

### **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 visit our website www.gehealthcare.com for more information.

- Forecasting the Future of Cardiovascular Disease in the United State, AHA Policy Statement, 2011, source: CIR 0h013-31820a55f5
- 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 <a href="https://www.sdms.org/docs/default-source/Resources/work-related-musculoskeletal-disorders-in-sonography-white-paper.pdf?sfvrsn=8">https://www.sdms.org/docs/default-source/Resources/work-related-musculoskeletal-disorders-in-sonography-white-paper.pdf?sfvrsn=8</a>
- 5. <u>https://doi.org/10.1016/j.amjcard.2011.01.006</u>
- 6. Average system noise level is 31 dB (min 28 dB, max 38 dB), depending on ambient temperature
- $7. \qquad \text{The Role of Al in Streamlining Echocardiography Quantification White Paper, Kristin McLeod- JB80498XX}$
- 8. 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).
- 10. 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)
- 11. Centricity Cardio Workflow v7 Intelligent Reporting out-of-the-box configuration compared to 2017 IAC guidelines excluding doppler. CCW Intellgent Reporting Outcome JB74831XX
- 12. EchoPAC Suite is a marketing name for EchoPAC Plug-in
- 13. 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).
- 4. https://www.ncbi.nlm.nih.gov/pubmed/2768956
- 15. Data Breaches Will Cost Healthcare \$4B in 2019, Threats Outpace Tech, healthitsecurity, source: t.ly/xrAA
- 16. 5 Tips for Controlling Costs in Hospitals and Biomed Shops, source: t.ly/I9n7
- 17. Errors in Sonography, DOI: 10.1007/978-88-470-2339-0\_8.
- 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. <a href="https://academic.oup.com/ehjcimaging/article/10/3/389/2396618">https://academic.oup.com/ehjcimaging/article/10/3/389/2396618</a> <a href="https://probehunter.com/wp-content/uploads/FULLTEXT01.pdf">https://probehunter.com/wp-content/uploads/FULLTEXT01.pdf</a>
- A multicentre survey of the condition of ultrasound probes, Ultrasound. 2016 Nov, Published online 2016 Aug 1. doi: 10.1177/1742271X16662301. <a href="https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5098704/">https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5098704/</a>
- 20. GE internal data
- Standardization of left atrial, right ventricular, and right atrial deformation imaging using two- dimensional speckle tracking echocardiography: a consensus document of the EACVI/ASE/Industry Task Force to standardize deformation imaging. Badano et al. European Heart Journal - Cardiovascular Imaging (2018) 0, 1–10 doi:10.1093/ehjci/jey042
- 22. Digital Expert is only offered in the USA

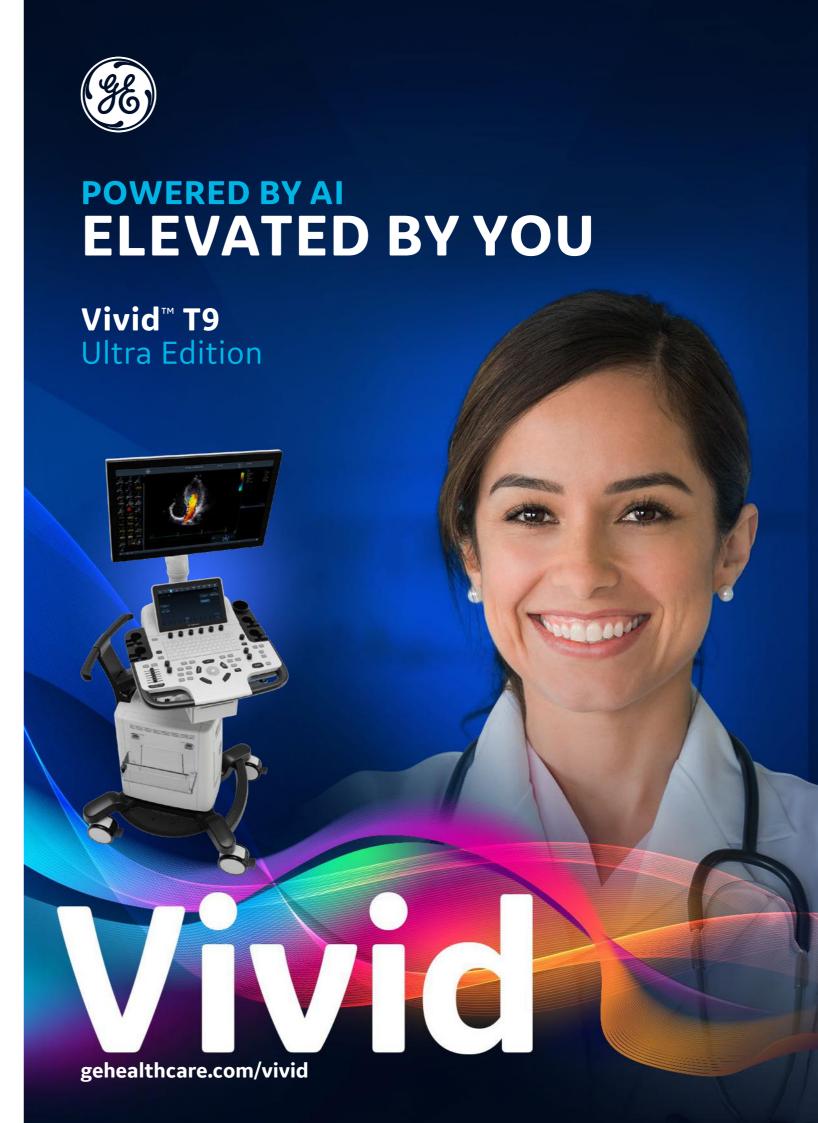
©2020 General Electric Company. All rights reserved. GE, the GE Monogram,

EchoPAC Suite is a marketing name for EchoPAC Plug-in. Vivid, cSound, XDclear, HDlive, EchoPAC, ViewPoint, Centricity, Edison and InSite are trademarks of General Electric Company. GE Healthcare, a division of General Electric Company.

DICOM is the registered trademark of the National Electrical Manufacturers Association for its standards publications relating to digital communications of medical information.

Third part trademarks are the property of their respective owners.

R72916XX



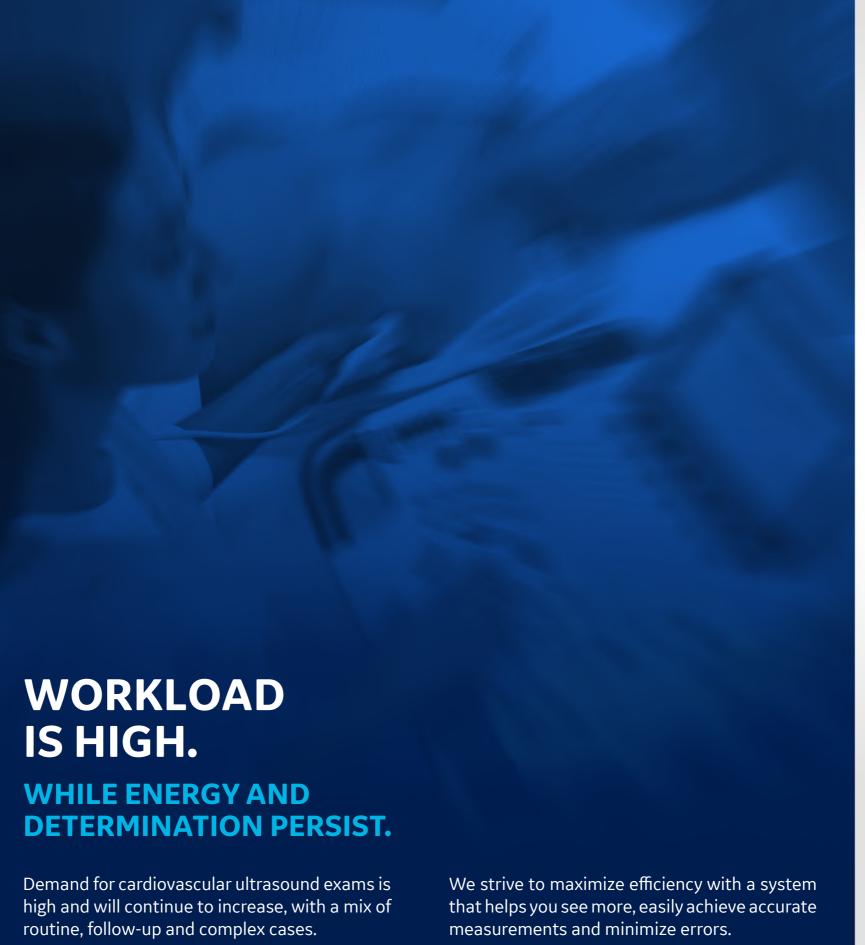
By 2030,

**40.5**%

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

\_~108m

annual echo exams performed globally<sup>2</sup>



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 images<sup>3</sup>

**490**%

of sonographers experience symptoms of Work Related Musculoskeletal Disorders (WRMSD)<sup>4</sup>

**\$120+** 

billion yearly

direct and indirect costs for employers<sup>4</sup>

# Vivid T9 Ultra Edition



Designed for your busy practice, Vivid T9 Ultra Edition provides reliable and ergonomic design, powered with AI applications for extreme productivity without compromising quality of care. Enjoy long-term peace of mind with modern and secure software design, remote updates, and warranty coverage.

## **Extreme Productivity**

With the power of AI, a new level of speed and efficiency is now possible with up to 80% less clicks <sup>7</sup> to get 2D measurements. Productivity combined with diminished inter-observer variability provides you with high diagnostic confidence when taking critical decisions.

Advanced Functional Imaging (AFI) with AI-based View Recognition allows you to complete the guideline<sup>5</sup> recommended follow up on oncology patients with just a few clicks.

## **Great Return on Investment**

We understand the need to balance investment in new technology with financial resources. Vivid T9 Ultra Edition is a robust and reliable system perfectly designed to meet your everyday clinical needs. The T9 Ultra Edition modern and future-ready software addresses your practice privacy and security risks and protects you from external threats. 3 years of standard warranty and remote updates provide you with peace of mind of always being ready and up-to-date.

# Cardiovascular Excellence, and much more

Designed primarily for cardiovascular specialists, it is a true shared-services system, offering versatile workflows and quantification tools. Vivid T9 Ultra Edition provides exceptional cardiac and vascular 2D image quality and color sensitivity with a suit of advanced quantification tools. T9 Ultra Edition also provides a broad range of pediatric, abdominal, fetal/obstetrics, among many more applications.

## **A Delightful User Experience**

Vivid T9 Ultra Edition is an exceptionally silent system, designed for optimal patient experience. The comfort and health of your clinical staff is prioritized with advanced ergonomic design. Operating panel height can be adjusted with an easy one-hand mechanism for sitting and standing position. The full color, high-resolution 21" LCD monitor is mounted on an articulating arm.





Your time is precious.
Save it.

petectability<sup>7</sup> pg 98%

## AFI LV with AI View Recognition

Fully automatic recognition of the apical imaging views.

Measurements of GLS and segmental longitudinal Strain for LV.



# **POWERED BY AI**

Al helps reduce tedious tasks and inter-observer variability.

## Improve diagnostic speed and accuracy

Vivid T9 Ultra Edition introduces the latest AI-based technology to help reduce user fatigue 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 was reduced, operator fatigue minimized with more than 80% less clicks to get 2D measurements, and inter-observer variability diminished.

Discover the many innovations brought by the Vivid T9 Ultra Edition, and more importantly, their contribution to your clinical practice.

Ultra Fast.
Ultra Precise.
Ultra Efficient.

Al Cardiac Auto Doppler with Al

REDUCED TIME PER MEASUREMENT



Fewer Keystrokes<sup>8</sup>

LOWER INTER
OPERATOR VARIABILITY



Standardized exams with greater reproducibility<sup>8</sup>

ACCELERATED WORKFLOW



Productivity improvement



# **CLINICAL EXCELLENCE** for cardiovascular practices

LESS CLICKS, UP TO 7 **%** -80%



## Al 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.

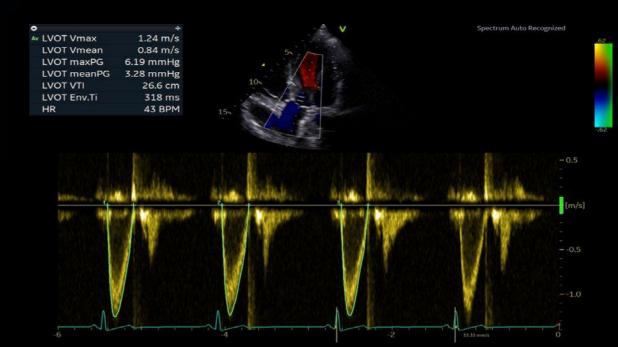






## Al Auto Measure Spectrum Recognition

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



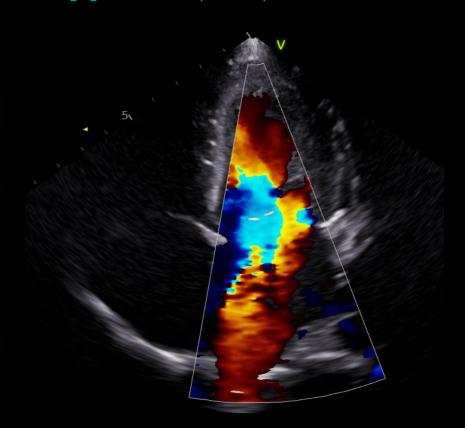


The smallest cardiac patients can pose the biggest care challenges with difficult to diagnose, severe conditions.

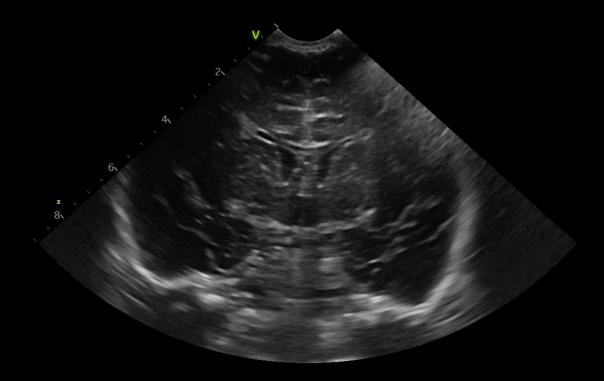
Pediatric echoes require speed and versatility. Accurate diagnostics and precise measurements are achievable with great image quality, dedicated presets and tools on your Vivid system. Visualize small anatomies with speed, clarity and confidence thanks to Vivid T9's great image quality, range of high-frequency probes, and dedicated pediatric and neonatal presets.

## **Pediatric cardiology**

Visualize small anatomies with speed, clarity and confidence thanks to Vivid T9 Ultra Edition's high-resolution imaging and dedicated pediatric probes.



## **Neonatal cephalic**



# CLINICAL **EXCELLENCE**

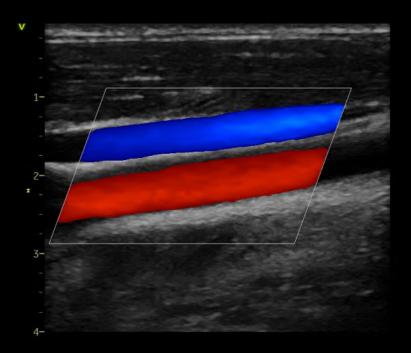
# **beyond Cardiology**

The demand for multi-purpose, cost efficient ultrasound systems with uncompromised image quality is growing. With the aging population, vascular and abdominal exams are increasingly challenging.

Vivid T9 Ultra Edition provides you exceptional 2D and color flow imaging across applications. Efficient workflow, a wide range of linear and curved probes and dedicated quantification tools ensure the confidence you need for speedy and accurate diagnosis also under challenging conditions.

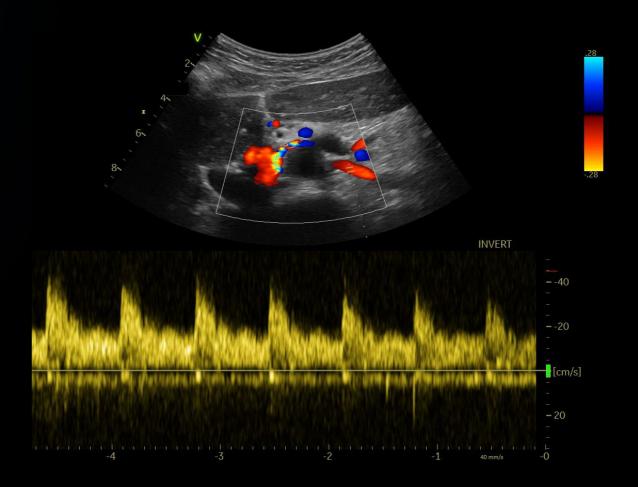
## Vascular

Develop fast and complete quantitative assessment of vascular anatomies with advanced vascular measurement tools.



## **Abdominal**

Visualize tissues and flow patterns with greater details thanks to Vivid T9 Ultra Edition's high-resolution imaging and dedicated imaging presets.



## **Vivid T9** Ultra Edition

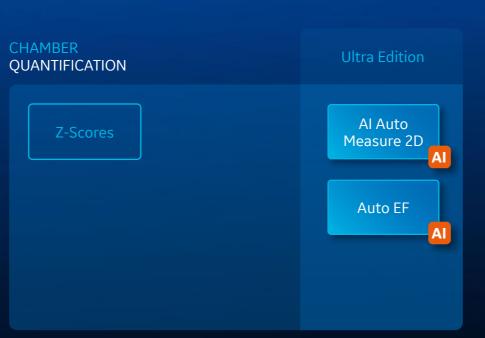


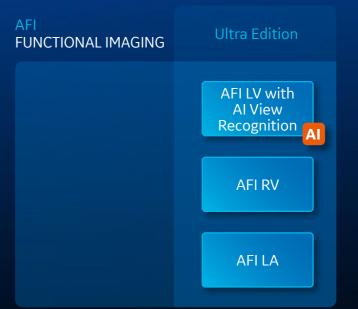
# **VIVID HEART APPLICATIONS**

A wide range of clinical applications for use in Core Echo and your cardiovascular practice.





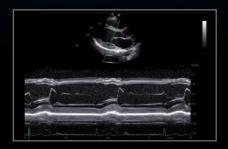






## VISUALIZATION AND NAVIGATION

## Why guess? When you can see.



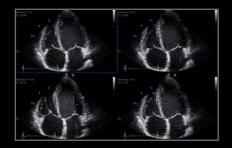
# Curved Anatomical M-Mode

View Anatomical color and tissue velocity in M-mode. Adjust the cursor at any plane, in live imaging or with recalled images.



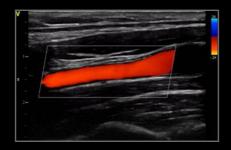
## **LVO Contrast**

Benefit from high-resolution detection of contrast in the LV cavity with LVO Contrast and excellent suppression of myocardial tissue signals on the Vivid T9 Ultra Edition new Coded Phase Inversion (CPI).



## **Smart Stress**

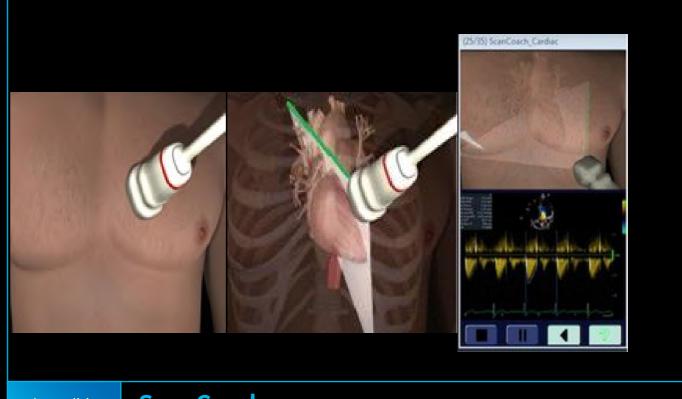
Over 17 imaging parameters from each plane can be saved and recalled at each stress level, reducing system adjustments during acquisition.



## **Blood Flow Imaging**

Enhance blood flow dynamics visualization using a signal-processing algorithm for visualizing blood flow data.

# New in Ultra Edition



**Ultra Edition** 

## **Scan Coach**

A reference and education tool that provides modules depicting basic scanning techniques with animated graphics of probe position, schematic of anatomy and reference clinical image.

## Benefits:

## **Guided scanning:**

- Conveniently located onboard the console within the Scan Assist Pro feature
- Provides guidance to obtain different views and measurements
- Helps inexperienced users performing echo scans

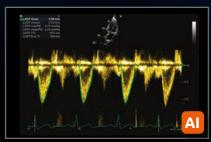
## Education and reference tool:

- Assists in positioning the probe and probe orientation
- $\bullet \quad \text{An atomical reference helps visualize where the scan plane is located inside the heart}\\$
- · Scan Assist Pro exam protocols can be customized per local guidelines and help ensure exam completeness



## **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 mode 8
- Offers Doppler measurement in multiple cardiac cycles as recommended by guidelines for irregular heart rhythms 9,10
- Supports less experienced users with advanced automation

## **CHAMBER QUANTIFICATION**

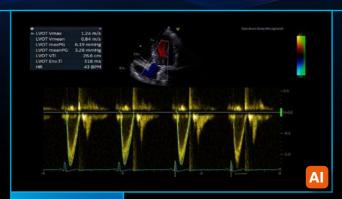
## Precision at the heart of quantification.



## **Z-Scores**

Vivid T9 Ultra Edition Support for six sets of user selectable Z score publications covering the most common pediatric dimension measurements.

## **New in** Ultra Edition

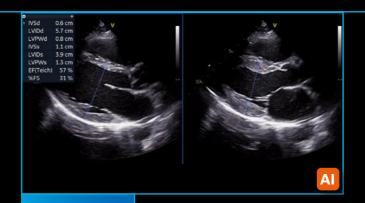


Ultra Edition

## **Al Auto Measure Spectrum Recognition**

Semi-utomatic selection of appropriate spectral Doppler measurement tool.

- Enables fewer manual interactions by automatically opening the appropriate measurement tool?
- · Works seamlessly with Cardiac Auto Doppler
- Enhances reproducibility of follow-up studies when used in fully automated mode 7
- Supports less experienced users with advanced automation



Ultra Edition

## **Al 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 clicks 7
  - 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



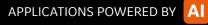
Ultra Edition

**Auto EF** 

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

## 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

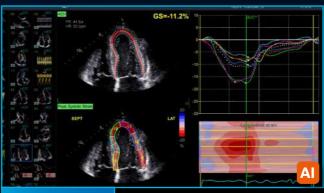




## AFI FUNCTIONAL IMAGING

From diagnosis to prognosis.

## New in Ultra Edition



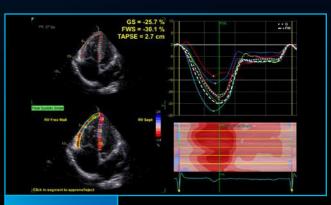
Ultra Edition

# 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

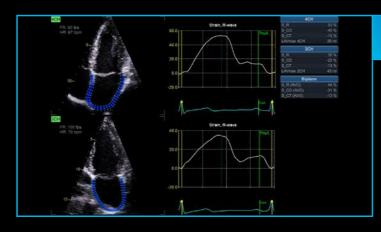


Ultra Edition

**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

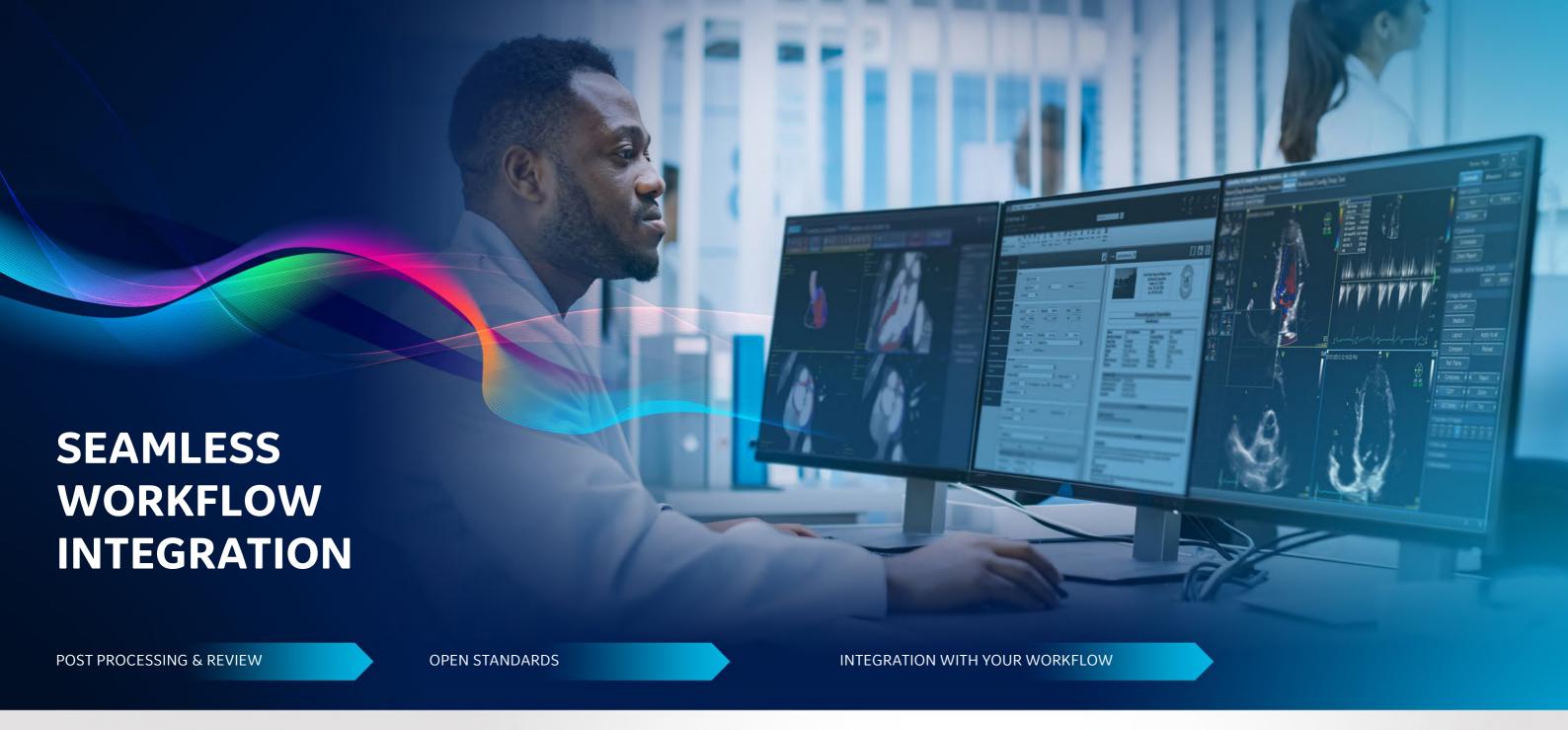


Ultra Edition

## **AFILA**

AFI LA 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
- Supports left atrium strain, volumes and emptying fraction measurements
- Follows the 2018 EACVI-ASE Strain Standardized Task Force guidelines 21
- 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 <sup>13</sup>

## EchoPAC Plug-in is available for:

- GE Healthcare Centricity™ Cardio Enterprise with Intelligent Reporting (IR).
- GE Healthcare ViewPoint™ 6
   with EchoPAC Suite 12
- 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. 11



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.<sup>14</sup>

\$4B cost added in 2019 15



Ultrasound is especially vulnerable to operator-dependence leading to

## **VARIABILITY**

between exams 17



Constrained budgets increase pressure to

DO MORE with less 16

and to optimize assets



Probe mishandling can lead to damage which can cause faulty data and may lead to incorrect medical decisions 18, 19



# [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 20

## **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.

## **COST SAVINGS**



cost reduction, based on



OnWatch alerts 20

## **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.



Real-time and interactive applications support

Digital Expert<sup>22</sup> 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.



