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. Requires current cSound version
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 28% total global prevalence of CVD cases (2.52 billion) undergoing echo exams extrapolated from study indicating roughly 25% of total prevalent CVD cases underwent echo exams. Corresponding annual echo exams performed in the US are estimated based on an assumed prevalence of approximately 25% of US residents with CVD. The results obtained from this calculation are approximate and reflect the current prevalence of CVD cases, which is expected to continue to increase in the future.
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 indicate time savings related productivity increase up to an annual benefit for a facility per sonographer
9. Centricity Cardio Workflow v7 Intelligent Reporting out-of-the-box configuration compared to 2017 AIC 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).
14. 5 Tips for Controlling Costs in Hospitals and Biomed Shops, source: t.ly/I9n7
18. GE internal data

©2020 General Electric Company. All rights reserved.

GE, the GE Monogram, Vivid, Grids, XDclear, HDlive, EchoPAC, ViewPoint, Centricity, Edison, Center, iQ, iQO and iQ2 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 communication of medical information.

Ultra Edition is not a product name. It refers to the 2020 release of the Vivid portfolio.

Third party trademarks are the property of the respective owners.
By 2030, 40.5% of the US population is projected to have some form of Cardiovascular Disease (CVD). 10-15% of echo exams result in sub-optimal images. 90% of sonographers experience symptoms of Work Related Musculoskeletal Disorders (WRMSD).

~108m annual echo exams performed globally.

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.

$120+ billion yearly direct and indirect costs for employers.
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.
Select either 22" OLED monitor or 24" LCD monitor

Intuitive 12" LCD touch screen

Adjustable floating keyboard

Convenient keyboard storage

Convenient cable management

Low power consumption with efficient and low-noise cooling

Easy mobility

MODERN ERGONOMICS

A familiar, yet modern and efficient design.
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.¹

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.

AFI LV with AI View Recognition

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

DETECTABILITY²

98%

Cardiac Auto Doppler with AI

- Reduced time per measurement
  - Up to 93%

- Lower inter operator variability
  - Reduce variability
    - ~3x

- Accelerated workflow
  - Fewer keystrokes
  - Standardized exams with greater reproducibility
  - Productivity improvement
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

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.

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.
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.

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.
CLINICAL EXCELLENCE for Pediatric 4D Imaging

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

To help clearly visualize small anatomies, the Vivid E95 Ultra Edition offers a 4D TTE probe. This lightweight probe provides crystal clear imaging and a single probe solution for exceptional 2D and 4D exams.

Superb 4D imaging will help you evaluate and navigate the challenging complexities of congenital heart diseases with speed, clarity and confidence.

Introducing the new 4D TTE pediatric probe 6Vc-D – a lightweight single probe solution that provides excellent 2D and 4D imaging.
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 develop new diagnostic methods and support future therapeutic measures for the patients of the world.

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.

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.

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 develop new diagnostic methods and support future therapeutic measures for the patients of the world.
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**

- 4D Markers
- Vmax
- FlexiSlice
- FlexiViews
- HDlive
- View-X
- CT Fusion
- FlexiLight
- HD Color

**Flow Quantification**

- Cardiac Auto Doppler
- AI Auto Measure Spectrum Recognition
- BSI
- 4D Auto AVQ
- 4D Auto MVQ

**Valve Quantification**

- 4D Auto TVQ

**Chamber Quantification**

- 4D Auto LAQ
- 4D Auto RVQ
- 4D Auto LVQ

**AFI Functional Imaging**

- AI Auto Measure 2D
- AI Stress
- Myocardial Work
- AFI RV
- AFI LA

**Applications Powered by AI**
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 ultra-high 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.

**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 teams.

**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

**CT Fusion**
Cost effective and vendor independent solution for live co-registered navigation in 4D ultrasound and CT data.

**Benefits:**
- 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

**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.
Benefits:
- Enhances reproducibility of follow-up studies when used in automated mode
- Offers Doppler measurement in multiple cardiac cycles as recommended by guidelines for irregular heart rhythms
- Supports less experienced users with advanced automation

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.

New in Ultra Edition

Ultra Edition
AI Auto Measure
Semi-automatic selection of appropriate spectral Doppler measurement tool.
Benefits:
- 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 automated mode
- Supports less experienced users with advanced automation

BSI 2.0
Semi-automatic 4D tool enables fast visualization and quantification of the tricuspid valve anatomy.
Benefits:
- 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 assessment
- Supports 4D data also from previous releases
VIVID HEART
APPLICATIONS

CHAMBER QUANTIFICATION

Precision at the heart of quantification.

New in Ultra Edition

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

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 clicks 1
• 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 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 follow-up 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.

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

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

Benefits:
- Offers renowned 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

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 EMRs.

EchoPAC Plug-in is available for:

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

With Centricity Cardio Enterprise IR, routine adult echo reports are complete before the physician opens the exam to review.

83%
The SonoDefense strategy consists of SIX LAYERS, with each layer enhancing the overall security of the system and help protect patient data.

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$^{13}$

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$^{16, 17}$

Ultrasound is especially vulnerable to operator-dependence leading to VARIABILITY between exams$^{15}$

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

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.
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
Real-time and interactive applications support

New REMOTE SUPPORT

Digital Expert 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

COST SAVINGS
No need to worry about your system safety

NEW AUTOMATED UPDATES

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.