

Central Middlesex Hospital creates rapid assessment service for liver disease diagnosis

- **Innovative Siemens Healthcare ultrasound technology enabling patients to have a full liver assessment in a single hospital visit**
- **Improving the safety and care of patients by negating the need for an invasive liver biopsy**

Central Middlesex Hospital, part of London North West Healthcare NHS Trust, is leading the way in providing rapid liver disease diagnosis by using innovative technology to deliver full liver assessments in one day. The hospital has reduced the number of liver biopsies, the current gold standard method for assessing liver disease, by utilising Acoustic Radiation Force Impulse (ARFI) technology on an ACUSON S2000™ ultrasound system from Siemens Healthcare.

The technology has enabled patients to have a full liver assessment in a single hospital visit, whereas previous pathways could take up to three visits. Its main use has been in viral hepatitis which has been recently endorsed by NICE guidelines. Its use has also been extended to a wider range of liver damage and patient groups as well as the identification of portal hypertension.

“Liver disease is on the rise far more than any other major disease group and is one of the biggest killers amongst working age adults. Therefore the need for a faster, safer and more effective diagnosis is more important than ever,” states Dr Phillip Shorvon, Consultant Radiologist at Central Middlesex Hospital. “As one of the first sites in the UK to identify the use of ARFI in evaluating and observing the increased liver stiffness in patients with acute liver disease, we are advocating its use to avoid the necessity of liver biopsy in some cases.”

Siemens Healthcare

Reference number: HealthcareCentralMiddlesexARFI

Once liver disease is suspected, a rapid and accurate diagnosis is the key to developing treatment strategies, monitoring those strategies and then providing long-term follow-up. The ARFI technique uses ultrasound to gently displace tissue for quantitative evaluation of liver tissue stiffness properties and takes less than five minutes to complete.

Along with a traditional ultrasound examination of the liver performed in the same sitting, ARFI enables the non-invasive exclusion of significant liver diseases in patients referred with abnormal liver blood tests. This enables one stop approach and provides advantages over alternative methods due to a higher success rate. As a result, this has increased the examination speed for patients at Central Middlesex and the safe and painless method has improved their overall experience.

Dr Shorvon continues, “A liver biopsy is an expensive and potentially risky invasive procedure for patients and can be avoided in some patients by using the alternative ARFI method on the Siemens ultrasound system. This has helped us to improve patient safety and increased efficiency and patient throughput. There are also a number of cost-efficiencies associated with reducing the number of visits.”

“We have worked in close collaboration with our Clinical and Pathology colleagues and all are keen to share our evidence and best practice around ARFI techniques and liver disease diagnosis with other sites. We expect its use to become common practice and benefit liver disease patients throughout the UK. Patient satisfaction with ARFI has been high and the technique has many future prospects including the detection of undiagnosed liver disease, long term monitoring of patients and selection of patients for new drug treatments.”

The hospital is sharing its knowledge and suggestions with other gastroenterologists, hepatologists, radiologists, radiographers and specialist nurses at a specialist [Liver user day](#) in partnership with Siemens Healthcare. The user day, taking place 23rd October 2015, will cover current evidence for the benefit of Siemens Virtual Touch Quantification Software (VTQ) against other non-invasive techniques. It will also provide an insight into NICE guidelines and practical tips to setting up an efficient and cost-effective one stop liver diagnosis service.

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Media contacts

Laura Bennett
Tel: 07808 823598
Email: laura.bennett@siemens.com

Holly Wale / Sean House
Tel: 01225 471202
Email: holly.wale@mediasafari.co.uk

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Picture caption: Central Middlesex Hospital is leading the way in providing rapid liver disease diagnosis with the help of Acoustic Radiation Force Impulse (ARFI) technology on the ACUSON S2000™ ultrasound systems from Siemens Healthcare. [Left to Right: Sharon O'Brian, Consultant Gastroenterologist; David Sherman, Consultant Physician; Amar Sharif, Consultant Physician and Gastroenterologist; Eugenia Mainta, Consultant Radiologist; Phillip Shorvon, Consultant Radiologist and Verity Bushell, CMT Doctor at Central Middlesex Hospital.]



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supplier of combined cycle turbines for power generation, a major provider of power transmission solutions and a pioneer in infrastructure solutions as well as automation, drive and software solutions for industry. The company is also a leading provider of medical imaging equipment – such as computed tomography and magnetic resonance imaging systems – and a leader in laboratory diagnostics as well as clinical IT. In fiscal 2014, which ended on September 30, 2014, Siemens generated revenue from continuing operations of €71.9 billion and net income of €5.5 billion. At the end of September 2014, the company had around 357,000 employees worldwide. Further information is available on the Internet at www.siemens.com.