Turning images into answers

Philips **QLAB 10** advanced ultrasound quantification software

PHILIPS

Providing insight to support your clinical decisions

How do you measure confidence? For clinicians around the world, the answer is QLAB. QLAB is a collection of advanced clinical tools that make results more quantifiable, bringing more confidence to every study.

QLAB is designed to make it easy to get the data you need to drive decisions that can result in quality patient care and operational efficiencies. You can customize the capabilities of QLAB with the tools that best suit your needs, whether analyzing breast lesions for stiffness; rendering iSlice images from your cardiac, abdominal, OB, or GYN 3D data sets; performing complex contrast studies; monitoring a tumor's response to therapy; quantifying ejection fraction; or dealing with the complexities of managing cardiovascular disease or heart failure.

Anatomical Intelligence Ultrasound (AIUS)

AIUS is designed to elevate the ultrasound system from a passive to an actively adaptive device. With advanced organ modeling, image slicing, and proven quantification, exams are easier to perform, more reproducible, and deliver new levels of clinical information. AIUS ranges from automating repetitive steps to full-blown computer-driven analysis with minimal user interaction – all using anatomic intelligence and all providing the results you need. In fact, many of our tools come with ZeroClick technology, which means that, once loaded, the tool does it all for you.

QLAB is for you if you are interested in
- Advanced organ modeling, image slicing, and proven quantification for exams that are easier to perform, more reproducible, and deliver new levels of clinical information
- Viewing, manipulation, and measuring 3D data sets
- Advanced image analysis tools for 2D and 3D quantification, and color Doppler quantification
- Performing contrast studies
- Assessing the intima thickness of vascular structures, such as the carotid arteries
- Off-cart cardiac viewing, rendering and advanced quantification in 2D, color and 3D imaging modes
- Creating graphic files in BMP, TIF, JPG, and AVI formats for presentation purposes

QLAB 10 adds exceptional power and intelligence to advanced quantification
- New user interface
- New Q-Apps that utilize anatomical intelligence
- Exam worklist instead of an image-based interface for ease of use
- Patient study management, image review, and advanced visualization and quantification

The following Q-Apps are available with QLAB 10*

Q-App	Description	AB/SM	VASC	BRST	GYN	OB	ONC	CARD
GI 3DQ	• 3D tools that support the viewing and quantification of 3D data sets • Allows you to view, crop, rotate, access, and use all vision controls, and perform everyday measurements on 3D ultrasound data sets	●	●	●	●	●	●	
Region of Interest (ROI)	Designed for both contrast and 2D imaging to increase the consistency and reliability of acoustic measurements	●	●	●	●		●	●
MicroVascular Imaging (MVI)	Maps contrast agent progression and enhances vessel conspicuity	●	●	●	●		●	
Intima Media Thickness (IMT)	Provides easy and consistent measurement of intima media thickness in carotids and other superficial vessels		●					●
Vascular Plaque Quantification (VPQ)	• Uses 3D technology to visualize and quantify the overall volume of atherosclerotic plaque in the carotid artery • Automatically measures plaque burden or how much plaque is present throughout the captured volume • Measures the percent area of vessel reduction and other characteristics of plaque composition		●					
General Imaging Parametric Quantification (GI PQ)	Aids in the review and analysis of contrast wash-in/wash-out intensities, expressing that data in an easy-to-interpret, color-coded format	●	●	●			●	
Elastography Quantification (EQ)	Provides strain elastography quantification of tissue deformation based on an elastogram and provides decision support for tissue stiffness			●	●		●	
Fetal Heart Navigator (FHN)	• Provides a semi-automated protocol using 3D datasets to evaluate the fetal heart • Automates the initial ductal arch view and guides the novice user in obtaining views recommended in the ISUOG Fetal Cardiac Screening Guidelines					●		
Strain Quantification (SQ)	Measures the myocardial velocity from color tissue Doppler							●
Automated 2D Cardiac Quantification[A.I.] (a2DQ[A.I.])	• Automatic border detection of LV • Rapid access to proven 2D EF and volumes							●
Automated Cardiac Motion Quantification[A.I.] (aCMQ[A.I.])	• Automatically draws a region of interest based on the selected anatomical view and generates measurements of the global and regional myocardial functions and reports them in a table, 17-segment bull's-eye, and a variety of waveform displays • Additionally computes LV ejection fraction (EF), end systolic volume (ESV) and end diastolic volume (EDV)						●	●
CMQ Stress	Based on 2D speckle tracking technology, provides a method for assessing global, regional, and local cardiac function at rest and effort							●
Cardiac 3D Quantification (3DQ)	View, slice, and display 3D volumes and measure distance and areas from 2D MPR views to get biplane LV volume, ejection fraction (EF) and LV mass calculations							●
Cardiac 3D Advanced Quantification (3DQ Advanced)	• Measures LV endocardial volumes, stroke volume (SV) and true 3D ejection fraction (EF) using semi-automated border detection in 3D space • 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						●	●
Mitral Valve Navigator[A.I.] (MVN[A.I.])	Easy-to-use guided tool to provide a comprehensive list of MV and its supporting anatomical measurements and calculations							●

AB/SM - Abdominal/Small parts **VASC** - Vascular **BRST** - Breast **GYN** - GYN **OB** - OB **ONC** - Oncology **CARD** - Cardiology

*Note: Not all Q-Apps are compatible with all products. Please contact your sales representative for additional information.

Advanced analysis and image presentations for general ultrasound and volume imaging

QLAB provides effective and streamlined analysis and image presentation tools for abdominal and small parts ultrasound imaging.
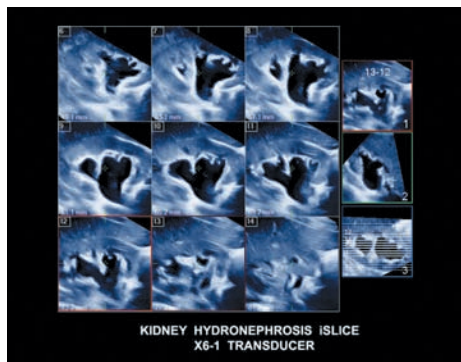
Abdominal and small parts ultrasound with QLAB

- ROI – Region of Interest 2D, CEUS and color quantification
- GI 3DQ – 3D volume manipulation, quantification, and iSlice
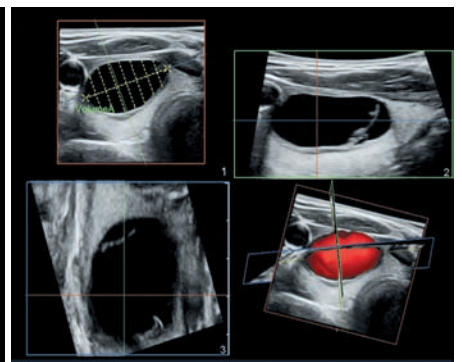- MVI – MicroVascular Imaging

Today's state-of-the-art transducers are capable of capturing more data than ever – a capability that corresponds to the need for efficient ways to analyze and present that data. For example, the new generation of 3D-capable transducers, including the xMATRIX X6-1, creates a need for effective methods of manipulation, interrogation, and analysis of 3D data sets. Philips PureWave technology in transducers such as the C5-1 and the all new C9-2, as well as advances in contrast imaging, necessitate the ability to track, process, and analyze these rich image types over a period of time. In addition, analysis of high-frequency 2D and color images of superficial structures can determine subtle tissue differences.
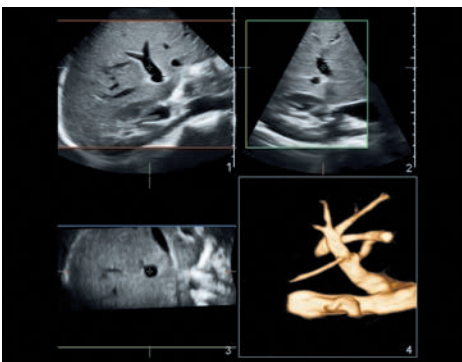
3D Invert image of liver vasculature

Volume iSlice of a kidney

Stacked contours and volume calculation of a thyroid nodule

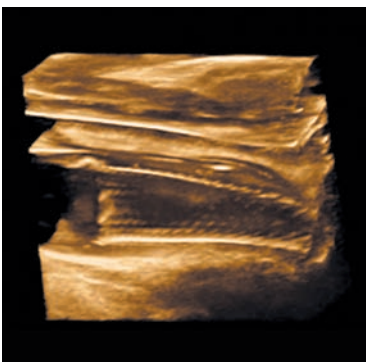# Advanced ultrasound analysis for vascular imaging

Today's Philips ultrasound systems provide high-resolution 2D and 3D images and exceptionally sensitive color Doppler.
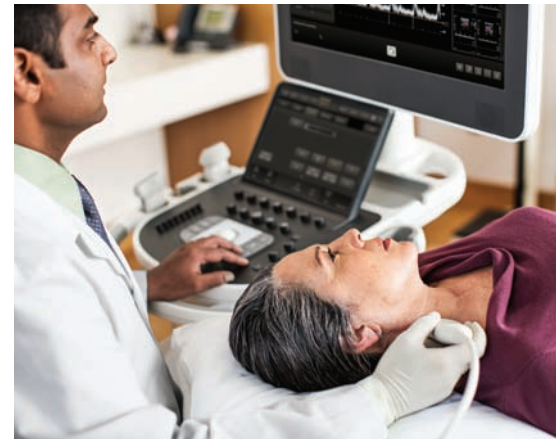
Vascular ultrasound with QLAB

- IMT – Intima Medial Thickness
- VPQ – Vascular Plaque Quantification
- MVI – MicroVascular Imaging
- ROI – Region of Interest 2D, and color quantification
- GI 3DQ with ROI – 3D volume manipulation, quantification and iSlice

QLAB provides the clinician additional clinical confidence when managing vascular patients, whether the challenge is predicting the risk of cardiovascular disease or monitoring a kidney transplant. It also allows for quantification of total plaque burden, calculation of percent area of vessel reduction, and assessment of plaque composition.

3D Volume rendering of a carotid stent

Plaque Volume Quantification from a carotid volume
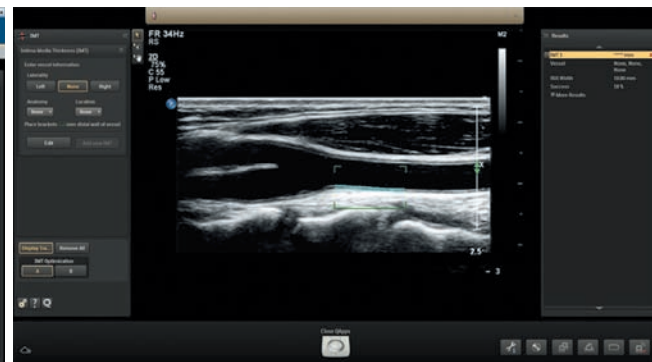
Intima Media Thickness (IMT) measurement

Advanced ultrasound analysis and workflow in women's healthcare

Women's healthcare uses ultrasound imaging to shed light on breast health and OB/GYN issues. QLAB offers a variety of tools that provide quantitative data to increase confidence in women's health diagnoses.

As advanced techniques have evolved in the complementary imaging methods of mammography and ultrasound, so have techniques to quantify breast imaging results. QLAB breast and GYN elastography allows you to offer this exciting new technique to your patients. For OB/GYN volume acquisitions, QLAB provides 3D interrogation, providing volume measurements and visualization of 2D information derived from the volume. Fetal Heart Navigator guides the user in obtaining the standard diagnostic views of the fetal heart from 3D datasets.

QLAB solutions for women's health

Breast imaging
- EA – Elastography Analysis
- MVI – MicroVascular Imaging
- ROI – Region of Interest 2D, CEUS and color quantification
- GI 3DQ – 3D volume manipulation, quantification and iSlice

GYN imaging
- GI 3DQ – 3D volume manipulation, quantification and iSlice
- ROI – Region of Interest 2D, CEUS and color quantification
- MVI – MicroVascular Imaging
- EA – Elastography Analysis

3D OB imaging
- FHN – Fetal Heart Navigator
- GI 3DQ – 3D volume manipulation, quantification, and iSlice
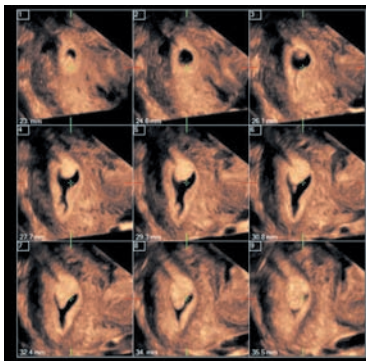
iSlice display of a uterine polyp
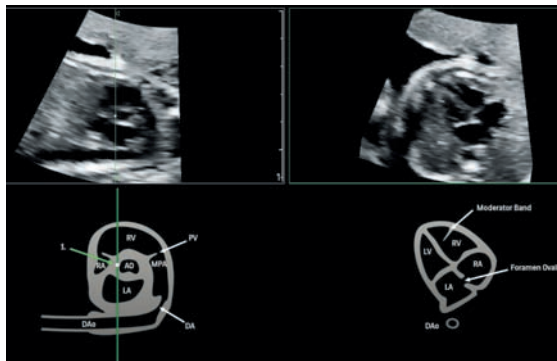
Fetal Heart Navigator

STIC acquisition invert image

Advanced ultrasound analysis for managing the oncology patient

QLAB advanced quantification provides essential, easy-to-use analysis tools that increase the value of ultrasound imaging for oncology patients, such as analysis of a tumor's response to therapy or monitoring global and regional cardiac function of patients on chemotherapy.

QLAB solutions for oncology imaging

Tumor assessment and monitoring

- ROI – Region of interest 2D, CEUS and color quantification
- GI 3DQ – 3D volume manipulation, quantification, and iSlice
- GI PQ – CEUS Parametric Quantification
- MVI – MicroVascular Imaging
- EA – Elastography Analysis

Global and regional cardiac function

- aCMQ[A.I.] – Automated Cardiac Motion Quantification[A.I.]
- 3DQ Advanced – Advanced Cardiac 3D Quantification

iSlice presentation of a breast nodule

Region of Interest (ROI) quantification of liver lesion contrast
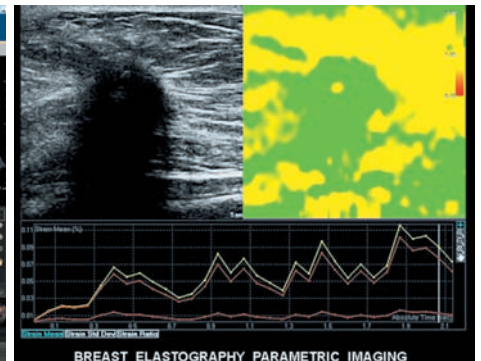
Parametric display of breast elastography

Advanced ultrasound analysis for cardiology imaging

Accurate and fast ejection fraction calculations

An essential component of nearly every echo exam, ejection fraction is among the chief echocardiographic parameters predictive of impending left ventricular dysfunction and clinical deterioration, and is an important factor to consider when planning surgical correction.

Common methods, such as M-mode or 2D distance (M-mode parasternal long axis) measurements are quick and well-established. However, they may sacrifice accuracy for speed, which is particularly problematic given that small differences in ejection fraction can indicate considerable differences in patient management.

The QLAB solution suite for ejection fraction (EF)
- Automated Cardiac 2D Quantification – a2DQ
- Automated Cardiac Motion Quantification – aCMQ
- Cardiac 3D Quantification – 3DQ
- Advanced Cardiac 3D Quantification – 3DQ Advanced
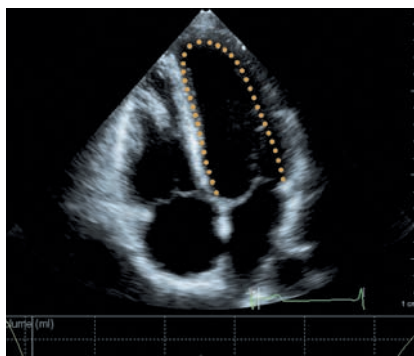
Automated 2D Cardiac Quantification[A.I.] **(a2DQ**[A.I.]**)**
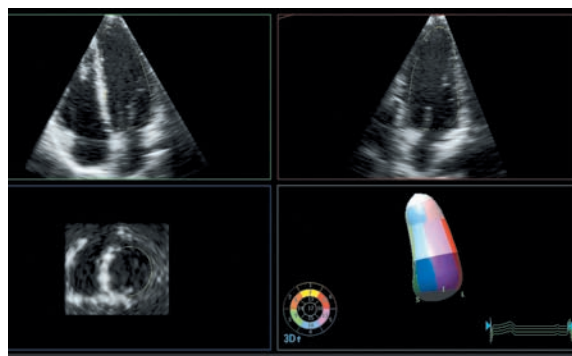
Advanced Cardiac 3D Quantification (3DQA)
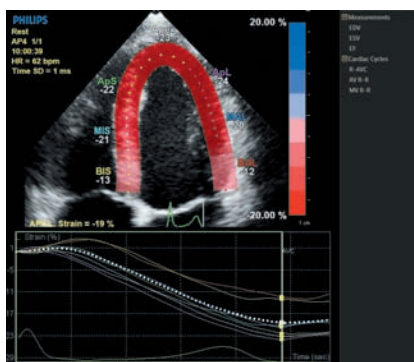
CMQ Stress

Less guesswork in diagnosing ischemia

Stress echo can be the first line of defense in diagnosing ischemia. But if the study is inconclusive, stress echo becomes a time-wasting detour on the road to diagnosis and treatment.

QLAB offers several tools that may improve the efficacy, efficiency, and objectivity of stress exams.

The QLAB solution suite for ischemia
- Automated Cardiac Motion Quantification – aCMQ
- Automated Cardiac Motion Quantification Stress Echo – CMQ Stress
- Parametric Quantification and Region of Interest – PQ and ROI
- Any of the EF Q-Apps

Managing heart failure patients

Cardiac Resynchronization Therapy may improve the survival rates of heart failure patients who respond to this therapy. However, the established method of assessment doesn't always accurately predict a positive response, resulting in inefficient and ineffective use of an expensive therapy. Any new assessment method must be easily integrated into standard echo studies. In addition, it would be useful to have a tool to plan where to place pacemaker electric leads to correct the asynchronous beating of the left and right ventricles.

The QLAB solution suite for heart failure
- Intima Media Thickness – IMT
- Automated Cardiac Motion Quantification[A.I.] – aCMQ[A.I.]
- Advanced Cardiac 3D Quantification – 3DQ Advanced

Advancing treatment of structural heart disease

As the incidence of structural heart disease rises, accurate visualization and measurement methods are increasingly desired to perform complex therapies. Reference studies have shown that patients with mitral valve repair live longer than patients with replaced valves, and measurement of structures is essential to determine device size.[1] Pre-planning consultations with surgeons can improve OR efficiency if they include accurate information that surgeons can use to choose therapy methods and devices. In addition, as minimally invasive repair techniques come to the forefront for patients who cannot withstand surgery, confidence of the landscape is even more important in the absence of direct visualization.

**The QLAB solution suite for structural heart disease**
- Cardiac 3D Quantification – 3DQ
- Advanced Cardiac 3D Quantification – 3DQ Advanced with Aortic Valve Area (AVA)
- Mitral Valve Navigator[A.I.] – MVN[A.I.]

1. Mohty D, Orszulak TA, Scaff HV, Avierinos JR, Tajik JA, Enriquez-Sarano M. Very long-term survival and durability of mitral valve repair for mitral valve prolapse. 2001 Sep 18:104(12 Suppl 1):11-17.
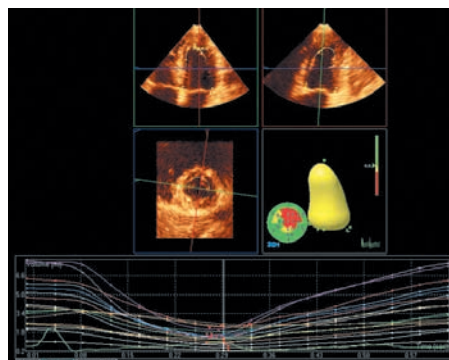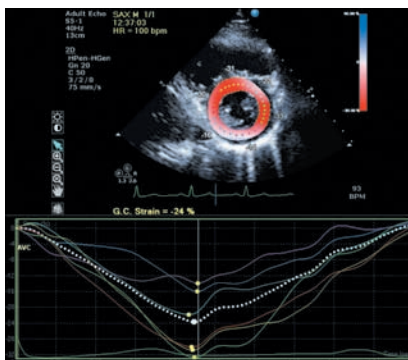
Side-by-side of CMQ and 3DQA to demonstrate LV regional function.

Clinical image gallery
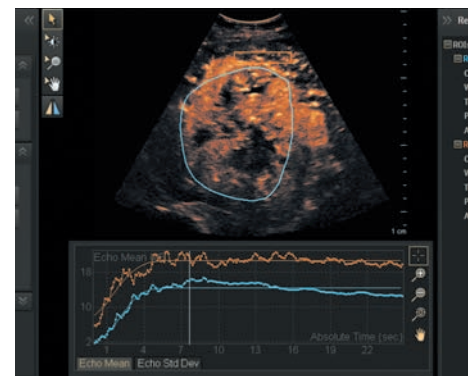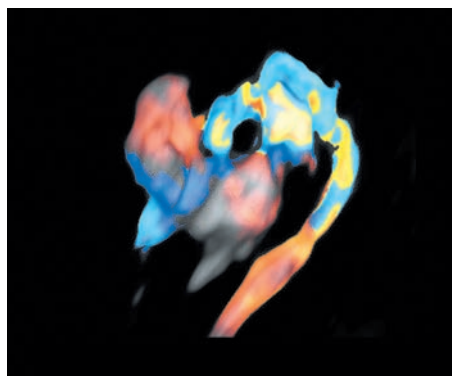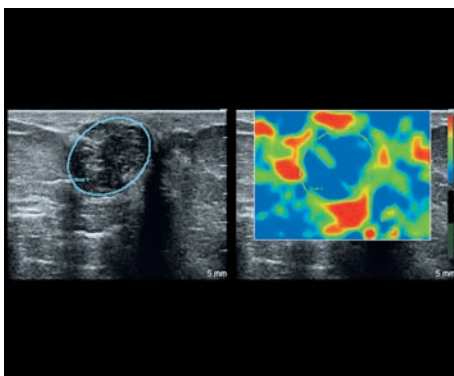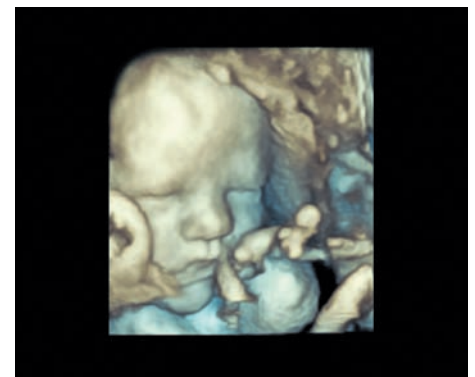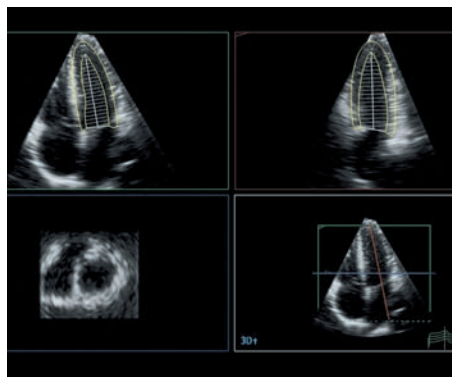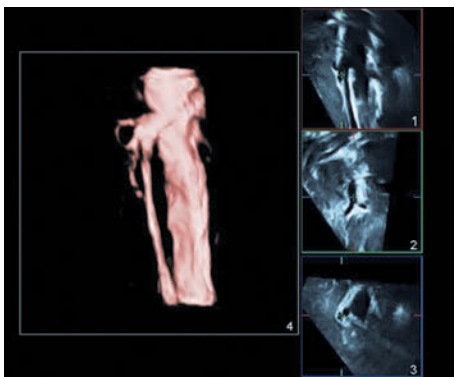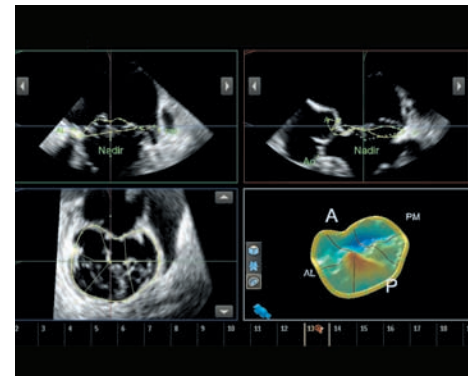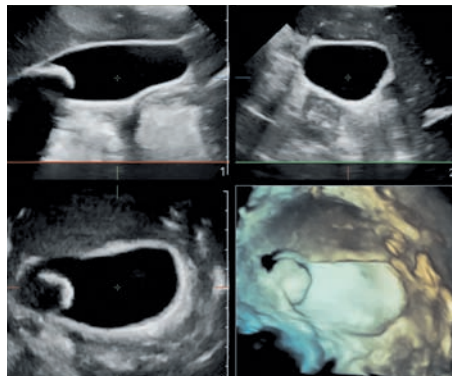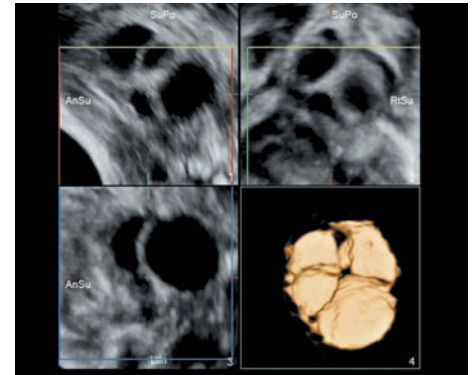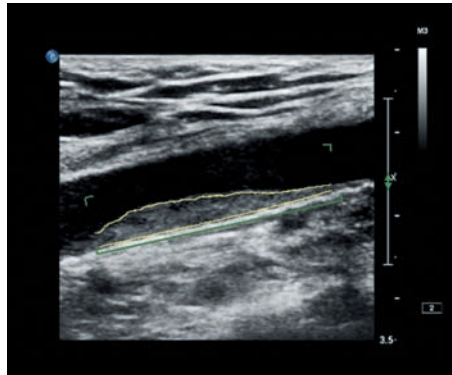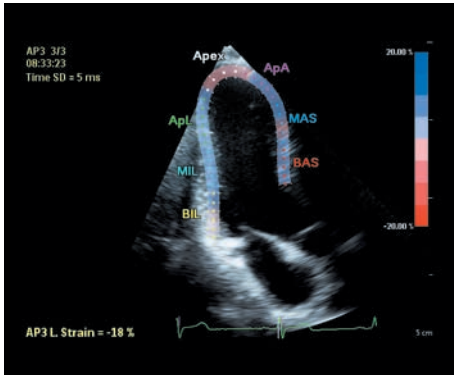
Working for you

Philips offers a variety of configurations that make it easy to integrate QLAB into your connected departmental workflow.

You can use QLAB on

- EPIQ 7 ultrasound system
- EPIQ 5 ultrasound system
- iE33 xMATRIX ultrasound system
- iE33 ultrasound system
- iU22 xMATRIX ultrasound system
- iU22 ultrasound system
- CX50 ultrasound system
- CX30 ultrasound system
- HD15 ultrasound system
- HD11XE ultrasound system
- PACS from several manufacturers*
- Your home or office computer

QLAB on Xcelera, Q-Station, and IntelliSpace PACS

Philips also offers QLAB on Xcelera, our leading echo lab management system, Q-Station ultrasound workspace software, and IntelliSpace PACS. Depending on the version of QLAB installed, the 2D and 3D quantification modules on Xcelera, Q-Station, and IntelliSpace PACS can provide you with the same QLAB functionality as other QLAB products, allowing you to perform cutting-edge quantitative analysis when and where you desire. You can also populate your Xcelera, Q-Station, or IntelliSpace PACS image database with images captured in QLAB.

* Check with your PACS manufacturer or Philips Account Manager for available QLAB solutions.

Please visit www.philips.com/QLAB

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