



GE HealthCare

# Vivid™ S70N


Ultra Edition

Your patients rely on you.  
**You can rely on us.**




# Today's challenges

Increasing demand, coupled with limited cardiology staff, results in additional workload challenges for the entire medical community.

 **17 million**  
people died from CVDs  
in 2019<sup>1</sup>

 **1 in 4**  
cardiologists state they  
are burned out<sup>2</sup>

 **>10%**  
increase in Ischemic Heart  
Disease (IHD) alone by 2030<sup>3</sup>

 **~20%**  
of sonographers are leaving  
the profession or taking  
premature retirement<sup>4</sup>

 **~108 million**  
annual echo exams  
performed globally<sup>5</sup>

 **x2**  
Shortage of health workers is  
**set to double**<sup>6</sup>



## Your patients rely on you. You can rely on us.

Patient care isn't just a job for you. It's a calling. A mission.

Of late, that mission has changed. Increased workloads, fewer skilled staff and increased demands on your time, resources and expertise are now the norm.

Getting the right images under this pressure is challenging.

But this isn't just a job for you and you have no intention of sacrificing quality in your practice when so much is at stake.

The Vivid S70N cardiovascular ultrasound system has been further developed to meet today's challenges. To allow more diagnosis confidence with improved image quality and better workflows with AI-enabled automation.

Because your patients rely on you, you can rely on us.

# Your expertise. Our innovations.

Building on a history of advancements of cardiac patient care, GE HealthCare has been a true pioneer introducing breakthrough technologies, such as Color Doppler systems (1986) and 2D and AFI Speckle Tracking (2005).

Discover the latest leading innovative technologies that continue to push the technical capabilities of the Vivid Ultra Edition\* system for the benefit of you and your patient.

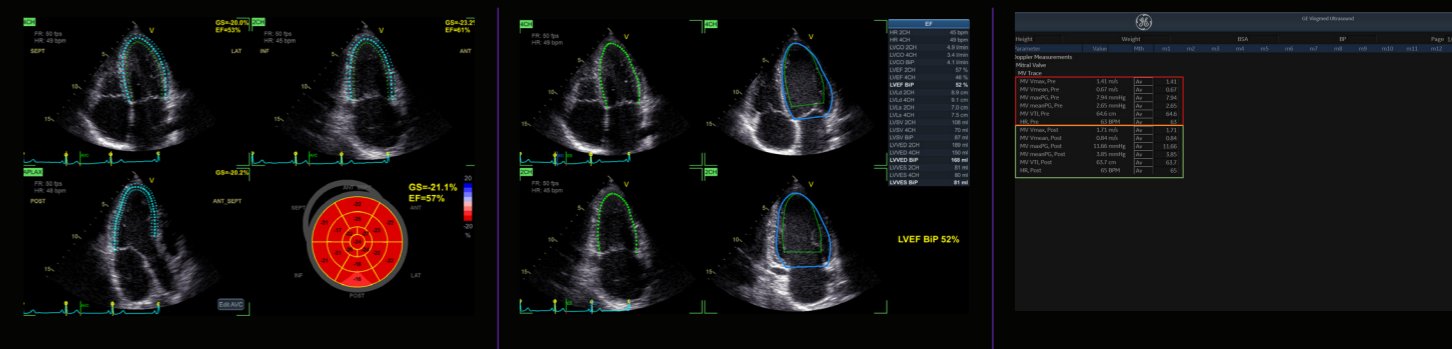
- |  |  |  |   |   |
|--|--|--|---|---|
| <p><b>2014</b> →</p> <ul style="list-style-type: none"> <li>• cSound software beamforming platform</li> <li>• Advanced 4D tool</li> <li>• Smart Standby</li> </ul> | <p><b>2017</b> →</p> <ul style="list-style-type: none"> <li>• Cardiac Auto Doppler</li> <li>• 4D Auto MVQ</li> <li>• View-X</li> <li>• Micro TEE Probe (10T-D)</li> <li>• Enhanced support for DICOM SR</li> </ul> | <p><b>2018</b> →</p> <ul style="list-style-type: none"> <li>• cSound™ 2.0</li> <li>• AutoEF 2.0</li> <li>• AFI 2.0</li> <li>• 4D Markers</li> <li>• Windows™ 10</li> </ul> | <p><b>2020</b> →</p> <ul style="list-style-type: none"> <li>• AFI RV</li> <li>• AFI LA</li> <li>• AI 2D Auto Measure</li> <li>• AI Spectrum Recognition</li> <li>• AFI 3.0</li> <li>• AutoEF 3.0</li> <li>• e-Delivery</li> </ul> | <p><b>2021</b> →</p> <ul style="list-style-type: none"> <li>• Biplane/Triplane on 4Vc-D</li> <li>• 4D Auto RVQ</li> <li>• 4D ICE**</li> </ul> |
|--|--|--|---|---|



## Vivid S70N Ultra Edition Designed from the echo to the cath lab

Vivid S70N provides you with uncompromised image quality, advanced visualization capabilities and easy measurements – while helping reduce tedious tasks.

## Latest innovations



Strain measurements in just 15 seconds (on average) – with Easy AFI LV.



Ejection Fraction and Automatic Region of Interest definition with only 1 click – with Easy AutoEF.<sup>8</sup>



Assess the quantifiable impact of implanted devices on valvular/cardiac function, pre and post procedure.



### Modern ergonomics

Adjustable to each operator standing and sitting position

- Articulating monitor arm
- Single-hand push for up/down and left-right adjustment

Excellent operator interface

- 22" adjustable monitor
- 12" LCD touch screen
- Alphanumeric keyboard
- Silent system (average 31 dB noise level)

Compact & easy to maneuver

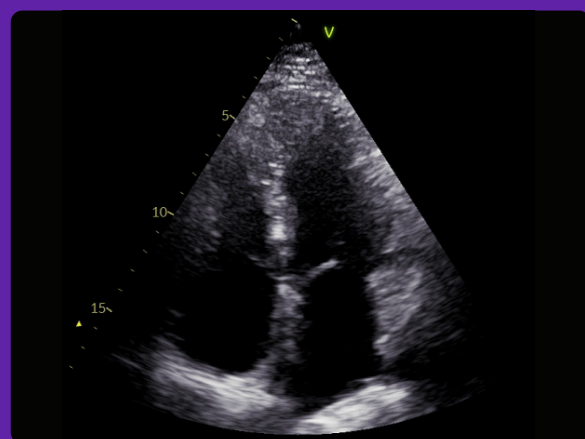
- Only 73 kg/161 lbs
- With ergonomic, easy to push handle
- Battery powered “standby” function, up and running within few seconds

# Your vision. Our superb images.

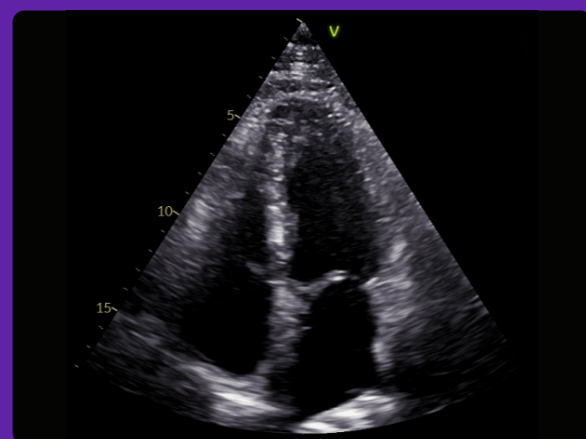
The diagnoses and treatment plans for your patients require a clear picture of their condition. With so much riding on the image, it has to be the best possible quality.

## cSound innovations

The key innovation of cSound is its extraordinary processing capacity where ultrasound channel data is received and temporarily stored in 'Local Big Data' memory before the image reconstruction is performed. This enables the application of advanced beamformer algorithms, such as True Confocal Imaging (TCI) without the limitation of focal zones or sacrifice of frame rate and spatial resolution.



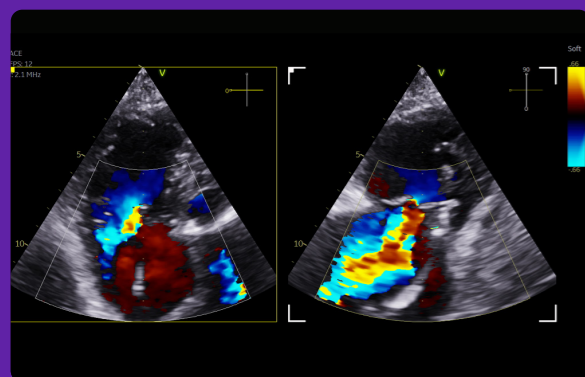
Conventional



cSound with TCI

The combined effect of cSound and TCI compared to traditional (Vivid E9) premium beamforming.

## Color Flow – Even better image quality!



**10-15%** of echo exams result in sub-optimal images<sup>9</sup>

## Latest innovations

Parameter	Value	Min	m1	m2	m3	m4	m5	m6	m7	m8	m9	m10	m11	m12	m13
Doppler Measurements															
Mitral Valve															
MV Trace															
MV Vmax_Pre	1.41 m/s														
MV Vmax_Post	0.97 m/s														
MV meanPG_Pre	7.94 mmHg														
MV meanPG_Post	2.65 mmHg														
MV VTI_Pre	18.6 cm														
MV VTI_Post	63.894														
HR_Pre															
HR_Post															

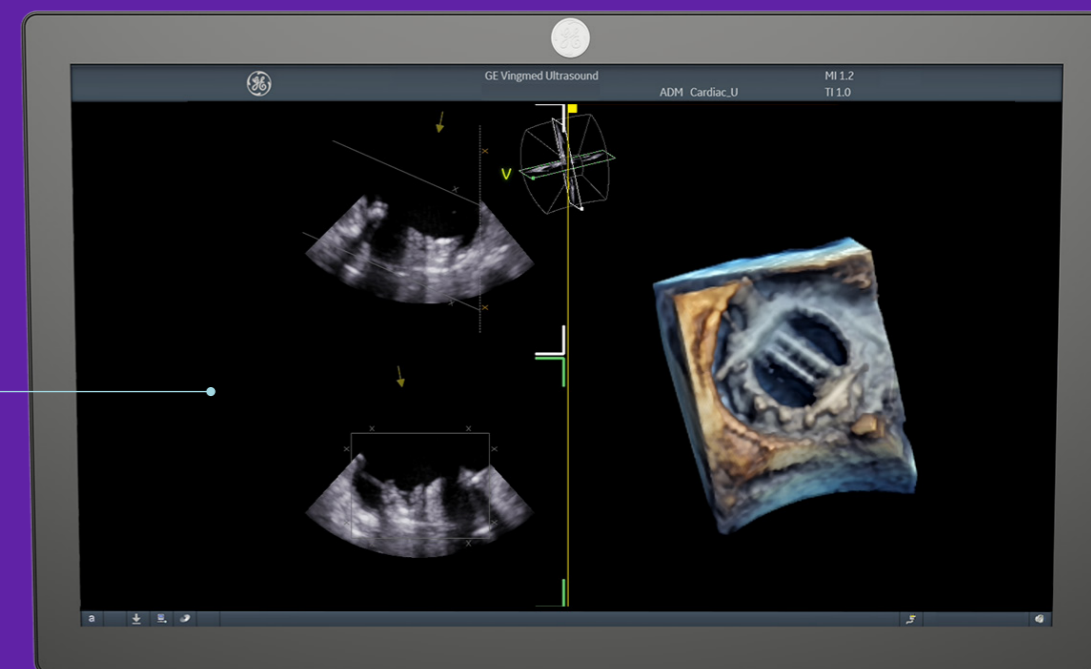
## Pre-Post Compare

### Different stages of exam evaluation

Assess the quantifiable impact of implanted devices on valvular/cardiac function, pre and post procedure.

## Uncompromised Image Quality

In intracardiac echo

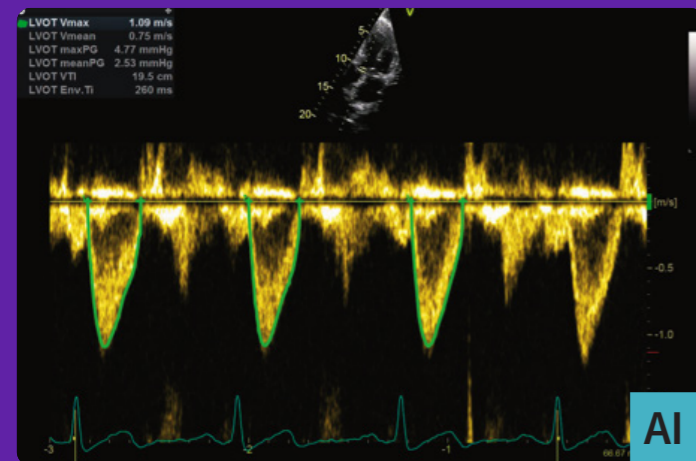


# Your time. Our workflow tools.

Vivid S70N Ultra Edition introduces the latest AI-based technology to help reduce tedious tasks and improve workflow efficiency.

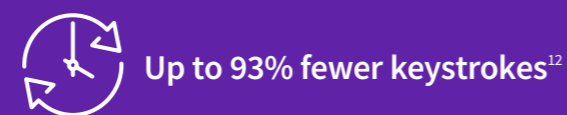
## AI Auto Measure 2D

With the power of AI, a full set of reproducible measurements will instantly appear on the screen.



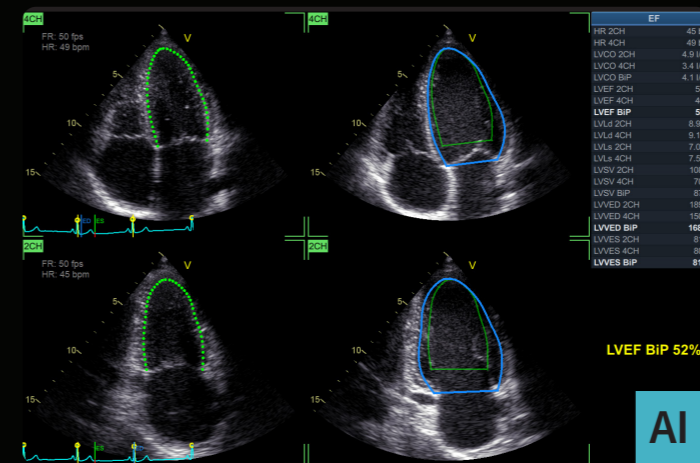
## Cardiac Auto Doppler with AI Auto Measure Spectrum Recognition

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.



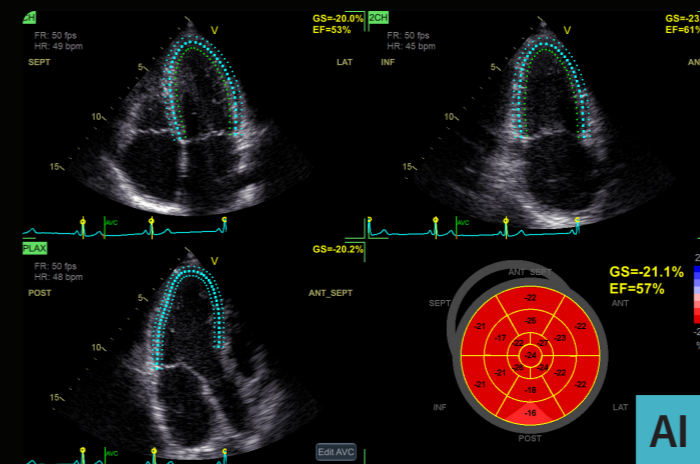
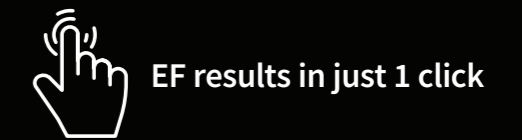
**35%** of cardiac sonographers miss work due to pain<sup>13</sup>

## Latest innovations



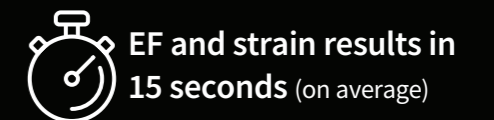
### Easy AutoEF

Our AI-based Auto ROI detection algorithm allows users to complete ejection fraction, with no manual interaction apart from initiating the tool and approving the results.



### Easy AFI LV with View Recognition

Our AI-based global and segmental strain measurements require no manual interaction apart from initiating the tool and approving the results. Additionally, you will be able to view simultaneously EF measurements.



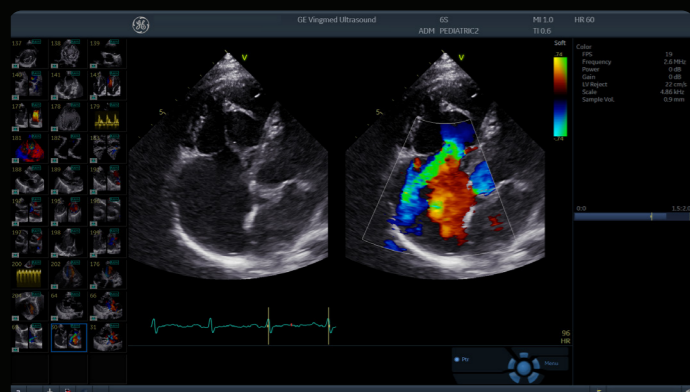
*“The new Easy AFI LV expedites strain measurements and simultaneously provides an automated LV ejection fraction measurement.”*

*Once required apical views are acquired, GE HealthCare’s algorithm provides incredibly robust strain measurements!”*

– Prof. Erwan Donal  
Cardiologist  
University Hospital Center, Rennes, France

# Beyond adult echo lab.

Demand for a complete ultrasound system – that is designed for both pediatric and adult patients and scan go from the echo lab to the cath lab – is growing. Be versatile with Vivid S70N.



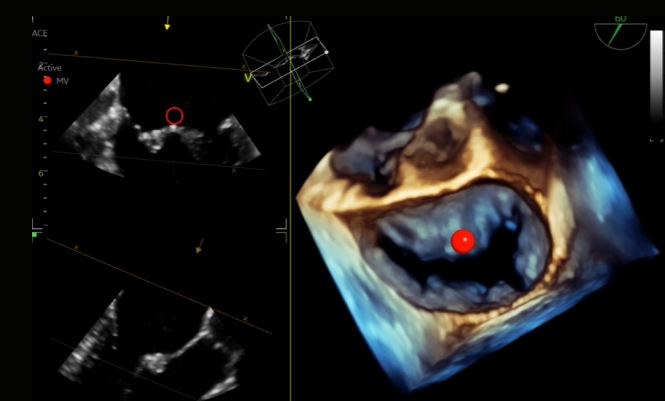
## Pediatric imaging

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



## HD Color for Interventional

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

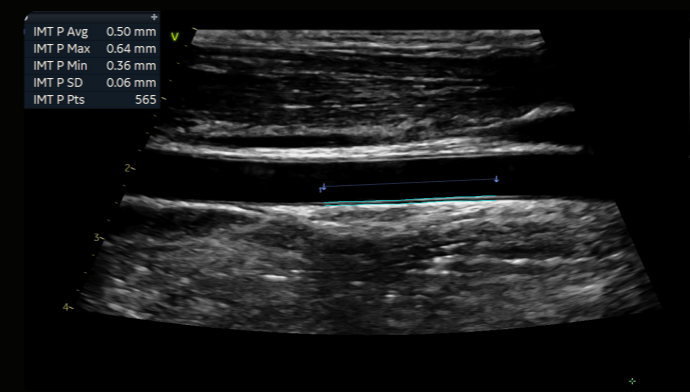


## 4D Markers for Interventional

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.

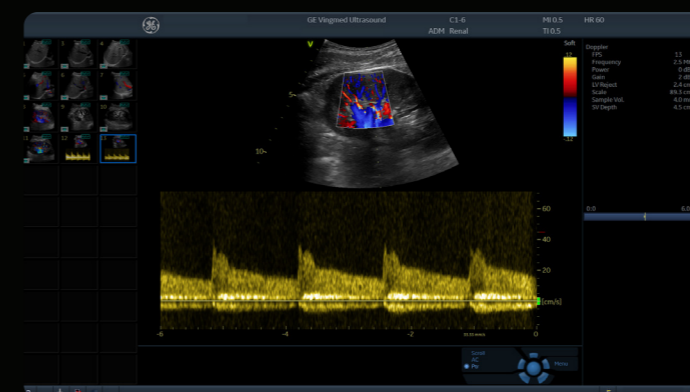
# Beyond Cardiology.

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.



## Vascular quantification

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



## Abdominal diagnosis

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

# Your needs. Our design.

More than ever, you need a powerful ultrasound system with advanced easy-to-use tools, that also is easy to maneuver. Vivid S70N has a familiar, yet modern and efficient design that is the lightest in its category and is always ready with an “instant-on” transportation mode.



Only 73 kg



Stand-by function



Silent system



22" monitor

## Modern ergonomics

### Long lasting mobility

- Battery powered “stand-by” function, up and running within few seconds

### Adjustable to each operator and each sitting position

- Articulating monitor arm
- Single-hand push for up/down and left-right adjustment

### Excellent operator interface

- 22" adjustable monitor
- 12" LCD touch screen
- Alphanumeric keyboard
- Silent system (average 31dB noise level)

### Compact & Easy to Maneuver

- Only 73 Kg/161 lbs
- With ergonomic, easy to push handle



# EchoPAC Connect†

Connect† from anywhere,<sup>14</sup> at any time, to any console.<sup>15</sup>



## Connect from anywhere<sup>14</sup>

EchoPAC Connect† provides you with the flexibility you need to accommodate to the unique way you work, whether your department is equipped with GE HealthCare ViewPoint™ 6 server, Centricity™ PACS, or any 3<sup>rd</sup> party PACS vendor.<sup>15</sup> Perform your measurements & diagnosis – using both 2D & 3D images – on site or remotely, with the same excellent quality as on your acquisition consoles.

## Multi-vendor<sup>16</sup>

With EchoPAC Connect†, you can enjoy a wide spectrum of 2D & 3D Vivid applications, from standard to most advanced measurements, regardless of which console was used to acquire your patients' images.

Enjoy the proven robustness of AFI LV, or exceptional GE HealthCare 4D measurement applications like TVQ (Tricuspid Valve Quantification) usable on all images acquired in your department, from both, Vivid systems and non-GE HealthCare consoles.<sup>16</sup>

## The power of EchoPAC

EchoPAC Connect† benefits from the latest AI-based technology introduced on Vivid Ultra Edition†, aimed to reduce tedious tasks and improve workflow efficiency.

Obtain measurements in 1 simple click with Easy AutoEF and Easy AFI LV. **Measurements can be obtained in less than 15 seconds.<sup>7</sup>**

Reduce tedious tasks of most common exams with AI Auto Measure Spectrum Recognition and AI Auto Measure 2D, and minimize the number of clicks needed to acquire standard measurements.<sup>11</sup>

## Seamless workflow integration

EchoPAC Connect† provides you with a seamless workflow experience thanks to a centralized server installation and DICOM® server, which automatically transfers data from all acquisition system.<sup>15</sup> whatever the brand, directly to your EchoPAC Connect†.

So, whether your department is equipped with a GE HealthCare ViewPoint server, Centricity PACS or any 3<sup>rd</sup> party PACS,<sup>15</sup> the seamless integration of EchoPAC Connect† will simplify your everyday workflow. Dongle-free. Peace of mind. Your EchoPAC Connect† is available at any time, from any computer, from anywhere, without the need to use dongle.



**“** The new Easy AFI LV speeds up strain measurements and simultaneously provides an automated LV ejection fraction measurement. Once good standard views are acquired, the strain algorithm enables incredibly robust measurements!<sup>9</sup>

– Prof. Erwan Donal  
Cardiologist  
University Hospital Center, Rennes, France

**“** I am amazed by the measurements you can perform on EchoPAC after the patient has left!<sup>10</sup>

– Dr. Lamin E.S. Jaitheh  
Consultant Cardiologist & Lecturer in Cardiology Department of Internal Medicine  
Edward Francis Small Teaching Hospital/School of Medicine & Allied Health Sciences,  
University of the Gambia

<sup>†</sup> EchoPAC Connect is a marketing name for EchoPAC Plug-in (v206) combined with a GE HealthCare Host. It is possible for several EchoPAC Plug-in users to open the same patient records. However, only the first user will have access to all the features of EchoPAC Plug-in. Other users will have read-only access to the patient records. This behaviour may change depending on the host in which EchoPAC Plug-in is integrated.



# Your skills. Our support.

In the core echo lab and even beyond cardiology, smart applications support your know-how. The Ultra Edition applications highlighted in **bold** are referent to our latest release.

## Visualization and navigation

### Ultra Edition

4D Markers

**FlexiSlice Extend**

FlexiViews

**Pre-Post Compare**

View-X

**Dual Crop**

**HD Color**

## Flow Quantification

### Ultra Edition

Cardiac Auto Doppler AI

**AI Auto Measure Spectrum Recognition** AI

## AFI Functional Imaging

### Ultra Edition

**Easy AFI LV**

AFI RV AI

**AFI LA**

## Chamber and Valve Quantification

### Ultra Edition

4D Auto LVQ

**4D Auto RVQ**

4D Auto AVQ

**Easy AutoEF** AI

4D Auto MVQ

**AI Auto Measure 2D** AI

# Your community. Our collaboration.

Vivid is much more than just a system. Make the most of your Vivid experience with our community resources and learning opportunities.

[www.gehealthcare.com](http://www.gehealthcare.com)

On our website you will find content available to the general public with top industry Key Opinion Leaders, Learning Academy on Strain including Whitepapers and Case Studies.



### Vivid Talks

Our “Meet the Expert” sessions (Vivid Talks) on wide-ranging subjects from echo lab to Interventional.



### Strain Learning Academy

Our Learning Academy is dedicated to supporting the industry in advancing strain measurement adoption.

**60%**

of all strain measurement clinical research publications have been done on a GE HealthCare device.<sup>17</sup>

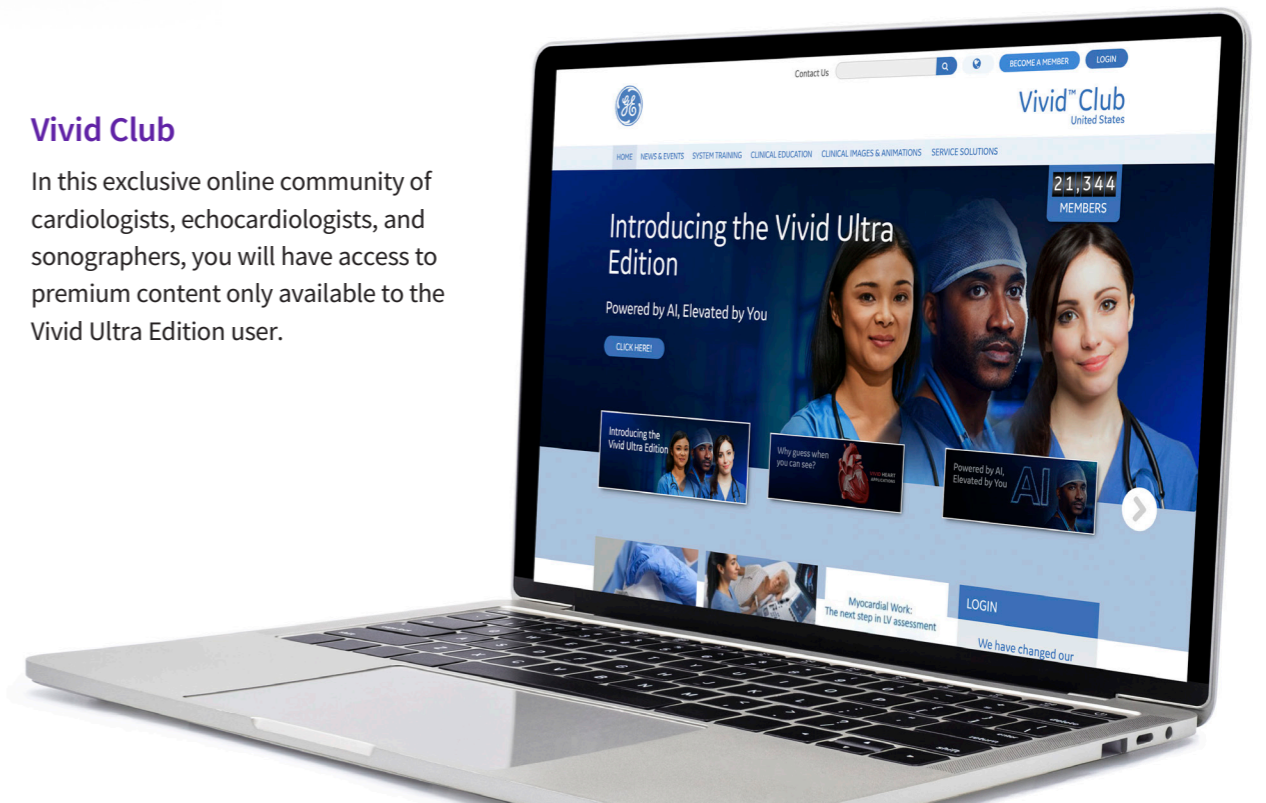


### Whitepapers & Case Studies

The latest Whitepapers and Case Studies presented by the field experts.

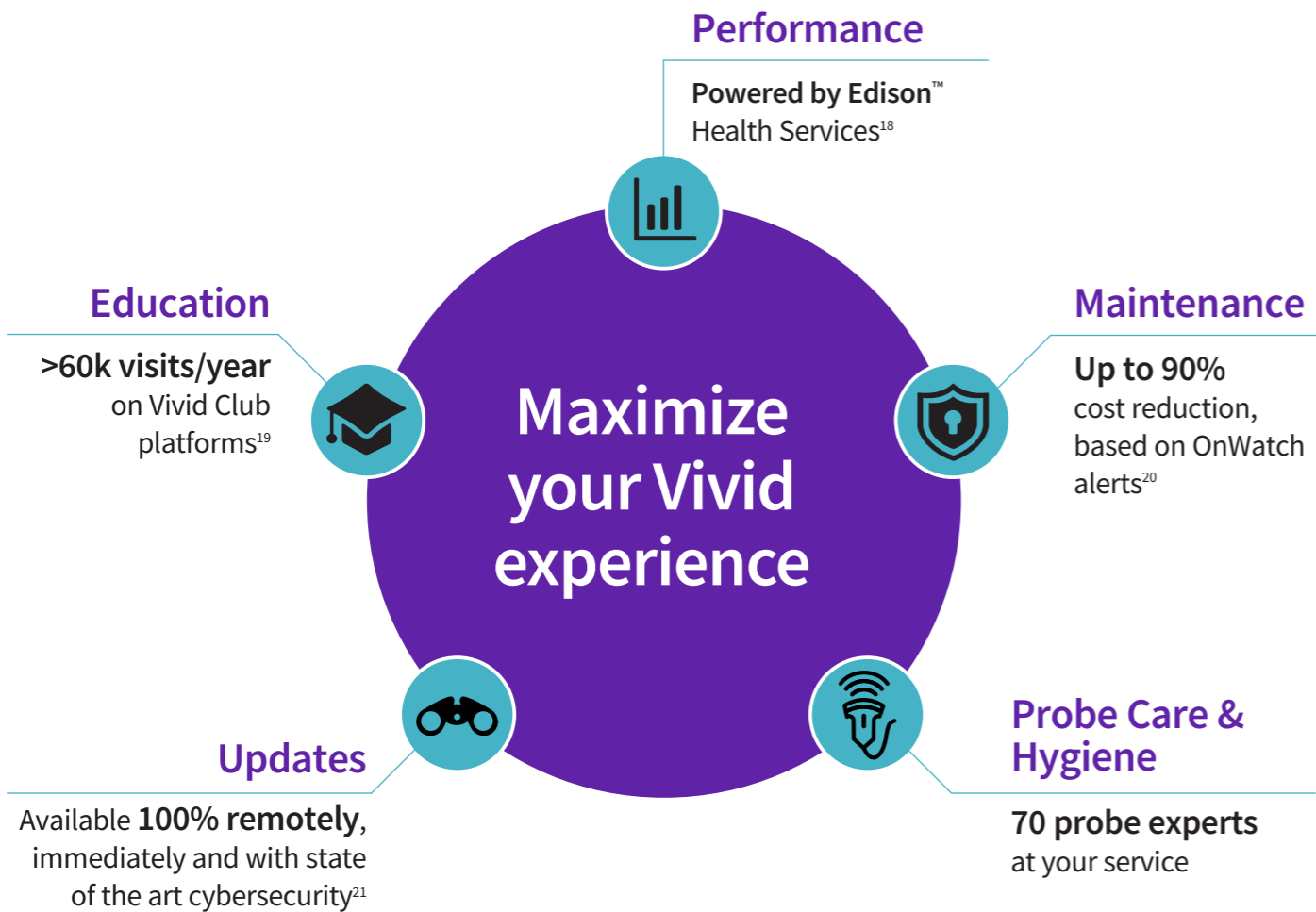
## Vivid Club

In this exclusive online community of cardiologists, echocardiologists, and sonographers, you will have access to premium content only available to the Vivid Ultra Edition user.



# Outperform today. Prepare for tomorrow.

Maximize the Vivid lifecycle experience while minimizing your total cost of ownership.



“The implementation of Imaging Insights/Ultrasound Excellence in my biomedical unit for the cardiology and gynecology departments ultrasound equipment has opened the door to better utilization of my systems and distribution of activity, all of which has allowed me to improve our operational efficiencies, cost investment and service to patients.”

– Mrs Valérie Boissart  
Head of Biomedical Engineering Department  
Luxembourg Hospital Center



## Digital Expert/STAR\*\*

Digital Expert (and STAR) provides an interactive, real-time, flexible & convenient way to get education and support.<sup>22</sup>

 Live exchange with peers


## Automated, Remote SW Downloads

Get automated software updates along with safety patches enabled by remote software download. Your system stays up-to-date, making it more reliable.

 Updates 24/7<sup>21</sup>

## SonoDefense

SonoDefense is GE HealthCare’s six-layer strategic approach to cybersecurity and patient data privacy for ultrasound.

 Advanced cybersecurity & data privacy protection

## Imaging Insights

Imaging Insights is an Edison™ application that combines analytics and coaching to help ultrasound management teams to optimize clinical and operational performance.

 Operational Performance

## References:

\* Ultra Edition is not a product name, it refers to the 2022 release of the Vivid portfolio.

\*\* Only available in the US.

1. World Health Organisation | [https://www.who.int/news-room/fact-sheets/detail/cardiovascular-diseases-\(cvds\)](https://www.who.int/news-room/fact-sheets/detail/cardiovascular-diseases-(cvds)).
2. Laxmi S. Mehta et.al. | Clinician Well-Being. Addressing Global Needs for Improvements in the Health Care Field | Journal Of The American College Of Cardiology Vol. 78, No. 7, 2021
3. Moien AB Khan et.al. | Global Epidemiology of Ischemic Heart Disease: Results from the Global Burden of Disease Study | <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7384703/>.
4. Stephanie David | Importance of Sonographers Reporting Work-Related Musculoskeletal Injury: A Qualitative View | JDMS 21:234–237 May/June 2005 <https://journals.sagepub.com/doi/pdf/10.1177/8756479305274463>.
5. 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-populationdata-sheet\\_eng.pdf](https://www.prb.org/wp-content/uploads/2015/12/2015-world-populationdata-sheet_eng.pdf).
6. World Health Organization | A universal truth: no health without a workforce. Nov 2013. <https://www.bmj.com/content/347/bmj.f6804>.
7. Time to strain measurement result may vary with heart rate, frame rate and Vivid system. Verification of performance done by GEHC clinical application specialists using Vivid system (DOC2739637).
8. Easy AutoEF is restricted for use with adult TTE on GE Healthcare raw B-mode data loops of the LV. Easy AutoEF does not support left ventricles with septal bulge.
9. 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.
10. 4D ICE NUVISION catheter is only available in the USA. The combination Vivid S70N with 4D ICE NUVISION is not CE-marked. 4D ICE NUVISION is distributed by Biosense Webster.
11. The Role of AI in Streamlining Echocardiography Quantification White Paper, Kristin McLeod and Jurica Sprem - JB20789XX.
12. 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.
13. Nicholas M. Orme et.al. | Occupational musculoskeletal pain in cardiac sonographers compared to peer employees: a multisite cross-sectional study | <https://onlinelibrary.wiley.com/doi/10.1111/echo.13344>.
14. For diagnostic use, in citrix environment using Hospital IT network.
15. Enabled by ViewPoint 6 Desktop integration.
16. EchoPAC Plug-in provides basic and advanced viewing and quantitative analysis capabilities for 2D, 4D and multi-dimensional ultrasound parametric images from the GE HealthCare Vivid™ family of scanners, DICOM® images and 3D/4D from multi-vendor ultrasound fleet.
17. Whitepaper “AFI - strain imaging from research to clinical routine”- JB16411XX.
18. Imaging Insights is an Edison™ application.
19. GE internal data - Website analytics from January 2021 to December 2021.
20. GE internal data.
21. Based on Software eDelivery Software installed.
22. Digital Expert is only offered in the USA. Digital Expert is not a functionality provided by Vivid systems. Digital Expert is separate from Vivid systems and is for education and training purposed only.

## About GE HealthCare

GE HealthCare is a leading global medical technology, pharmaceutical diagnostics, and digital solutions innovator, dedicated to providing integrated solutions, services, and data analytics to make hospitals more efficient, clinicians more effective, therapies more precise, and patients healthier and happier. Serving patients and providers for more than 100 years, GE HealthCare is advancing personalized, connected, and compassionate care, while simplifying the patient’s journey across the care pathway. Together our Imaging, Ultrasound, Patient Care Solutions, and Pharmaceutical Diagnostics businesses help improve patient care from prevention and screening, to diagnosis, treatment, therapy, and monitoring. We are an \$18 billion business with 51,000 employees working to create a world where healthcare has no limits.

Follow us on [Facebook](#), [LinkedIn](#), [Twitter](#), [Instagram](#) and [Insights](#) for the latest news, or visit our website [gehealthcare.com](https://www.gehealthcare.com) for more information.

Products mentioned in the material may be subject to government regulations and may not be available in all countries. Shipment and effective sale can only occur after approval from the regulator. Please check with local GE HealthCare representative for details.

©2023 GE HealthCare. Vivid, cSound, XDclear, HDlive, EchoPAC, ViewPoint, Centricity, Edison, iCenter, iLINQ and InSite are trademarks of GE HealthCare. GE is a trademark of General Electric Company used under trademark license.

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 2022 release of the Vivid portfolio.

Third party trademarks are the property of their respective owners.

August 2023  
JB21154XX



GE HealthCare