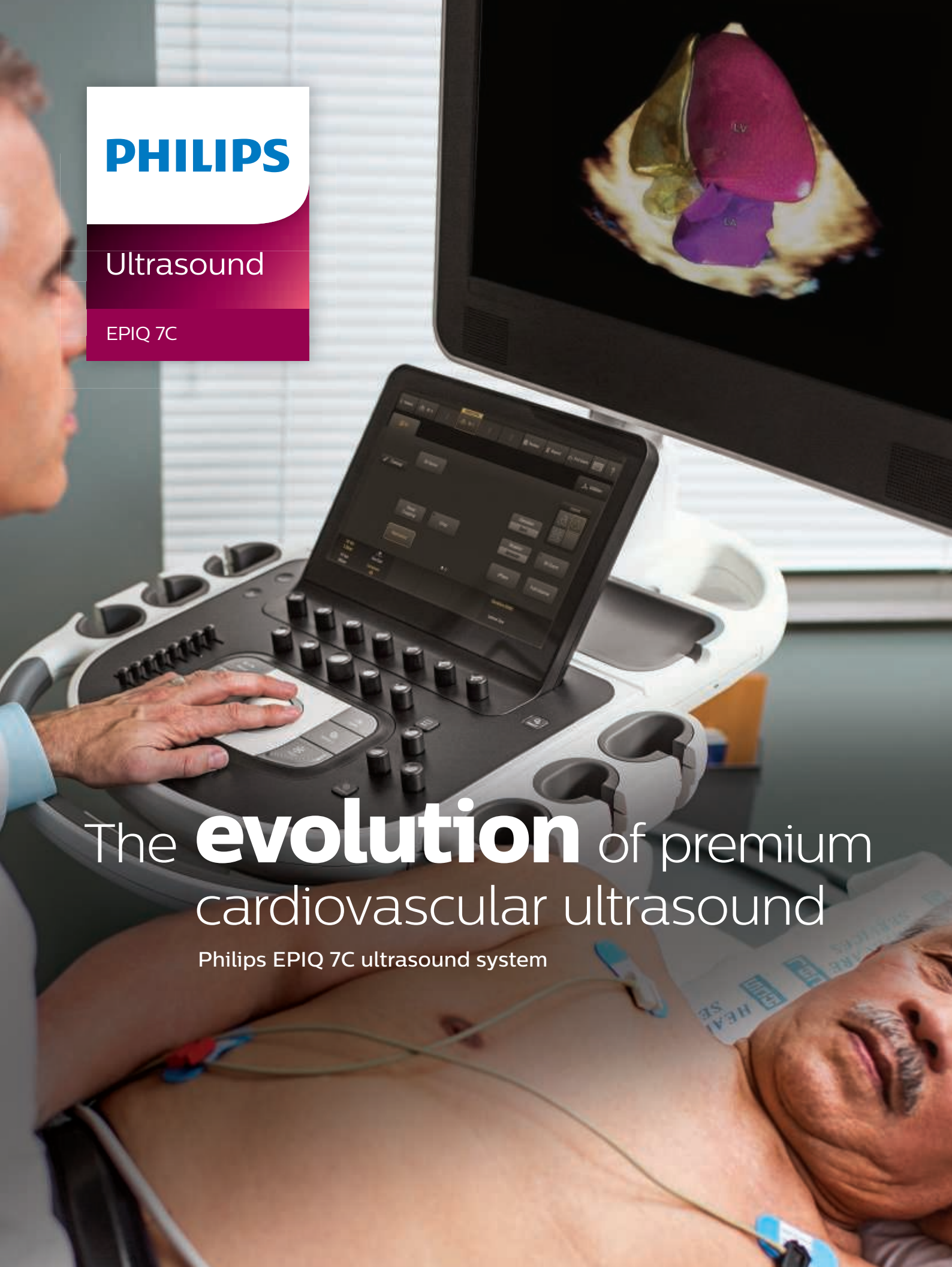


PHILIPS

Ultrasound

EPIQ 7C

# The **evolution** of premium cardiovascular ultrasound

Philips EPIQ 7C ultrasound system

# The new **challenges** in global healthcare

Unprecedented advances in premium ultrasound performance can help address the strains on overburdened hospitals and healthcare systems, which are continually being challenged to provide a higher quality of care cost-effectively. The goal is quick and accurate diagnosis the first time and in less time. Premium ultrasound users today demand improved clinical information from each scan, and faster and more consistent exams that are easier to perform and allow for a high level of confidence, even for technically difficult patients.

# The **evolution** of premium cardiovascular ultrasound

It's our most powerful architecture ever applied to ultrasound imaging – touching all aspects of acoustic acquisition and processing, allowing you to truly experience ultrasound's evolution to a more definitive modality. Supported by our family of proprietary xMATRIX transducers and our leading-edge Anatomical Intelligence, this platform offers our highest level of premium performance.


## Key trends

- There is a continued search for affordable healthcare solutions in order to deliver more for less with high-quality patient care
- Echocardiography is the imaging mode of choice and exam volumes continue to increase every year
- With echocardiography gaining prominence as a point-of-care tool (such as in the emergency department), increasing numbers of patients are being referred to cardiologists for further investigation
- Recommendations continue to advise on the use of both 3D and 2D techniques to drive towards more robust reproducible results to assist with clinical decision-making

# Performance

## More confidence in your diagnoses, even for your most difficult cases

EPIQ 7C is the direction for premium ultrasound, featuring an exceptional level of clinical performance to meet the challenges of today's most demanding practices.

# Creating **new realities**, redefining clinical expectations

***n***SIGHT Imaging goes beyond conventional ultrasound performance for new levels of definition and clarity.

**Philips *n*SIGHT Imaging is a totally different approach**

The Philips proprietary ***n***SIGHT Imaging architecture is a totally different approach to forming ultrasound images. Unlike conventional systems that form the image line by line, ***n***SIGHT creates images with superb resolution down to the pixel level.

**Extraordinary architecture**

***n***SIGHT Imaging incorporates a custom multi-stage precision beamformer along with massive parallel processing. This proprietary architecture captures an enormous amount of acoustic data from each transmit operation and performs digital beam reconstruction along with mathematically optimized focal processing to create real-time images with exceptional resolution and uniformity.

## Frame rate

**Conventional** Users must choose between frame rate and image quality

***n***SIGHT Imaging More than doubles the frame rate without impact to image quality

### ***n***SIGHT Imaging

creates superbly focused images with fewer transmit operations so you can experience both highly detailed ultrasound images and extraordinary temporal resolution, even with one-beat Live 3D volumes.

## Uniformity

**Conventional** Best resolution is limited to transmit focal zone

***n***SIGHT Imaging Corrects focus during beam reconstruction for superb uniformity

### ***n***SIGHT Imaging

achieves superb uniformity through coherent beam reconstruction algorithms that apply mathematical focal correction coefficients continually at all depths of the image.

## Penetration

**Conventional** Penetration limitations and poor sensitivity to weak signals

***n***SIGHT Imaging Superb penetration across full range of frequencies

### ***n***SIGHT Imaging

architecture's ultra-wide dynamic range and unique beam reconstruction reinforces weak tissue signals allowing enhanced penetration at higher frequencies even on difficult patients.

## Image quality: the numbers tell the story

Comparing EPIQ 7C to conventional premium systems shows breakthrough advances in imaging performance.*

- Up to 30% increase in penetration (penetration = ability to scan at depths and maintain resolution in order to complete the study)
- Up to 15% increase in axial resolution (increased resolution throughout the depth of image) all while maintaining frame rates
- Up to 4X increase in volume rates on xMATRIX transducers

*2013 quantitative engineering study comparing Philips iE33 ultrasound system with EPIQ 7C. Dependant upon transducer, application, and TSI.

# Maximize
## extreme clinical capabilities

Philips pioneered advanced technologies such as xMATRIX and PureWave. The revolutionary ***n***SIGHT Imaging architecture of EPIQ 7C makes xMATRIX and PureWave even more powerful.

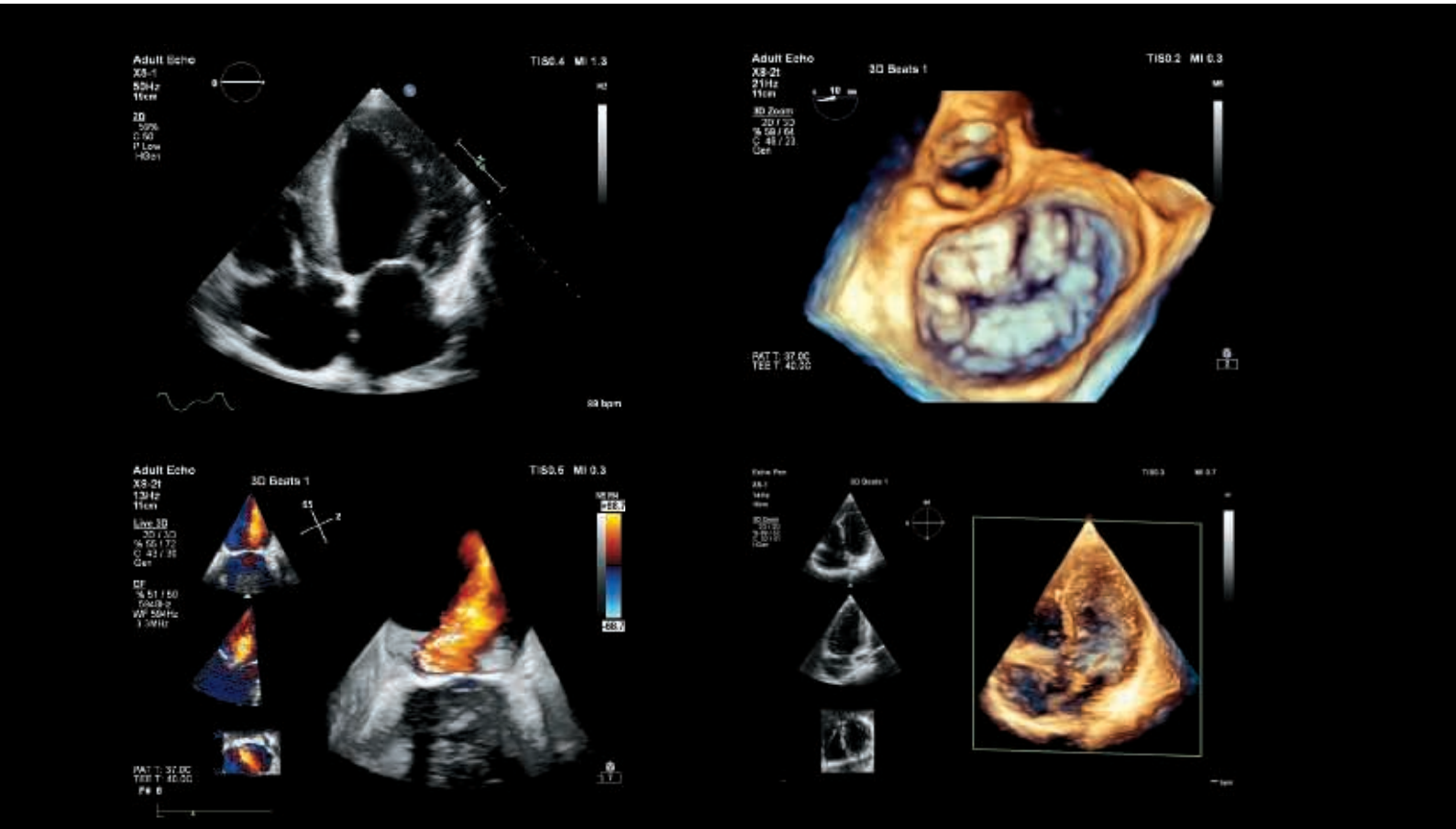
**xMATRIX is our most leading-edge, versatile ultrasound transducer technology**

No other premium ultrasound system can run the complete suite of the world's most innovative ultrasound transducers. With the touch of a button, xMATRIX offers all modes in a single transducer: 2D, M-mode, color Doppler, Doppler, iRotate, Live xPlane, Live 3D, Live 3D Zoom, and Live 3D Full Volume.

***n***SIGHT Imaging **makes powerful xMATRIX technology even more so**

For Live 3D imaging in any mode use our true one beat volume acquisitions with high volume rates to visualize either wall function or flow dynamics more effectively. No need for EKG triggering also simplifies the use of Live 3D imaging as there is no problems with stitching artifacts inherent when imaging patients in arrhythmias or with breathing difficulties.

From transthoracic to transesophageal echo, bring Live 3D to the forefront of your diagnostic and interventional echo research and practice. Start in the 2D space you understand and seamlessly move into "truly live" Live 3D Echo. For all patients, whether in arrhythmias or with fast heart rates, from assessing EF to flow dynamics, Philips helps you bring 3D throughout your patients entire care cycle.




**One-beat Live 3D volumes with X5-1 and X8-2t transducers**

# Philips Live 3D workflow – **simple and efficient**

From seamless transitions between 2D and truly real-time 3D imaging, with easy-to-use cropping tools, EPIQ 7C makes it easier to incorporate 3D into your everyday echo routine.

EPIQ 7C offers several ways to crop, including QuickVue and Face Crop. QuickVue is a very simple two-point method to crop anywhere with the volume, whereas FaceCrop allows you to take away any amount of 3D data from the front of the volume.

EPIQ 7C also provides configurable AutoViews on every xMATRIX transducer to drive automated 3D zooms along with expected positioning of the final 3D zoom volume. AutoViews have demonstrated a reduction of 66% in controls needed to be touched as compared to not using AutoView.

# Designed to **reinvent** the user experience

EPIQ 7C has reinvented the premium ultrasound user experience. Ease of use, workflow, ergonomics, portability – we've revolutionized how you interact with an ultrasound system from every standpoint, and kept it beautifully intuitive.

More than 80% of sonographers experience work-related pain, and more than 20% of these suffer a career-ending injury.[1] The EPIQ 7C tablet-like interface results in dramatic reduction in reach and button pushes, with 80% less reach and 15% fewer steps.*

Tablet-like touch interface allows quick navigation to system functions with 80% less reach and 15% fewer steps to complete an exam.*

**Amazingly portable**

At just 104 kg (230 lb), EPIQ 7C is one of the lightest in its class and 40% lighter than the heaviest competitive premium system. Easily transport EPIQ 7C on both carpet and tile floors. Place it in sleep mode, move it, and boot up in seconds. The monitor folds down to reduce overall system height for transport, and the integrated cable hooks and catch tray are ideal for portable studies. Wireless DICOM further aids workflow.†

[1] Society of Diagnostic Medical Sonography, Industry Standards for the Prevention of Musculoskeletal Disorders in Sonography, May 2003.
* Engineering study comparing Philips iE33 ultrasound system with EPIQ 7C.
† Check for availability in your geography.

### MaxVue high-definition display

At the touch of a button, the new MaxVue high-definition display brings extraordinary visualization of anatomy, with 1,179,648 additional image pixels compared to a standard 4:3 display format mode. MaxVue enhances ultrasound viewing, providing 38% more viewing area so during interventional procedures it provides a much larger image to view from a distance, as well as a larger area to display side/side, color compare, xPlane, Live 3D with MPRs, as well as stress echo images.

### Library quiet

EPIQ 7C is almost silent when running. A noise test determined that EPIQ 7C runs at 37-41 dB, which is equivalent to the sound of a library. This is extremely welcome in small scanning/examination rooms.

### Scanning comfort

Multiple degrees of articulation for both the control panel and 54.6 cm (21.5 in) LCD monitor with 720° of freedom allows for ergonomic alignment for scanning comfort, whether sitting or standing.

### SmartExam

SmartExam decreases exam time by 30-50% and keystrokes by as many as 300 per exam, and results in a high level of consistency among users.[2] It is fast and easy to customize, providing consistent annotation, automatic mode switching, and missed view alerts to streamline exams.

SmartExam also drives the automation within Q-Apps, reducing the number of steps to perform more complex analysis to a ZeroClick status. The result is more time to focus on your patients, increased confidence in complete studies, less focus on requirements, less repetitive motion, less stress, and improved schedule maintenance and department efficiencies.

### Auto Doppler for vascular imaging

Auto Doppler takes time-consuming color box positioning and sample volume placement from ten steps to three steps and reduces the number of repetitive button pushes by an average of 68%.[3]

### Active native data

Active native data allows for post-processing of many exam parameters as well as providing the best format for Q-Apps quantification.

### Set-up Wizard

Set-up Wizard allows users to step up to the system, easily establish user configurations, and get running quickly.

Easy viewing and efficient use even in darker scanning environments with a large 54.6 cm (21.5 in) wide screen and ambient lighting that provides subtle visual cues for the keyboard, OEMS, and transducer ports. Four transducer ports decrease the amount of plug/unplugging required during a day of scanning.

**EPIQ 7C makes it easy to be green**

**25%**

**less power**

EPIQ 7C is one of the greenest systems we have ever designed. It consumes 25% less power than our legacy premium ultrasound.

[2] University of Colorado, Protocols Study, Apr. 2007.
[3] Auto Doppler Clinical Study, Dec. 2011.

# Intelligence
## turning images into answers

EPIQ 7C is our most intelligent premium ultrasound system ever, offering a complete set of easy-to-use quantitative tools to turn reproducible data into information to guide treatment.

**Anatomical Intelligence is the heart of EPIQ 7C**

More data is available than ever before, requiring tools for you to simplify and quicken the process of acquiring reproducible data and turning it into valuable information for your patients.

At the heart of the powerful EPIQ 7C architecture is our Philips exclusive Anatomical Intelligence Ultrasound (AIUS), designed to elevate the ultrasound system from a passive to an actively adaptive device. With automatic anatomy recognition, protocols for automatic functionality, and proven quantification, exams are easier to perform, more reproducible, and deliver new levels of clinical information.

**Using built-in models to drive exam simplification**

The robustness of AIUS is driven by using advanced algorithms built from multiple data points from many different heart shapes with various cardiac conditions. Sophisticated modeling adapts certain atlas shapes to a patient's individual organ to help drive either automation of repetitive steps to full-blown computer driven analysis with minimal user interaction.

Most of our AIUS tools are within our quantification applications (Q-Apps) but some also reside in other tools available from Philips. In fact, many of our tools come with ZeroClick technology,* which means that, once loaded, the tool does it all for you.

*Edit option

# Philips provides **three levels** of AIUS: modelling, automation, and navigation

## Modelling

**Fast, easy, and robust 3D LA and LV volumes, with EF, from the same Live 3D volume data set**

With one-button simplicity, Philips HeartModel[A.I.] overcomes the complexity and time it takes to perform 3D transthoracic echocardiography. Philips HeartModel[A.I.] brings robust 3D quantification to everyday clinical practice. This anatomically intelligent cardiac application automatically detects, segments, and quantifies the Left Ventricle (LV) and Left Atrium (LA) from a Live 3D volume. HeartModel[A.I.] provides automated 2D views and reproducible quantification across users and over time, with the workflow efficiency to facilitate faster exams for the precise measurement of cardiac function.

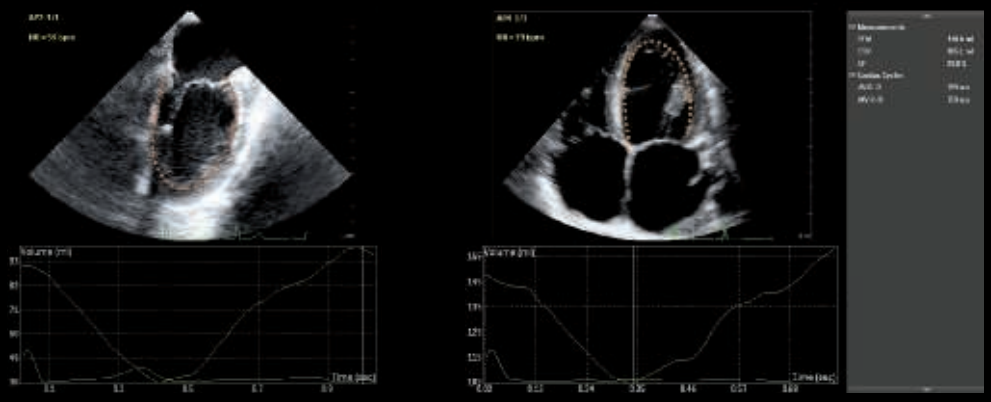
## Automation

**EF on all your patients: Automated 2D Cardiac Quantification[A.I.] (a2DQ[A.I.]) with ZeroClick technology**

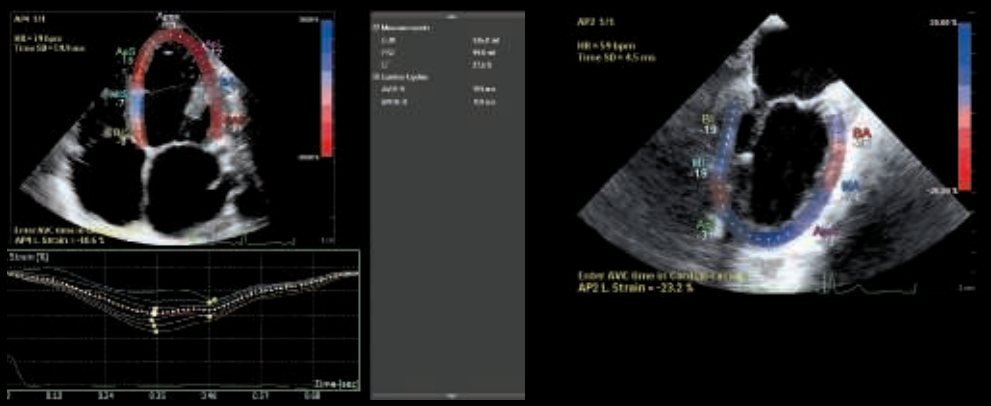
The ideal tool of every echo lab, Automated 2D Cardiac Quantification[A.I.] with ZeroClick technology is a Q-App which uses AIUS for an Auto-ROI to drive the Q-App and provide rapid access to proven 2D EF and volumes. AutoEF is available during the study and so fits in with an everyday echo protocol.

**Automated speckle analysis: Automated Cardiac Motion Quantification[A.I.] (aCMQ[A.I.]) with ZeroClick technology for adult echo**

The ZeroClick technology of the Automated Cardiac Motion Quantification[A.I.] (aCMQ[A.I.]) uses speckle mechanics to provide reproducible 2D Global Longitudinal Strain (GLS) speckle measurements. A proven EF is also calculated by using the Auto-ROI that drives the automation within the aCMQ[A.I.] Q-App.



**a2DQ[A.I.] with ZeroClick for fast, reproducible EF on all your patients.**



**aCMQ[A.I.] with ZeroClick technology provides both EF and GLS from the same 2D images.**

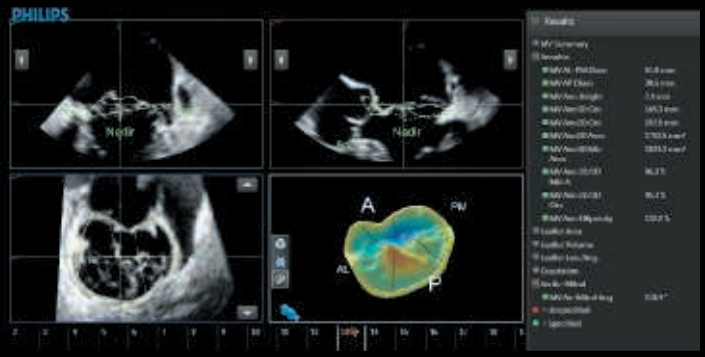
# Navigation

### The Mitral Valve Navigator[A.I.] (MVN[A.I.])

The Mitral Valve Navigator[A.I.] (MVN[A.I.]) is a Q-App which is designed to take a Live 3D volume of the mitral valve and turn it into an easy-to-interpret model in eight guided steps, providing access to a comprehensive list of MV measurements and calculations. Internal comparison of MVQ to MVN[A.I.] Q-Apps measures 89% fewer clicks, meaning essential data can be captured more efficiently.[5]

### Enhancing the power of Anatomical Intelligence for interventional echo

The EPIQ 7C and Philips Allura Xper X-ray systems create a powerful combination with the new EchoNavigator feature for an exceptional level of efficiency in the interventional suite. EchoNavigator digitally links ultrasound and fluoroscopy images using anatomical data. Both active images are displayed and continuously aligned, even when the fluoroscopy or ultrasound image is rotated.




**MVN[A.I.] takes a Live 3D volume of the mitral valve and turns it into an easy-to-interpret model in just eight guided steps.**

[5] 2013 QLAB 9 MVQ and QLAB 10 MVN click comparison internal study.

# Q-App quantification applications

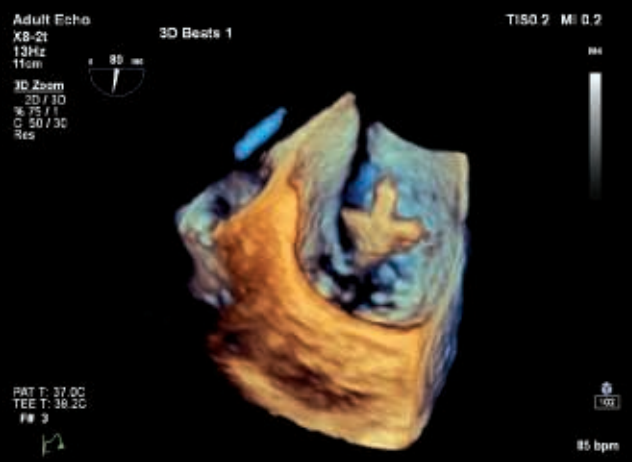
EPIQ 7C offers a wide variety of sophisticated Q-Apps to quantify ultrasound image information, including our latest AIUS Q-Apps.

| Q-Apps using AIUS | Clinical application | Benefit |
|---|---|---|
| HeartModel[A.I.] | LV and LA volumes and EF | Fast, easy, and robust 3D LA and LV volumes, with EF, from the same Live 3D volume data set |
| Mitral Valve Navigator[A.I.] | Takes a Live 3D zoom volume of the MV to provide qualitative and quantitative data of the valve and its surrounding structures | Fast and easy tool to derive easy-to-understand data and model of MV |
| aCMQ[A.I.] | Speckle quantification of the global and regional strain data | Provide global and regional LV function assessment from 2D images |
| a2DQ[A.I.] | AutoEF | Fast and reproducible EF from standard 2D views |

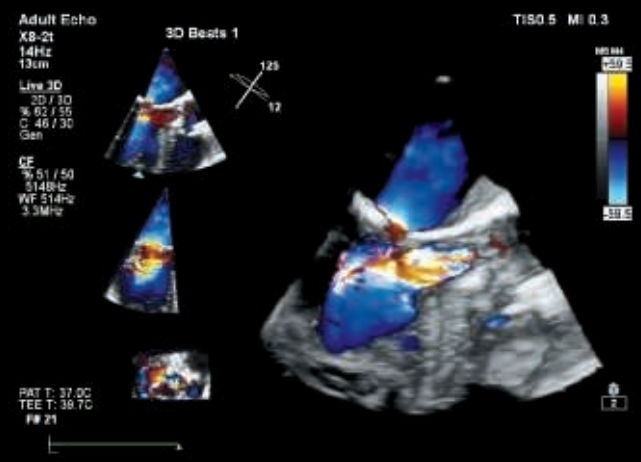
| Non-AIUS Q-Apps | Clinical application | Benefit |
|---|---|---|
| IMT | Automated Intima Media Thickness measurement | Fast and easy access to IMT data from a carotid image |
| ROI | Quantifies image data in color and contrast images | Extract acoustic measurements from specific loops |
| Strain Quantification (SQ) | Measures the myocardial velocity from color tissue Doppler images | Derive strain and strain rate data for wall motion assessment |
| CMQ Stress | Speckle quantification of stress echo images | Regional wall motion assessment of stress echo loops |
| 3DQ | View, slice, and display 3D volumes; provides tools for distance and area measurements on MPR views | Acquire Biplane Simpsons EF without any foreshortening impact using 3D full volume data sets; calculate LV mass |
| 3DQA | Semi-automated calculation of LV volumes and regional timing data | Measure true LV endocardial volumes, stroke volume (SV), and true 3D election fraction (EF) with no geometric assumptions; offers timing assessment for each of 17 minimal regional volumes and determines a synchronicity index for all volume segments or a user-selectable group of volume segments |

# **Live 3D imaging** with xMATRIX transesophageal transducers

Philips xMATRIX performance becomes even more powerful with the X8-2t Live 3D transesophageal transducer. Its acoustic design provides higher frequencies and bandwidth providing increased resolution and tissue filling in 2D and Live 3D. The X8-2t brings true one-beat acquisitions and our highest volume rates in Live 3D and Live 3D color flow to transesophageal imaging, without compromise to image quality. Its handle is designed with a real-time configurable function button allowing for additional functionality while imaging, including “Acquire”, “Freeze”, “iSCAN”, or “Do Nothing”.




**X8-2t 3D zoom MitraClip**



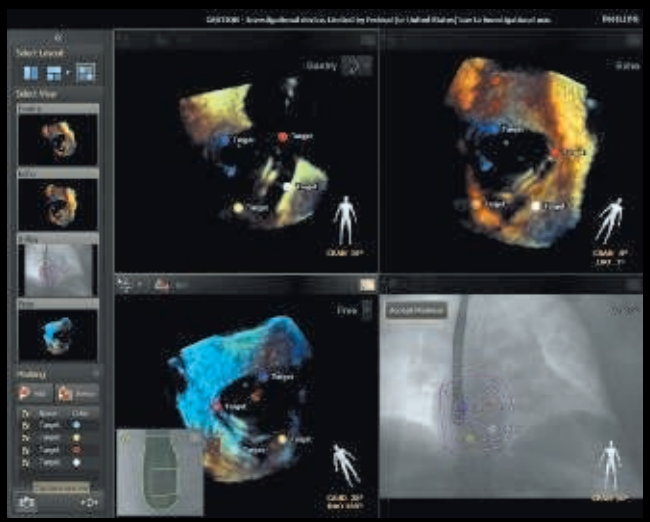

**X8-2t 3D color AS AI new MPR**

## EchoNavigator

**iXR integration**

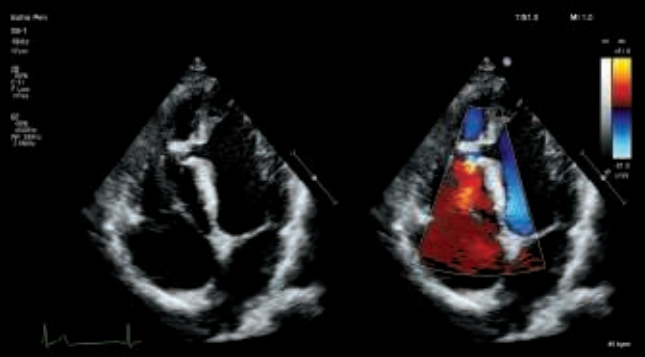
Connectivity to EchoNavigator via our digital network link enhances communication on modern structural interventions using 3D TEE. Users can appreciate anatomy with multiple views of Live 3D TEE, availability of virtual echo scanning, and echo target localization on fluoro.

The real-time integration of EchoNavigator between fluoroscopy and Live 3D TEE provides automatic registration and tracking – all controlled tableside.

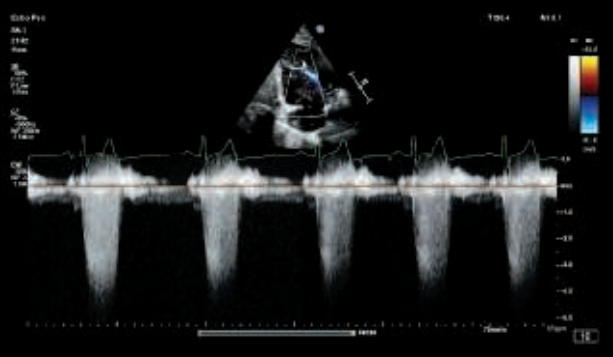


**Real-time integration of iXR and Live 3D TEE images**

# New levels
## of clinical information

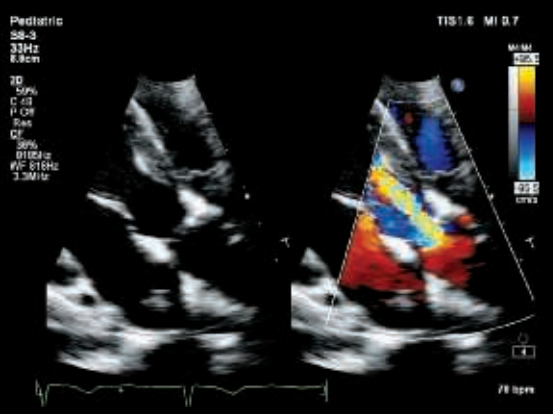


S5-1 color compare VSD

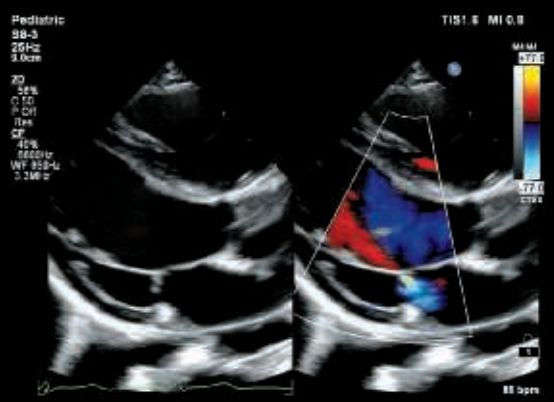


S5-1 color CW VSD

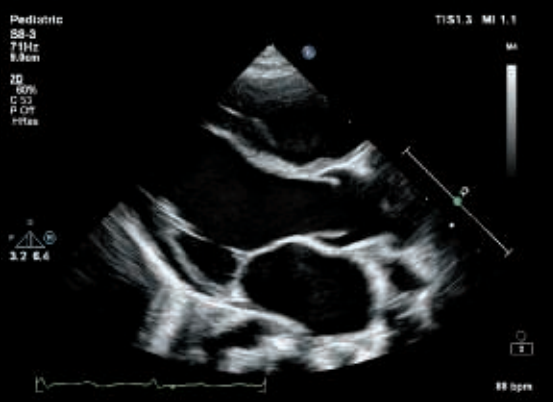
S8-3 2D AP4



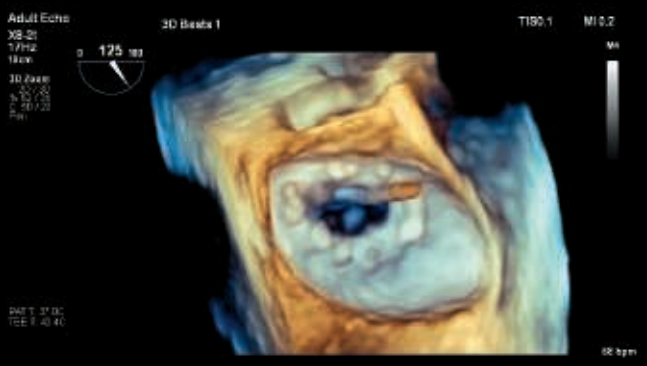
Normal mitral valve in dual imaging



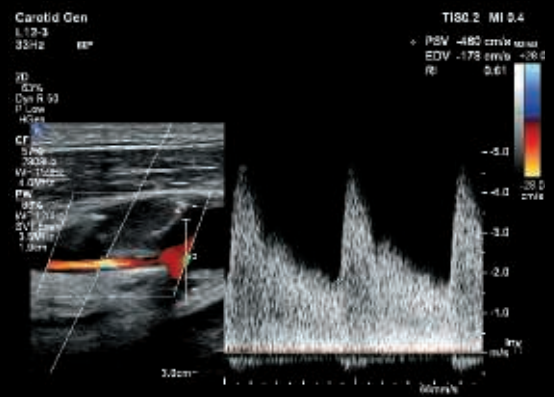
S8-3 2D color compare PLAX MR VSD



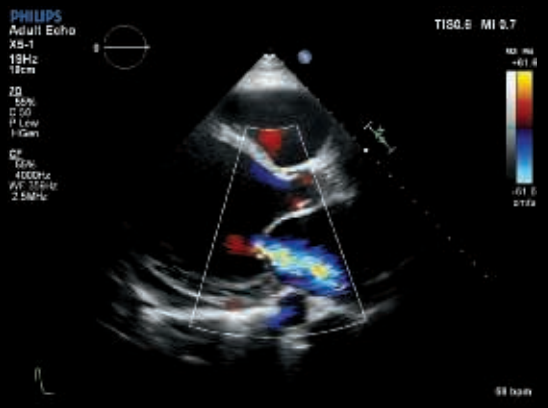
S8-3 2D PLAX MR VSD



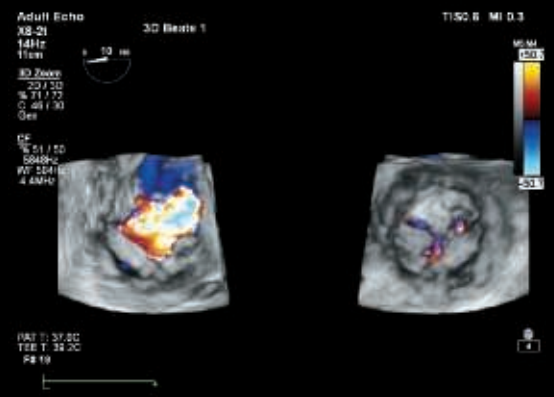

X8-2t 3D zoom MV intervention




EPIQ L12-3 PW severe ICA stenosis




EP7 X5 PLAX LV MR




X8-2t 3D zoom color MV repair dual volume


X8-2t 3D zoom MV repair


EP7 x5 coronaries

# Count on us
## as your patients count on you

The value of a Philips ultrasound system extends far beyond technology. With every EPIQ 7C system, you get access to our award-winning service organization,* competitive financing, and educational tools that help you get the most out of your system.**

### Always there, always on

We work as one with your team to keep your EPIQ 7C system running smoothly.

**Remote service capabilities maximize efficiency**

Easy, rapid technical and clinical support through remote desktop enables a virtual visit with a Philips expert.

If you prefer to keep your know-how in-house, the OmniSphere Remote Technical Connect application† allows your BioMed team remote access to Philips systems on your network so that you can have remote service capabilities your way.

**Remote software distribution boosts performance over the entire system lifecycle**

Remote software distribution provides a simple, convenient, and safe process to seamlessly receive updates at a time the suits you, keeping your system at peak performance now and in the future.

**Proactive monitoring solutions maximize uptime**

Philips proactive monitoring increases system availability by predicting potential system disruptions and proactively acting on them, letting you focus on what is most important – your patients.

**Immediate support request at your fingertips**

The support request button allows you to enter a request directly from the control panel, for a fast and convenient communication mechanism with Philips experts without leaving your patient, minimizing workflow interruption.

**On-cart transducer test provides confidence in your transducer quality**

On-cart transducer test provides a non-phantom method to test EPIQ 7C transducers at any time, giving you confidence in your diagnostic information.

### Sharing risk, increasing the return on your investment

Partner with us to maximize utilization and uptime of your EPIQ 7C system.

**Utilization reports for confident decision-making**

Data intelligence tools can help you make informed decisions to improve workflow, deliver quality patient care, and decrease the total cost of ownership. The on-board utilization tool provides individual transducer usage data and the ability to sort by exam type. The OmniSphere Utilization Optimizer takes this a step further by providing easy-to-use charts and graphs for all of your applicable† networked Philips systems.

### Understanding your needs, designed for you

Our flexible RightFit service agreements, education offerings, and innovative financing solutions can be adapted to meet your needs and strategic priorities.

- **Technology Maximizer Program:** helps keep your system performing at its peak by continuously providing the latest software from Philips at a fraction of the cost of the same upgrades purchased individually over time.
- **Xtend Coverage:** lets you choose additional service coverage for your ultrasound equipment at the time of purchase to more easily calculate your total cost of ownership.
- **Clinical education solutions:** comprehensive, clinically relevant courses, programs, and learning paths designed to help you improve operational efficiency and enhance patient care.

* Philips is rated number one in overall service performance for ultrasound for 23 consecutive years in the annual IMV ServiceTrak survey in the USA.
** Optional. Not all services available in all geographies; contact your Philips representative for more information. May require service contract.
† Check with your Philips representative for system compatibility.

## ISSL technology

- This industry-standard protocol meets global privacy standards and provides a safe and secure connection to the Philips remote services network using your existing Internet access point.
- Business optimization tools such as OmniSphere allow you to use the power of data and connectivity to generate actionable insights and enhance productivity to improve your return on investment.

## Exceptional serviceability

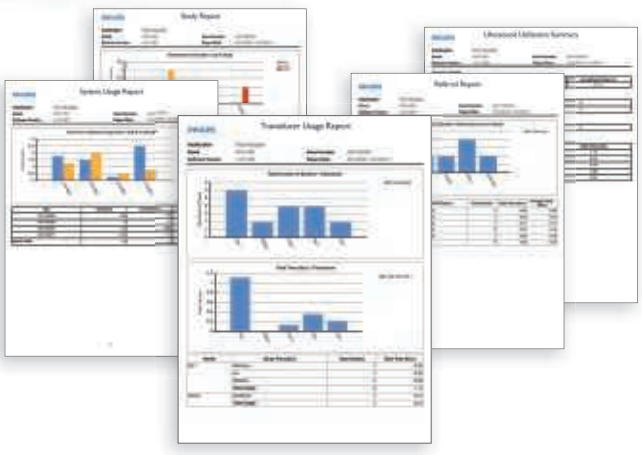
### The system features outstanding modular design for rapid repair.

**Intelligent software architecture**
Software is easily optimized, maintained, and restored by the service user without risk to patient data, giving you peace of mind when dealing with software anomalies and confidence that your data is safe.

This software architecture takes patient data privacy to a new level. Patient data is stored on a separate partition and physical location to provide protection and ease of removal, providing you total control of your data.

**Clinical education solutions**
Our comprehensive, clinically relevant courses, programs, and learning paths are designed to help you improve operational efficiency and enhance patient care.

Service Request button for immediate access to Philips support.



Philips ultrasound utilization tool provides individual transducer usage and the ability to sort by exam type.

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