quantification of the tricuspid valve in 4D.



Vivid E95 Ultra Edition



VIVID HEART APPLICATIONS

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





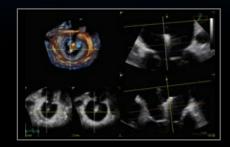






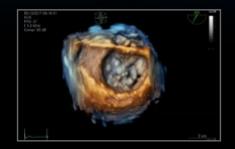
VISUALIZATION AND NAVIGATION

Why guess? When you can see.



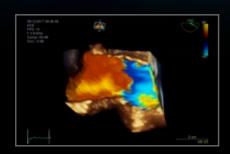
FlexiSlice

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.



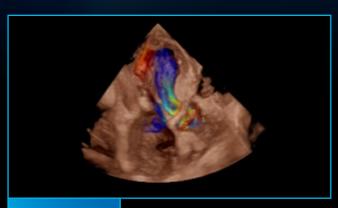
HDlive™

Enabled by cSound, HDlive is an advanced visualization method that simulates light propagation and scattering through tissue.



Vmax

Vmax enabled by cSound[†] offers ultrahigh 4D volume rates acquired in single beat acquisitions. Elimination of ECG gated multi-beat acquisitions provides enhanced overview of structures and function in cases with irregular heart rhythms.



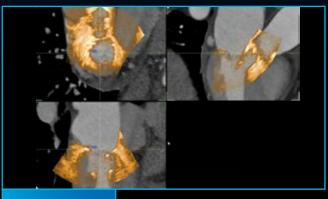
Ultra Edition

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 FlexiLight and 4D markers
- Supports 4D color flow data also from previous releases



Ultra Edition

CT Fusion

Cost effective and vendor independent solution for live coregistered navigation in 4D ultrasound and CT data.

Benefit:

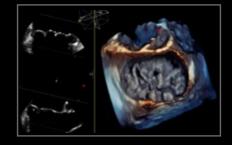
New in Ultra Edition

- Improve awareness of calcified structures by fusing CT with 4D ultrasound
- Extend field-of-view beyond 4D ultrasound for better understanding of heart anatomy
- Increase your confidence during procedures with the CT based pre-procedure plan
- Enhance your team communication



FlexiViews

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



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.



View-X

See X-ray from fluoroscopy in real time right on your Vivid E95 Ultra Edition screen as a picture in picture, facilitating communication between team members.



Ultra Edition

FlexiLight

Rendering technique for photo-realistic light-source based illumination of heart structures.

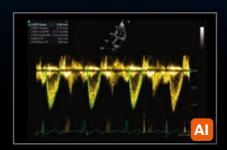
Benefits:

- Comprehensive visualization of leaflets, trabeculae, regurgitant orifices, clefts, aneurisms and thrombi
- Works seamlessly with other visualization techniques such as HD Color, 2ClickCrop and 4D markers
- Supports 4D data also from previous releases



FLOW QUANTIFICATION

Your time is precious. Save it.



Cardiac Auto Doppler

Semi-automatic Cardiac Doppler measurements.

- 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

Ultra Edition

Al Auto Measure Spectrum Recognition

Semi-automatic selection of appropriate spectral Doppler measurement tool.

- · 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

New in Ultra Edition



Ultra Edition

BSI 2.0

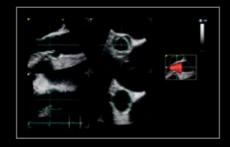
Insights into complex blood flow patterns such as vortex formation and duration.

Benefits:

- Provides multiple modes for visualizing blood flows, such as display of velocity vectors and pathway comets
- Provides complementary information for diagnosis of dilated cardiomyopathy and heart failure
- Opens new clinical research possibilities by providing measurements for studying vortex properties, such as vortex location, size and duration (time between 2 events)

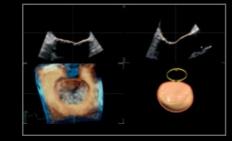
VALVE QUANTIFICATION

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.

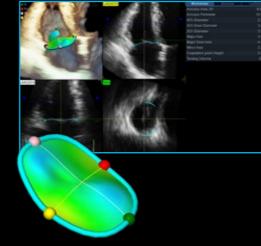


Ultra Edition

4D Auto TVQ

Semi-automated 4D tool enables fast visualization and quantification of the tricuspid valve anatomy.

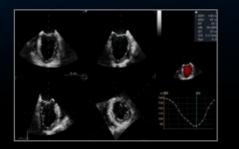
- Supports TEE and TTE
- Offers renown Vivid 4D quantification user interface and workflow
- Handles the 3D shape of the tricuspid valve and provides 15 static and dynamic measurements
- · Provides a cost-effective alternative to traditional tricuspid annulus
- Supports 4D data also from previous releases





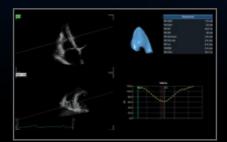
CHAMBER QUANTIFICATION

Precision at the heart of quantification.



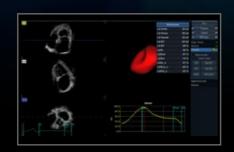
4D Auto LVQ

Adapted to work with full volume data sets acquired with the 4D TEE transducer, 4D Auto LVQ for TEE brings you a fast, easy, two-click method of placing points to define the initial endocardial border.



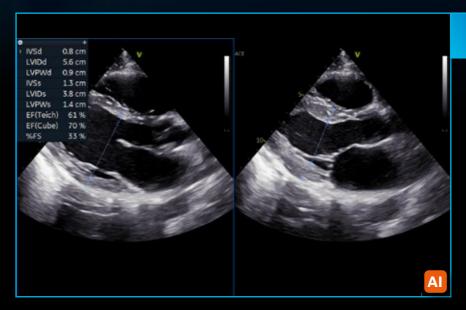
4D Auto RVQ

This package helps visualize and quantify the right ventricle in TTE images via a semi-automatic, surface-detecting algorithm. It's seamlessly integrated into the regular M&A menu, with results ready for immediate review.



4D Auto LAQ

This semi-automatic surface detecting algorithm helps clinical users get fast, reproducible and accurate 4D quantification of the left atrium, acquired with 4D TTE probes. It provides left atrial volumes as well as ejection fraction, global longitudinal and circumferential strain.



Ultra Edition

New in Ultra Edition

Al Auto Measure 2D

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

- Achieves fast measurements of left ventricle dimensions:
 - Up to 80% less clicks 5
 - 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

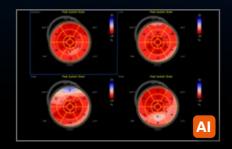
Powered by Al-based View Recognition, Auto EF provides semi-automated quantification of left ventricular volumes and ejection fraction.

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



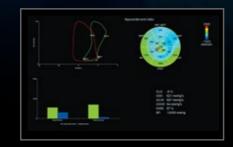
AFI FUNCTIONAL IMAGING

From diagnosis to prognosis.



AFI Stress

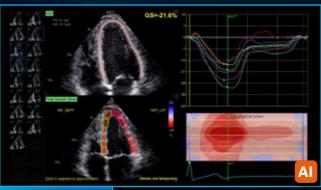
Quantify wall motion at all stress levels. Integrated as part of a stress exam, AFI Stress protocols acquire standard apical 2D views and quantify both longitudinal segmental and global strain for contractility assessment at each stress level. Bullseye from the different stress levels can then be easily compared.



MyoCardial Work

Using new and reduced load dependent parameters, Myocardial Work may provide more accurate and reproducible results, important especially for followup of patients over time. The new parameters are based upon the results obtained with AFI (longitudinal strain) by accounting for the systolic blood pressure measured at rest immediately prior to the echo exam, as well as the MV and AV opening and closure times.

New in Ultra Edition



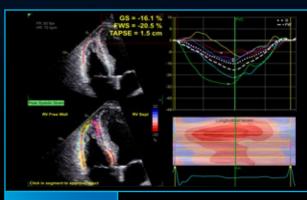
Ultra Edition

AFI LV with View Recognition*

Powered by Al-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

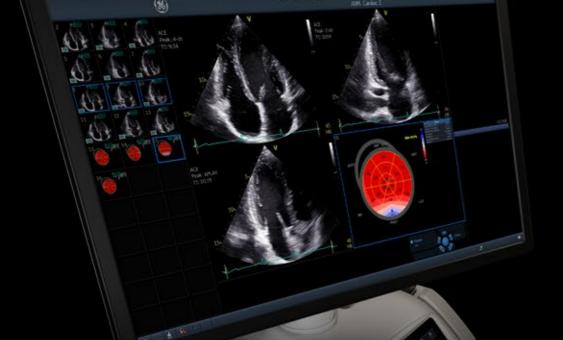


Ultra Edition

AFIRV

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

- 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
- Supports right ventricle images also from previous releases

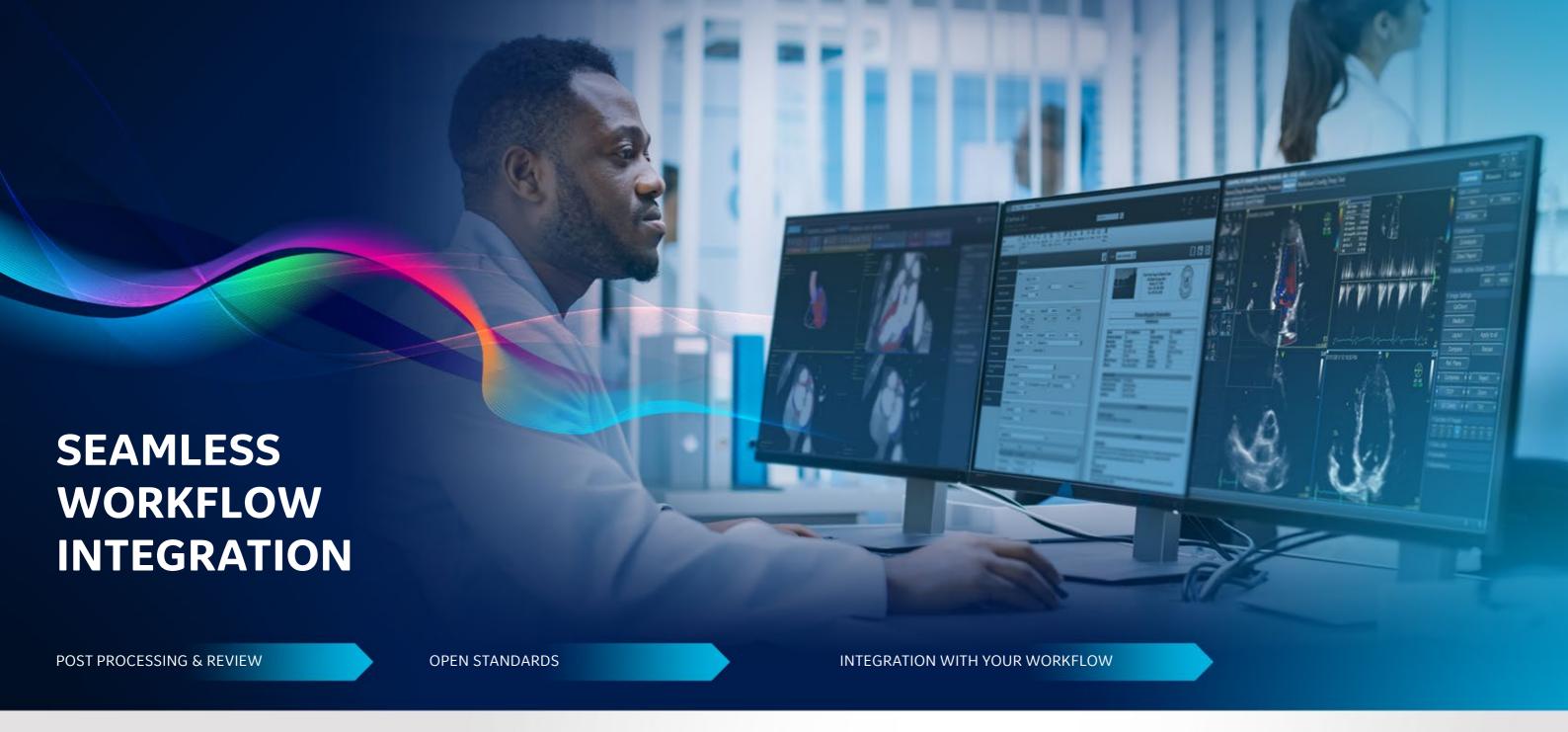


Ultra Edition

AFILA

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

- 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



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 EMRs ¹¹

EchoPAC Plug-in is available for:

- GE Healthcare Centricity[™] Cardio
 Enterprise with Intelligent Reporting (IR).
- GE Healthcare ViewPoint™ 6 with EchoPAC Suite 10
- 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



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



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

\$4B cost added in 2019 13



Ultrasound is especially vulnerable to operator-dependence leading to

VARIABILITY

between exams 15



Constrained budgets increase pressure to

DO MORE with less 14

and to optimize assets



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



[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.

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.

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.

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.

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.

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.

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.

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 realtime 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.

REMOTE FIX

issues fixed remotely with InSite 18

NEW REMOTE SUPPORT

Real-time and interactive applications support

Digital Expert 19 provides 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



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.

MyGEHealthcare App 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.

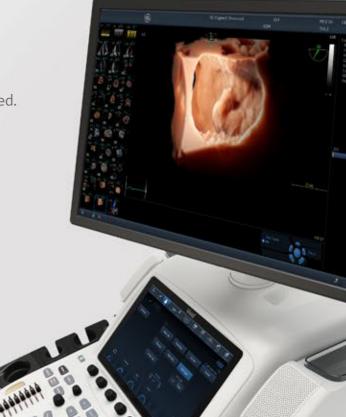
NEW AUTOMATED UPDATES

No need to worry about your system safety

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

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 <u>Facebook, LinkedIn, Twitter and Insights</u>, or <u>visit our website www.gehealthcare.com</u> for more information.

- † Requires current cSound version
- Forecasting the Future of Cardiovascular Disease in the United State, AHA Policy Statement, 2011, source: CIR.0b013e31820a55f5
- 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
- Work Related Musculoskeletal Disorders In Sonography, Society Of Diagnostic Medical Sonography, 2018, Susan Murphey, BS, RDMS, RDCS, CECD 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
- 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
- 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).
- 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 (TID520).
- 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/I9n7
- Errors in Sonography, DOI: 10.1007/978-88-470-2339-0_8. https://www.researchgate.net/publication/279616130_Errors_in_Sonography
- 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/ehjcimaging/article/10/3/389/2396618 https://probehunter.com/wp-content/uploads/FULLTEXT01.pdf
- 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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DICOM is the registered trademark of the National Electrical Manufacturers Association for its standards publications relating to digital communications of medical information.

Ultra Edition is not a product name, it refers to the 2020 release of the Vivid portfolio

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