



PHILIPS

Ultrasound

Affiniti 70

Diagnostic confidence for challenges in cardiovascular echo imaging

Where

Cardiovascular Center Aalst, OLV Clinic, Aalst, Belgium

Who

Martin Penicka, MD, PhD, Cardiologist

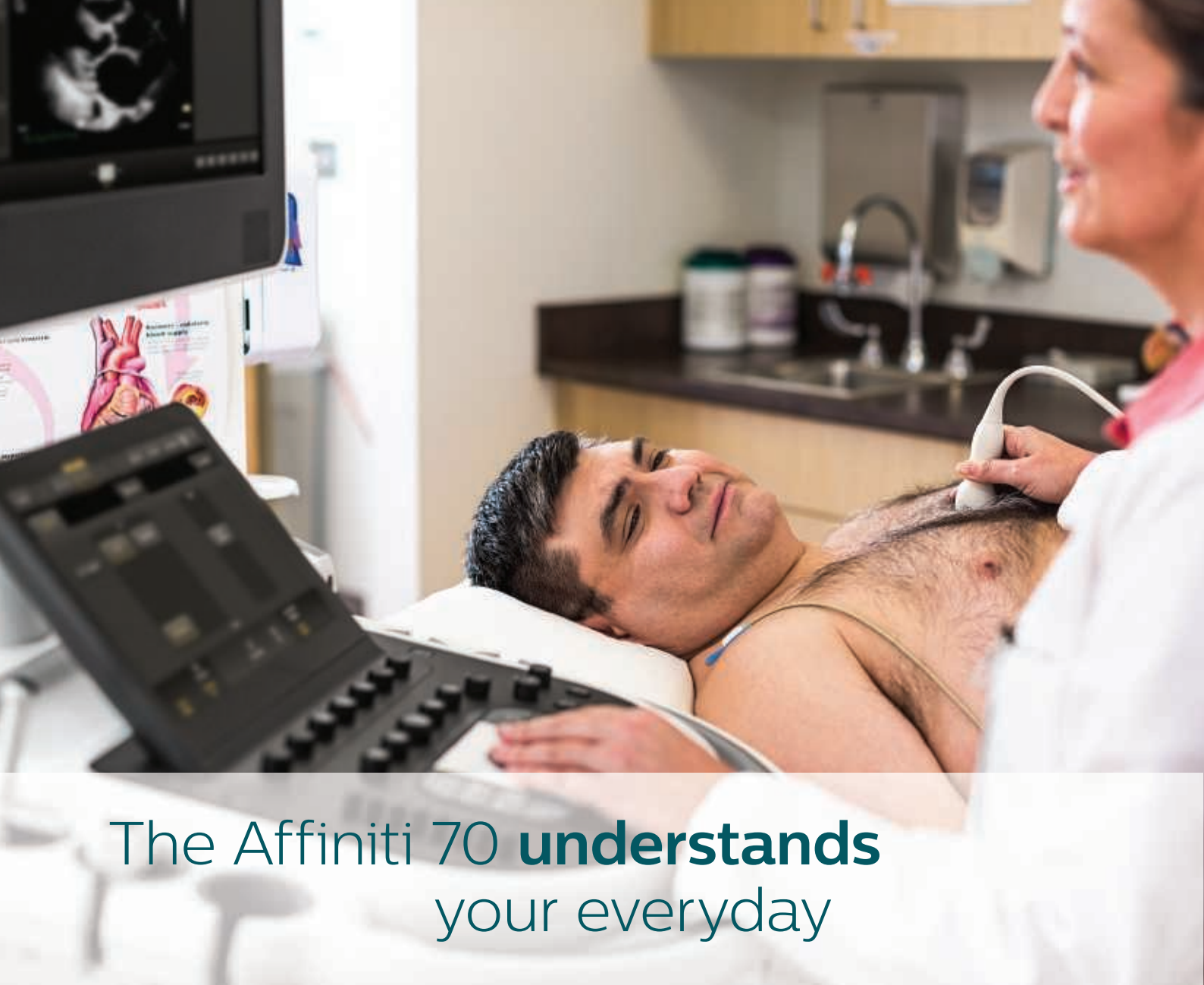
Challenge

High patient volume, cost pressures,
and throughput demands

Solution

Philips Affiniti 70 for high quality cardiology imaging
across patient types and clinical settings

Facilities facing high patient volume, cost pressures, and throughput demands are finding the Philips Affiniti 70 ultrasound system offers the performance necessary to meet these everyday challenges, even in light of the increasing complexity of cardiovascular disease.



The Affiniti 70 **understands** your everyday

Dr. Martin Penicka leads the noninvasive cardiology unit of the Cardiovascular Center Aalst, OLV Clinic, Aalst, Belgium, which is the largest center of its kind in the area. The center performs more than 25,000 transthoracic echocardiography (TTE) exams, 2,000 transesophageal (TEE) exams, and 500 stress echo exams per year.

Affiniti enhances diagnostic confidence

The center uses the Philips Affiniti 70 ultrasound system to perform approximately 50 scans per week, relying on its image quality and the effect that has on diagnostic confidence. Dr. Penicka said, “The diagnostic accuracy allowed for by the Affiniti system is very important for me. I must say I am really impressed in a positive way. We use the system in different clinical scenarios: with acute patients, stable patients, in the cath lab, and the intensive care unit. We also do TEE examinations and stress echoes and use contrast. We have patients of different gender and body sizes. In all of these cases, the system performs nicely. I never have any doubt about the diagnostic accuracy of an examination.”

Affiniti 70 with PureWave

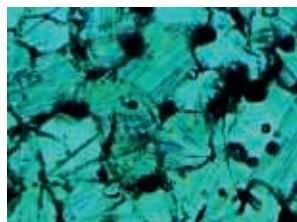
The precision beamforming capabilities of the Affiniti 70 combined with PureWave technology supports excellent image quality, even in the technically difficult patient.

PureWave uses pure, uniform crystals that are 85% more efficient than conventional piezoelectric material. This technology allows for exceptional levels of detail and contrast resolution, and for improved penetration at higher frequencies. This removes the traditional trade-off between penetration and resolution.

An everyday system with top-quality imaging

Dr. Penicka and his clinical team use the Affiniti 70 ultrasound system on a wide range of patient types, including technically difficult patients. Dr. Penicka views the Affiniti 70 as a system with good image quality, and offering excellent ergonomics and mobility across multiple healthcare settings.

“The system is good for a cardiologist in private practice who would like to provide very good service with high-quality scans. It is also a good system for the hospital because it combines mobility with very good image quality in all the different clinical settings. You can even do TEE and stress echo. It’s a middle-range, middle-sized system providing top-quality imaging,” he said.



**Conventional
(x800)**



**PureWave
(x800)**

Affiniti 70 in cardiovascular imaging

The Affiniti 70 ultrasound system offers a complete cardiovascular solution, providing both adult and pediatric echocardiography (including TEE), stress echocardiography, left ventricular opacification, vascular imaging, and quantification tools.



Clinical cases

Affiniti 70 and the technically difficult patient

“I think the S5-1 is really a step forward in quality. I find it enhances image quality in at least two-thirds of the patients.”

Martin Penicka, MD, PhD, Cardiologist



Case 1

Mitral valve disease

A 78-year-old man had been admitted to the coronary care unit for acute pulmonary edema. The medical history was difficult to obtain due to a language barrier. One week prior to admission, he experienced progressive dyspnea. An urgent echocardiography examination showed slightly dilated left atrium and left ventricle with moderately reduced ejection fraction of 39% due to the diffuse hypokinesia. A detailed image of the mitral valve showed flail of the posterior leaflet of the mitral valve due to the rupture of the chordae resulting in severe mitral regurgitation (**Figure 1** and **Figure 2**). The patient was referred for mitral valve repair.

In this life-threatening acute situation, we highly appreciated several features of the Affiniti 70 system. First, the high mobility of the system, allowing easy manipulation in a limited space such as the coronary care unit. Second, the quick reboot from the sleep mode proved to be very useful in the urgent setting where each second mattered. Third, excellent two-dimensional and color Doppler image quality of the Affiniti 70 provided the clinical information necessary to make a diagnosis in this challenging clinical situation.

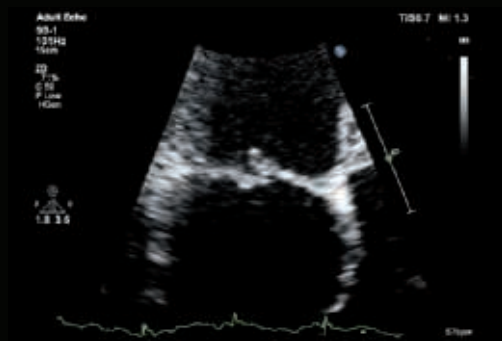


Figure 1 Two-dimensional image zoomed at the mitral valve. A flail of the posterior mitral leaflet has been noted.

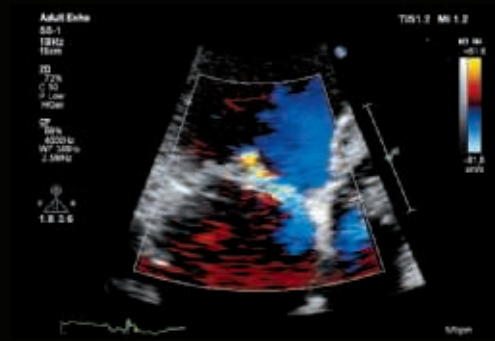


Figure 2 Color Doppler image showing severe mitral regurgitation with a very eccentric jet along the interatrial septum.

Case 2

Complex heart failure

A polymorbid elderly woman had been admitted to the cardiology department for increasing dyspnea. She was known to have a severely reduced left ventricular ejection fraction on the basis of valvular cardiomyopathy. She had suffered from several episodes of endocarditis resulting in aortic valve replacement and mitral valve replacement. A biventricular ICD had been implanted. Her medical history also included peripheral artery disease and severe renal insufficiency. At admission, her INR was in the sub-therapeutic range. Echocardiography was indicated for evaluation of valve function, and to elucidate the cause of dyspnea.

During echocardiography, the patient showed dilated, poorly contracting left ventricle and normal function of the right ventricle with clearly visualized ICD lead (Figure 3). The mechanical mitral valve prosthesis showed normal motion of both discs, limiting the possibility of

clinical valve thrombosis. Furthermore, interrogation of aortic valve homograft revealed a moderate transvalvular aortic regurgitation. Finally, a moderate tricuspid regurgitation with regurgitant gradient of 50 mmHg was noted (Figure 4).

This case is an example of the increasing complexities with which patients are presenting to the cardiology department. These patients often have a history of multiple cardiac interventions including device implantations, repeated myocardial revascularizations, and heart operations with concomitant dysfunction of other organs. In this situation, the need for accurate and reliable echocardiography system is of the utmost importance. Excellent two-dimensional image resolution coupled with the sensitive color Doppler assessment make the Affiniti 70 a highly suitable system to make a differential diagnosis in these complex situations.

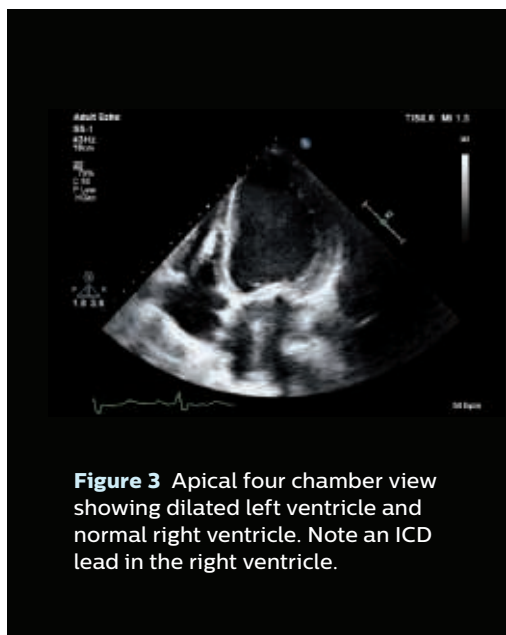


Figure 3 Apical four chamber view showing dilated left ventricle and normal right ventricle. Note an ICD lead in the right ventricle.

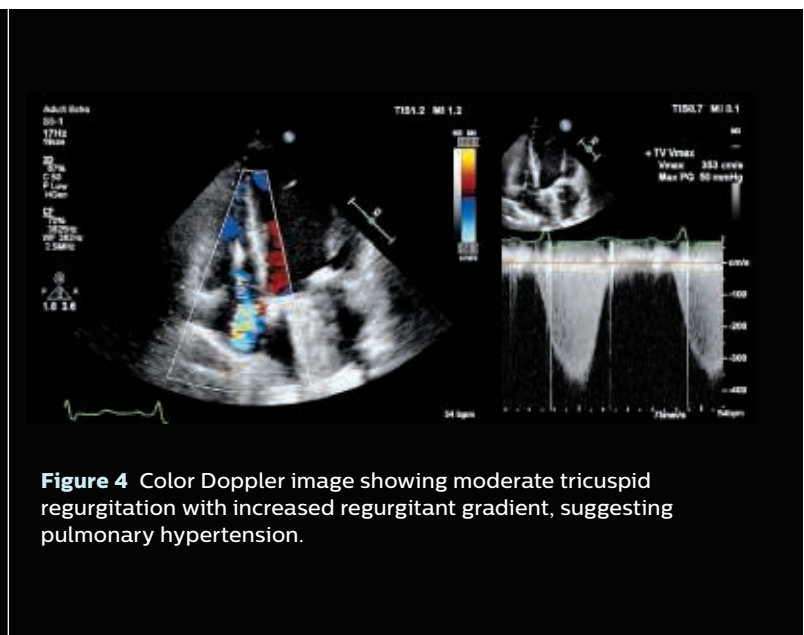


Figure 4 Color Doppler image showing moderate tricuspid regurgitation with increased regurgitant gradient, suggesting pulmonary hypertension.



A full array of transducers offers you excellent image quality on a variety of exam types.

“It helps when scanning difficult patients. You have enhanced image quality and so you can make a better diagnosis and rely on the diagnosis.”

Martin Penicka, MD, PhD

In an emergency, **seconds count**

Dr. Penicka said, “We use the Affiniti system in the hospital for routine echo but also we use the advantage of its small size and mobility in more acute situations, for example, to scan the patient in the emergency department or the coronary care unit.”

The combination of image quality, mobility, and the sleep function that allows the system to come back to full functionality in seconds helps in acute cardiovascular care situations when time is critical.

“It’s a system that has very good image quality even if you go to an acute patient. You need a really quick decision and the next few minutes matter for management of the patient. You can rely on the Affiniti system. You can start up the system very quickly. When you really need to do a quick assessment with good image quality in a critical situation, that’s a big help,” he says.



