Supplemental material

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Heart

Supplementary Table 1. Commercial valve software

Vendor	Software	Valves Analyzed	Functionality
GE-Vingmed	4D Auto MVQ	Mitral	Dynamic modelling using 3D echocardiography. Is able to perform semi-automated measurement of mitral valve annular and leaflet geometry. This software works on stored 3D images and is not capable of real time assessment.
	4D Auto AVQ	Aortic	This software allows automated computation of the mid-systolic dimensions of the aortic annulus (maximum and minimum diameter, perimeter, and planimetered area) in 3 steps from 3D transesophageal echocardiograms.
	4D Auto TVQ	Tricuspid	Using 3D echocardiography, this software provides 15 static and dynamic measurements of the tricuspid valve using both TEE and TTE.
Philips	Mitral Valve Navigation	Mitral	Static modelling using 3D transesophageal echocardiography. This package measures dimensions and geometry of the mitral annulus, including valve area, volume, and tenting, to demonstrate leaflet pathology and subsequent changes after intervention.
	Aortic Valve Navigator	Aortic	During publication, this was a prototype model. Is not currently commercially available.
Siemens	eSie, Autovalve	Mitral, Aortic, Tricuspid	Dynamic and static modelling using 3D transesophageal echocardiography. This package allows automated detection, quantification, and modelling. Geometric analysis including annular area, diameter, height, inter-commissural distance, annular perimeter, leaflet length. Also allows for interactivity by placing valves in aortic and mitral position and simulating the effects on the surrounding structures. A total of 64 automated measurements can be performed categorized by diagnosis, intervention and surgery. For example, In the diagnosis category, some mitral valve measurements include mitral annulus diameters, perimeters, area, intertrigonal distance, valve orifice area, and intercommissural distance. This software is typically used with a specific system, Siemens ACUSON S2000 ultrasound system, and echo probe, True Volume Z6Ms.

TomTec Imaging Systems GmbH	TomTec-Arena	Mitral	Static and dynamic Modelling using 3D echocardiography. This program provides geometric measurements such as annular dimension, leaflet morphology, coaptation descriptions. Advanced navigation options and flexible manual measurements in 2D and 3D allows for individualized planning.