Agenda Item 5b updated

ISRRT Position Statement:

The implementation and use of Clinical Audit in Medical Imaging by Radiographers/Radiological Technologists

Council comments received and document updated

Summary and Purpose

Radiographers and Radiological Technologist have a pivotal role in contributing and participating in the implementation and continual use of Clinical Audit in Medical Imaging.

The ISRRT considers that the implementation and use of 'Clinical Audit' is an integral part of the delivery and management of medical imaging services. Radiographers and radiological technologists have a duty of care to participate in clinical audit activities in order to ensure that safe practices are implemented, and corresponding satisfactory patient outcomes are achieved.

Clinical audit should be undertaken using a team approach representing all members of a medical imaging department.

Background

What is Clinical Audit?

Clinical audit is a process that has been defined as "a quality improvement process that seeks to improve patient care and outcomes through systematic review of care against explicit criteria and the implementation of change (National Institute for Health and Clinical Excellence, UK).

Clinical audit in relation to radiology, as defined within the Basic Safety and Standards Directive /BSSD (European Council Directive 2013/59/Euratom[1]) is

> "A systematic examination or review of medical radiological procedures that seeks to improve the quality and outcome of patient care through structured review, whereby medical radiological practices, procedures and results are examined against agreed standards for good medical radiological procedures, with modification of practices, where appropriate, and the application of new standards if necessary."

What is the difference between Clinical Audit from other inspections and research?

Clinical audits in diagnostic radiology have a close relationship to other quality assessment systems and to regulatory inspections of radiation protection and safety. However, even if the practical procedures can be partly similar, there are clear differences in the focus of the evaluation, as well as in the consequences of the results of the findings. Clinical audit should be considered as supplementing and not duplicating the other efforts.

Compared to research, clinical audit measures current clinical practice compared with established good practice. Quantitative research, but not necessarily qualitative, is about generating hypotheses and verifying scientifically a predicted but not necessarily proven relationship between or among variables such as clinical processes and outcomes[2]. Unlike research, clinical audit projects do not need to be submitted to a research ethics committee (REC) for ethical approval although depending on the procedures of the healthcare organisation, it may be necessary to register the audit with either the clinical audit department or research, development, and innovation departments.

Why do Clinical Audits?

There are several good reasons to undertake clinical audit.

- Clinical audit offers a way to assess and improve patient care, to uphold professional standards and 'do the right thing'.
- Through clinical audit, healthcare staff may identify and measure areas of risk within their service.
- Regular audit activity helps to create a culture of quality improvement in the clinical setting.
- Clinical audit is educational for the participants. It involves being up to date with evidence based good practice.
- It offers an opportunity for increased job satisfaction.
- It is increasingly seen as an essential component of professional practice.
- It can improve the quality and effectiveness of healthcare.

The Audit Cycle and Spiral

The success of an audit depends strongly on thorough preparation by all the parties involved. This includes conducting an entrance briefing before going on with the specific auditing steps. The briefing meeting between the auditing team and the relevant institution and facility representatives is important in order to remove any anxiety and set the tone for a smooth, friendly audit that is focused on improving processes.
Imaging teams may also perform local audit ad individuals may perform personal audit of their practice – there may not necessarily be an audit team to meet with.

One characteristic of clinical audit is the audit cycle. This refers to audits that are being conducted in certain steps and order, ending up back where you started.

In the Figure ‘a’ you see such a typical clinical audit cycle. First step is to IDENTIFY what we want to try achieving. Here also to decide on relevant normative guidelines or standards to compare against. Then next step will be to decide on METHODS for extract of information and what data to collect. Then we ANALYSE the data, and we CHANGE practise to make things better if needed – the audit may also be a form of reassurance/governance that demonstrates that standards are being net pr maintained. An important part in the previous mentioned step is to organise an exit briefing meeting, to discuss findings and recommendations in order to avoid misunderstandings and to ease implementation of changes. This is then MONITORED before we start all over again with step 1.

Completing several audit cycles is also referred to as the audit spiral. A continuing spiral of audits and re-audits facilitates constant focus on improvement and best clinical practise.

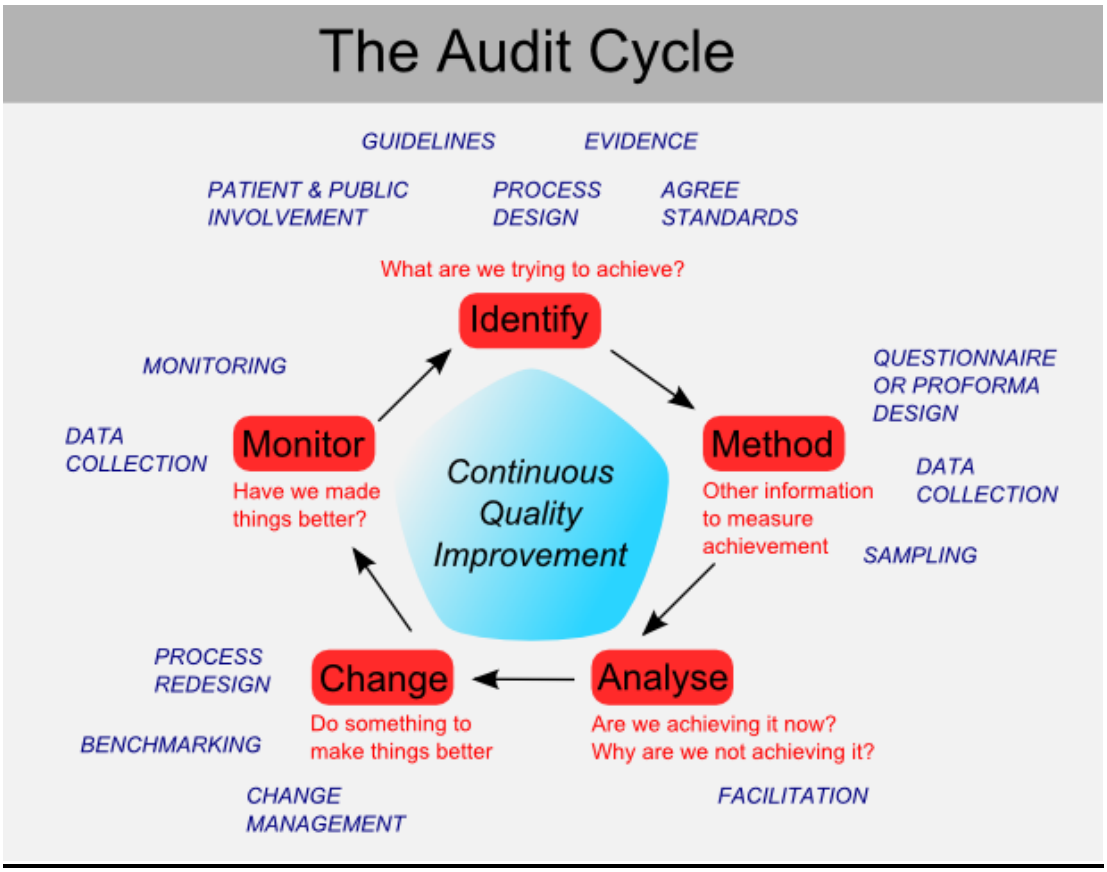

Figure ‘a’ Typical audit cycle

Who should perform Clinical Audits?

Audits can be performed at three levels:

• Individual clinician

• Service (e.g., interventional radiology, ultrasound etc.)

• Department

At whichever of these levels it is performed, a Clinical Audit, as the title implies should be clinically led. Radiographers/radiological technologists, radiologists, together with other professional staff such as physicists who are directly involved in service delivery and often best placed to know those areas, which are either particularly important in the delivery of a safe service, or where improvement may be required, should be involved in clinical audits. Equally, they are best placed to suggest specific improvement strategies where necessary.

The IAEA 1445 publication gives advice on the composition of an audit team:

The audit team is a multidisciplinary peer review panel with expertise in diagnostic radiology and familiarity with clinical audit methodology. At least one member of the audit team must be able to interview members of the audited department in a language they understand. One member of the audit team will act as the team leader. The composition of the audit team will depend on the nature of the audit visit, but will usually include as a minimum:

- a radiologist
- a diagnostic radiology medical physicist
- a radiographer or diagnostic radiology facility manager

Appendix

Example of Clinical Audit

The above-mentioned IAEA comprehensive guideline on clinical audit within diagnostic radiology gives recommendations on clinical audits. These are grouped into areas: quality management procedures and infrastructure; patient related procedures and technical procedures. The guideline outlines the principles and criteria for good practice of the various components of the clinical service, followed by advice for the conduct of the audit programme, and provides corresponding audit checklists for items undergoing evaluation.

Image quality is a topic that is relevant to all radiographers and chosen here as example from the many areas under the section 'Technical procedures' that the IAEA suggest the audit team should focus on.

In the description of standards and important aspects to consider, the guideline says that:

> *Good image quality contributes positively to the value of the imaging procedure to patient care, but there is a relationship between image quality and dose, which should be optimized. The quality of the final image is a result of many factors, particularly accurate positioning and appropriate use of technology.*
> *Radiography staff should be aware of the positioning and equipment usage factors that contribute to image quality, and of the criteria used to assess image quality.*

Further it says: “There should be a radiographer responsible for a radiography image QA programme, with feedback to radiography staff.”

Regular image reviews and audits for all modalities should be performed and include:

- *Repeat rate and analysis of rejected films (images).*
- *Peer reviewed critical evaluation of individual image quality by Radiographers.*
- *Evaluation of image quality by radiological medical practitioners.*

Critical evaluation can employ criteria such as the:
(a) Image quality criteria for plain radiography, proposed by the CEC[3].
(b) UK NHS Guidance for breast screening mammographers - Clinical image quality and image quality assessment[4].

The audit team should:

(a) Review a sample of images from different examination procedures and assess the image quality.

(b) Identify the radiographer responsible for the radiographic QA programme, and discuss their roles and responsibilities prior to a baseline audit and repeated for each cycle of the audit.

(c) Interview staff regarding their awareness of image quality evaluation criteria for various examination procedures.

(d) Review records of image quality audits, and records of analyses of rejected and repeat images.

(e) Discuss with radiography staff the feedback given to them about their individual performance.

(f) Check for the process regarding provision of feedback by radiological medical practitioners regarding suboptimal image.

(g) Check for the process for discussing image quality difficulties with the reporting radiological medical practitioner.

The ISRRT considers that the implementation of Clinical Audit in medical imaging by radiographers and radiological technologists is an integral part of the delivery and management of medical imaging services. More suggestions for relevant clinical audit topics can be found in the ESR ESPERANTO booklet, where 17 audit topics developed to meet requirements found in the EU BSSD are available in addition to blank audit template.
https://www.myesr.org/media/2835

References and Suggested Further Reading:

1. **https://ec.europa.eu/energy/sites/ener/files/documents/CELEX-32013L0059-EN-TXT.pdf**

2. https://www-pub.iaea.org/MTCD/Publications/PDF/Pub1425_web.pdf

3. https://www.sprmn.pt/pdf/EuropeanGuidelineseur16260.pdf

4. https://www.gov.uk/government/publications/breast-screening-quality-assurance-for-mammography-and-radiography/guidance-for-breast-screening-mammographers#clinical-image-quality-and-image-quality-assessment

Is my study research? UKRI – Medical Research Council and NHS Health Research Authority. Defining Research Table
Microsoft Word - DefiningResearchTable_Oct2017 (hra-decisiontools.org.uk)

European Commission guidelines on clinical audit for medical radiological practices (diagnostic radiology, nuclear medicine and radiotherapy)
https://op.europa.eu/en/publication-detail/-/publication/75688cc6-c9d3-4c43-9bfd-ce5cea0d8bcb

COMMISSION OF THE EUROPEAN COMMUNITIES, European Guidelines on Quality Criteria for Diagnostic Radiographic Images, Rep. EUR 16260 EN, CEC, Luxembourg (1996)

NATIONAL HEALTH SERVICE, Breast Screening Programme: Quality Assurance, Guidelines for Radiographers, NHS, Sheffield (1994) 30.

European Council Directive 2013/59/Euratom

NICE: https://www.nice.org.uk/media/default/About/what-we-do/Into-practice/principles-for-best-practice-in-clinical-audit.pdf

ESR Clinical Audit booklet Esperanto: https://www.myesr.org/media/2835

ESR Audit tool: https://www.myesr.org/sites/default/files/ESR_2016_Audit-Tool.pdf

Note:

Links to external websites may change without notice.