

BY PETE CAVANAGH

ESR launches Basic Patient Safety Standards and Audit Tool

Radiology departments are continually trying to improve the quality and safety of the services they provide to patients, but with the ever-increasing activity and complexity of the investigations we carry out, it is difficult to know where to start.

The ESR believes that there are two essential components to such a quality improvement approach. The first is to have a framework that prioritises the important areas and processes that are key to safe, person-centred and effective care. The second is for staff to have a working knowledge of how to carry out clinical audit.

To help in this important task, the ESR has developed the ESR Audit Tool. The first stage in this exciting project is the release of guidance on how to perform effective audit against 18 Patient Safety Standards that the ESR considers represent essential good practice in any imaging service. These standards encompass all aspects of patient safety, but particularly focus on radiation protection of the patient. To support departments in auditing their practice, the ESR Audit and Standards Subcommittee has produced a set of templates which will help radiologists and radiographers to assess their compliance with each of the standards.

Prof. Luis Donoso, ESR President, said "clinical audit is now required under the Euratom Directive and is therefore mandatory. The ESR Audit Tool will aid departments in carrying out audit, thereby implementing the directive, and assuring the protection of their patients."

There are five important questions radiologists and radiographers should ask themselves about the service they deliver. These are:

- » Is your service safe?
- » Is your service responsive to patients, and users?
- » Is your service caring to patients and their carers?
- » Is your service effective?
- » Is your service well led?

The subcommittee is currently completing the second stage of the tool. This will add further standards and audit templates that will help departments be able to answer these questions confidently.

It is important to realise that audit is not just about knowing how well you perform against the standards but taking action to improve the

department's performance whenever possible. To this end, the templates offer suggestions as to what might be important to consider, as well as reference material that the user can consult.

Dr. E. Jane Adam, Chair of the ESR Quality, Safety and Standards Committee, said "clinical audit is an essential process to assure and improve safety and quality in an imaging service. The ESR Audit Tool will be incredibly valuable to all imaging departments, particularly those that are in the early stages of developing an audit programme."

The Audit Tool is available on the myESR website for free, and can be downloaded as a complete file or as individual separate audits. The ESR Audit Tool document fully explains the motivation, aim and basic ideas of clinical audit and how such audits work.

Dr. Pete Cavanagh is consultant radiologist at Musgrove Park Hospital in Taunton, UK, and Chairperson of the ESR Subcommittee on Audit and Standards.

LEVEL 1 CLINICAL AUDIT TEMPLATES

- » Authority of requestor policy
- » Authority of requestor policy implementation
- » Justification policy
- » Justification policy implementation
- » Justification policy for women of child bearing age
- » Reliable system of recording the pregnancy status in examinations involving ionising radiation
- » CT radiation dose records
- » Radiation dose in head CT in children
- » Dose Optimisation in CT policy
- » Implementation of dose optimisation in CT policy
- » Policy for patient identification prior to procedure
- » Implementation of policy for patient identification prior to procedure
- » Prevention of MRI hazards policy
- » Implementation of prevention of MRI hazards policy
- » MRI patient safety check
- » Process for consent for interventional radiology procedures of non-emergency patients
- » Reduction of the risk of hypersensitivity reactions to contrast media
- » Policy on the prevention of contrast induced nephropathy (CIN)
- » Implementation of policy on the prevention of contrast induced nephropathy (CIN)
- » Appropriate care of acute contrast media reactions
- » Resuscitation policy/training
- » Infection control policy
- » Implementation of infection control policy by staff
- » Compliance of facilities with infection control policy
- » Policy on communication of emergency and unexpected findings
- » Implementation of policy on communication of emergency and unexpected findings

Joint Session

Saturday, March 5, 16:00–17:30, Room L8

EuroSafe Imaging Session 4

You too can definitely do audits

- » **Chairman's introduction**
E.J. Adam; London/UK
- » **Experience from an established national programme**
D. Remedios; Harrow/UK
- » **The challenges of introducing a national audit programme**
A. Vargha; Hidegseg/HU
- » **How to make audit easy: the ESR Audit Tool**
P. Cavanagh; Taunton/UK
- » **Panel discussion**

This session is part of the EuroSafe Imaging campaign.

BY IRIS KILSDONK, LAURA JONKMAN, FREDERIK BARKHOF, JEROEN GEURTS

Increased cortical grey matter lesion detection in multiple sclerosis with 7T MRI

Multiple sclerosis (MS) has been seen as a classic white matter disease for a long time. Over the past decade, the relevance of grey matter pathology in MS has become increasingly recognised and a lot of effort has been put into visualising cortical grey matter lesions with MRI, but unfortunately sensitivity to cortical lesion detection remains low. Being able to depict cortical lesions is important, since it has high clinical relevance: cortical lesions are common, present in the earliest stages of the disease, and relate better to physical and cognitive disability than white matter lesions. It has even been suggested that sensitivity of MRI diagnostic criteria would improve when taking cortical lesions into account.

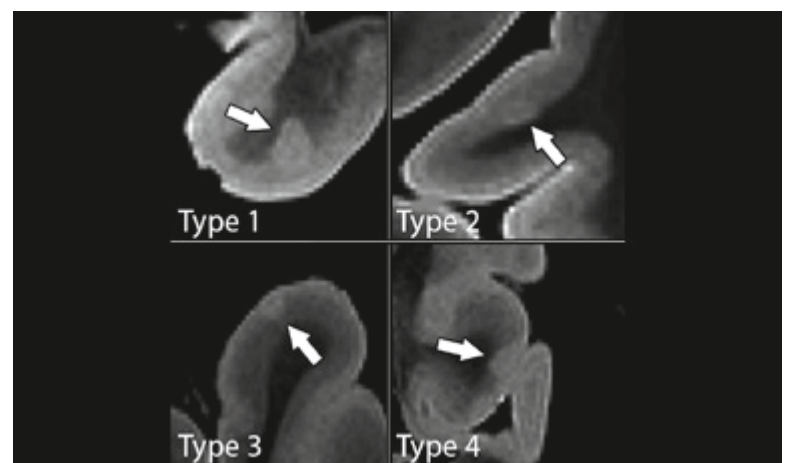
In vivo studies have shown improved detection of cortical lesions by using higher magnetic field strengths up to 7T. So far, a systematic histopathological verification of ultra-high field MRI pulse sequences has been lacking, so we still do not know how many of the cortical lesions we actually see and – more importantly – how many we still miss.

In the post-mortem study that will be presented today we determined the sensitivity of 7T versus 3T MRI pulse sequences for the detection of cortical MS lesions, by directly comparing them to histopathology. Coronal hemispheric brain slices of 19 MS patients and four controls were scanned on a 7T and 3T system using a multi-contrast protocol: T1

weighted, T2 weighted, fluid attenuated inversion recovery (FLAIR), double inversion recovery (DIR) and T2*. Lesion detection was verified by comparing MR images to histopathology as a reference, and after that, sensitivity of pulse sequences was calculated. Additionally, a second un-blinded (retrospective) scoring of MR images was performed.

The most important result of our study was that, regardless of pulse sequence, 7T MRI detected more cortical lesions than 3T. The largest improvement was seen with 7T FLAIR, which detected 225% more cortical lesions than 3T FLAIR ($Z=2.22$, $p < 0.05$) and 7T T2* detected

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7T FLAIR image showing four different types of cortical MS lesions: Type 1 (leukocortical) at the grey/white matter junction; type 2 (intracortical) purely within the cortex; type 3 (subpial) extending from the pial surface into the cortex; and type 4 (subpial) extending through the entire width of the cortex.