



PHILIPS

Ultrasound

Customer story

Enhancing diagnostic **confidence** in the technically difficult patient

Philips Affiniti 70 with PureWave technology

Putting Affiniti to the test

A study of abdominal exams at Freeman Hospital comparing the Affiniti ultrasound system with the C9-2 and/or C5-1 PureWave transducers to comparable competitive products* demonstrated that:

- The C9-2 and C5-1 transducers feature outstanding usability with little or no need for image adjustment and enhance diagnostic confidence through improved penetration and color Doppler sensitivity
- Using the C9-2 and/or C5-1, the site was able to complete the exam in 100% of cases compared with only 36% using the reference systems
- The C9-2 and/or C5-1 provided additional diagnostic information not provided by the reference systems in 91% of cases
- This additional diagnostic information changed the call in 50% of cases (the cases would otherwise have been referred to MR or CT for further evaluation)

* Compared to comparable competitive products based on 22 abdominal exams using the Affiniti ultrasound system with C9-2 and/or C5-1 PureWave transducers.

The Philips Affiniti 70 ultrasound system has been in use in the busy radiology department of Freeman Hospital NHS in Newcastle upon Tyne, UK, giving clinicians an opportunity to experience its clinical benefits across a wide variety of patient types, including technically difficult patients.



Affiniti 70 with **PureWave** in general imaging

Affiniti 70 is the only system in its class to offer PureWave imaging across all major clinical segments, with transducers that are clinically proven to increase penetration in technically difficult patients.

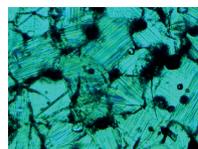
Ben Stenberg, PhD, who has used the Affiniti 70 system across a number of challenging cases, regards it as a problem-solving tool for the department that is valuable in resolving everyday challenges that are sometimes beyond the capabilities of other ultrasound systems.

The facility uses the Affiniti 70 both within the main radiology department and also as a mobile unit on the wards to allow high-quality ultrasound scanning to come to patients too ill for transport to the radiology department to be scanned.

Affiniti 70 with the power of PureWave

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

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



**Conventional
(x800)**



**PureWave
(x800)**

Clinical cases

Affiniti 70 and the technically difficult patient

Case 1 Patient with hematuria and high BMI



Despite available system optimization on the reference system, a detected cyst in this patient with high BMI could not be made to appear anechoic upon initial ultrasound, and so clinicians were unable to determine with certainty whether the cyst was simple. Typically, this type of case would require follow-up contrast-enhanced CT for characterization and confirmation of benign status.

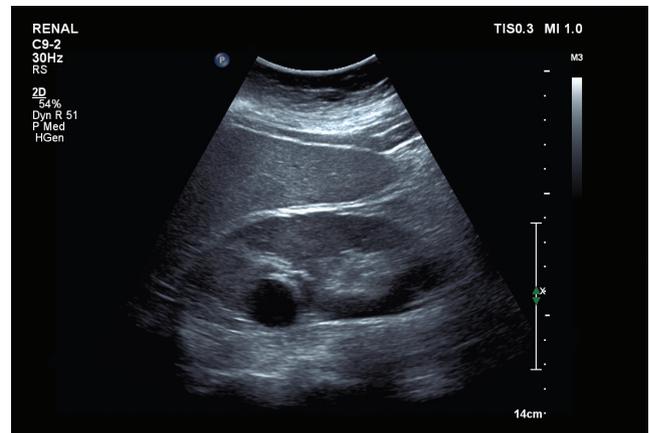
Instead, clinicians scanned the patient using the Affiniti 70. Using the renal preset on the C9-2 transducer immediately revealed the cyst as simple, requiring no further imaging or follow-up.

Reference system



Image from the initial scan with the reference ultrasound system.

Affiniti 70



Use of the Affiniti 70 with the C9-2 transducer allowed for enhanced diagnostic confidence in the case of this detected cyst, avoiding the need for a contrast-enhanced CT exam.

“Affiniti provides enhanced diagnostic confidence, reduced recall rates, and greater detail at depth in the technically difficult patient.”

Ben Stenberg, PhD
Radiology Department, Freeman Hospital NHS
Newcastle upon Tyne, UK

Case 2

Intraperitoneal kidney transplant

Imaging kidney transplant patients requires high-quality images and Doppler sensitivity, which can be particularly difficult on kidneys that are deeper and more awkwardly positioned intraperitoneally. Another challenge in this particular case was that the patient was too unwell to leave the intensive therapy unit (ITU) for scanning. An initial scan from the reference system produced insufficient image quality to provide information beyond the location of the kidney and a lack of hydronephrosis. Doppler assessment was also poor.

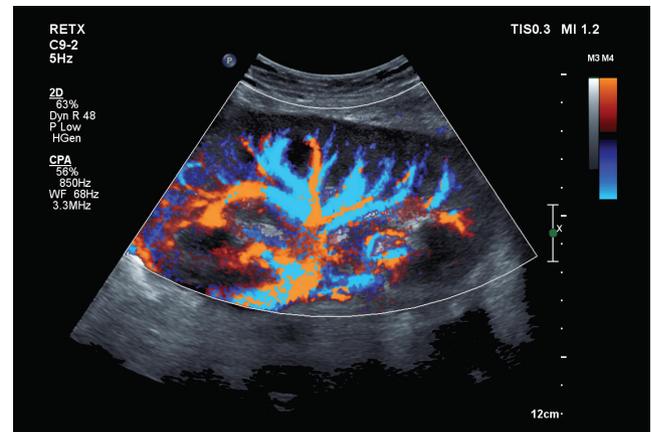
The clinical team has found that the quick sleep and reboot function of the Affiniti system makes it efficient to use as a mobile unit, and this patient was scanned in the ITU using the C9-2 transducer. Image quality in this case was greatly improved over the reference system, and combined with high Doppler sensitivity provided the scans necessary to enhance diagnostic confidence with regard to kidney perfusion, avoiding the need for additional imaging such as CTA.

Reference system



This reference scan demonstrated little information beyond kidney location and a lack of hydronephrosis.

Affiniti 70



Affiniti produced excellent image quality and high Doppler sensitivity to enhance diagnostic confidence.

Case 3

Non-alcoholic fatty liver disease

Fatty, attenuating livers have traditionally proven problematic for ultrasound. With an increased risk of developing hepatocellular carcinoma in this patient group, routine surveillance of the liver by ultrasound is standard practice, although assessment can be extremely difficult in grossly attenuating livers.

Clinicians found that the added penetration of the Affiniti 70 with the C5-1 PureWave transducer allows for enhanced diagnostic confidence in the detection or exclusion of focal liver lesions in patients such as this with attenuating livers and in particular gross fatty infiltration.

Reference system



Fatty, attenuating livers can present a challenge for ultrasound scanning.

Affiniti 70



Affiniti 70 with the C5-1 PureWave transducer allowed for enhanced diagnostic confidence in the detection or exclusion of focal liver lesions.

Case 4

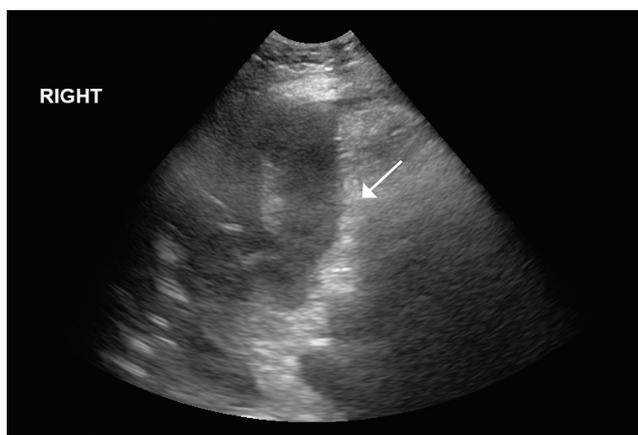
Hepatic artery and liver ischemia

This patient with an extensive right hemi-hepatectomy for cholangiocarcinoma had ruptured the left lobar hepatic artery, requiring re-intervention. Lactic acid had risen following this operation, suggesting further problems with the artery. The patient was intubated and too unstable to leave the ITU. Using the reference ultrasound system, the team was able to identify the remaining left lobe but nothing else. The lack of identified Doppler flow raised concerns among the surgical team. Clinicians judged that the problems were largely due to the limited window to access

the liver and the size of the patient. Additional examination using the Affiniti 70 system with the C5-1 transducer provided excellent penetration that could demonstrate that the hilar artery was patent but flow was sparse around the remaining liver tissue.

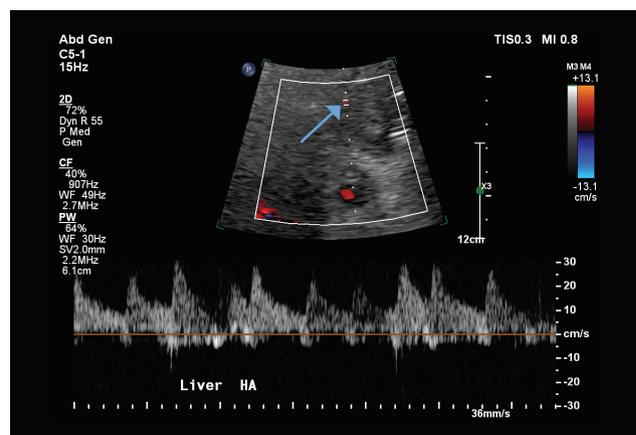
The team performed contrast-enhanced ultrasound (CEUS) using another Philips ultrasound system, which showed a 1.5 cm rim of sub-capsular infarction. The patient was immediately operated upon based on these findings.

Reference system

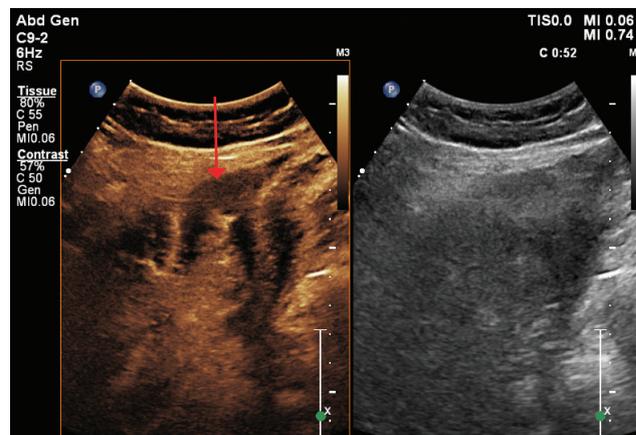


The white arrow indicates the left lobe of the liver as seen with reference system. Despite extensive investigation, no arterial Doppler flow could be found.

Affiniti 70



The blue arrow indicates the tiny hepatic artery in the hilum detected with Affiniti that was unseen with the reference system.



The red arrow indicates the rim of the parenchymal ischemia seen with CEUS while "normal" enhancement is seen around the hepatic hilum.



“The strength of the Affiniti – in particular with regard to technically difficult patients – is the ability to perform everyday tasks simply, effectively, and quickly.”

Ben Stenberg, PhD

The tools to meet today’s challenges



Clinicians are finding that with the rise in obesity, a more challenging mix of cases, and more complex post-surgical anatomy, technically difficult patients are a daily occurrence and require tools to enhance diagnostic confidence. In the words of Dr. Stenberg, “This is what Affiniti can provide. Everyday decisions made simpler.”



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

