

### **ARCADIS Avantic backs up spinal research**

**Next generation C-arm from Siemens Healthcare provides valuable imaging assistance at the Anglo-European College of Chiropractic**

The Institute for Musculoskeletal Research and Clinical Implementation (IMRCI), a research department within the Anglo-European College of Chiropractic (AECC) an associate college of Bournemouth University, is using an ARCADIS® Avantic from Siemens Healthcare. The C-arm is providing Objective Spinal Motion Imaging Assessment (OSMIA) assistance during research into new methods for the diagnosis of spinal pain.

OSMIA is a technique for quantifying inter-vertebral motion using video-fluoroscopy during examinations of the spine. The Avantic's fluoroscopic tube unit is centred to the mid-lumbar region or mid cervical region and records images at a rate of 15 frames per second whilst the patient's torso is moved through a pre-determined range of motion. These images are individually extracted from the fluoro-loop and statistically analysed to try and quantify the biomechanics of spinal linkages in patients, helping to determine the causes of back pain.

The Avantic's Fluoro Loop playback facility allows images obtained during examination to be replayed immediately after the examination stops. The vast storage capacity of the system enables up to 60,000 images to be stored, with each individual patient DICOM loops containing up to 300 frames. The IMRCI hope that with further research OSMIA will become a future tool in the field of health technology methods in the diagnosis of mechanical causes of spinal pain.

"The Avantic fulfils many of the specific requirements we need from a mobile C-arm in order to assist us with our project," said Alan Breen, Professor of Musculoskeletal Health Care at the Institute for Musculoskeletal Research and Clinical Implementation. "The system is able to consistently maintain

high image quality whilst fluoroscopy is undertaken. It also has enough memory to store 300 images without the need to cool down, allowing us to quickly extract and transfer DICOM loops direct to a USB or laptop without downsizing them.”

“We are delighted that the imaging abilities and storage capacity of the Avantic have provided significant assistance in what is an especially pioneering project at the AECC,” said Lynn Blackburn, Special Products Manager at Siemens Healthcare. “Lower back pain afflicts most people at some stage in their lives and can be debilitating to daily routines. We are therefore particularly pleased that the capability of the Avantic is helping with such innovative research in the chiropractic field.”

The Avantic supports nearly all DICOM 3.0 functionalities and offers almost unlimited options for archiving and documentation with CD, DVD and USB. The system features an Enhanced Acquisition System (EASY) that automatically analyses images during acquisition to optimise dose, brightness and contrast for excellent clarity and smooth workflow.

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**Picture caption:** The Arcadis Avantic from Siemens Healthcare being used on a patient positioned for active weight-bearing cervical spine flexion-extension motion acquisition.

