Guidelines for the Implementation of a National Radiology Quality Improvement Programme - Version 3.0

Developed by

The Quality Improvement Working Group, National Radiology Quality Improvement Programme,
Faculty of Radiologists,
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RCSI FACULTY OF RADIOLOGISTS

ROYAL COLLEGE OF PHYSICIANS OF IRELAND

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Faculty of Radiologists, RCSI, Working Group, National Radiology QI Programme

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1 Foreword

Recent reported cases of cancer misdiagnoses have reaffirmed the critical role of Quality Improvement (QI) in the delivery of patient care. The highly professional work of all Radiologists in Ireland is commended but the Faculty of Radiologists is cognisant that Radiology, like many diagnostic services, involves decision making under conditions of uncertainty and a certain degree of error is inevitable.

Prior to the initiation of the National Quality Improvement Programme by the Faculty of Radiologists, Royal College of Surgeons in Ireland (RCSI) in collaboration with the National Cancer Control Programme (NCCP), the HSE's Quality and Patient Safety Division and the Royal College of Physicians of Ireland (RCPI) in 2010, there were no formal measures in place to reassure the public that error was being kept to an absolute minimum. To this day, few national targets for key aspects of diagnostic services are currently in place to measure performance.

In 2015 the National Quality Assurance Programme was renamed the National Radiology Quality Improvement Programme and is now led by the Faculty of Radiologists in collaboration with the HSE Quality Improvement Division and the programme managed by the RCPI. The aim and operation of the programme remains the same. The focus is on ensuring patient safety and raising standards in Radiology services (diagnostic and interventional) through the application of a systems-based approach to quality improvement.

Initially, this involves the identification and promotion of good and exemplary practice and the reduction of poor practices to a minimum. It is not possible to legislate for all aspects of practice and thus, as a starting point, a limited number of aspects of practice have been chosen. As the programme matures, it is expected to sample a wider range of activities. For the activities selected, the programme provides guidelines for practical and implementable measures, which, in conjunction with existing local quality systems, will improve patient safety by enabling each hospital to monitor and evaluate their own performance. These guidelines have been developed following consultation with Radiologists within the Faculty and in consultation with a wider group of Radiologists from a range of Irish hospital types. International QI standards and guidelines have been reviewed and incorporated. The Faculty has made a number of recommendations within the guidelines and are assisting in their phased implementation. These recommendations include the definition of the activities that should be carried out and guidance for their performance.

"That which is measured improves. That which is measured and reported improves exponentially." (Pearson's law), thus key quality indicators have been identified in order to generate local and national data which will be collated centrally. As this data matures, each hospital will be able to monitor its own performance and compare it to the aggregate national performance. In time, this will permit the Faculty to set intelligent targets. The data collected will provide key evidence of the quality and completeness of the programme and provide support for its continuance.

The Faculty of Radiologists accepts that this programme is in evolution and that this document will require regular review, likely on an annual or biannual basis by the working group, to be approved by the Faculty and the Steering Group.

The views of the funding body, HSE QID, have not influenced the content of the guidelines and the guideline development working or steering group members have no conflicts of interest.

2 Introduction

The fundamental objective of this Programme is to promote patient safety and the enhancement of patient care with accurate, timely and complete Radiology diagnoses and reports. All patients require access to diagnostic and interventional radiology services, therefore the benefits due to improvements in patient safety through this QI programme will be for all population age and gender groupings.

This document provides guidance to Radiologists on the implementation of a QI programme in Radiology. Outlined within is a set of key quality activities and associated quality performance indicators. It is focused on the work of the Radiologist and the collective radiologist work of the department, and by using it, each Radiology Department can monitor its own performance, compare it to national aggregate data and, where necessary, initiate improvement. It will provide recommendations for how to perform and measure each activity.

Local Quality Management Systems (QMS) should be in place to monitor, control and improve quality. A Quality Committee should be established within each Radiology Department to ensure routine review of quality data and to initiate improvements where required for both diagnostic and interventional radiology. This Quality Committee should work also with the Hospital Quality Structure.

2.1 Context of the QI Guidelines

The scope of this programme has been defined within the context of other patient-safety focused reports and initiatives (e.g. *instigated by the HSE and more recently the Directorate of Quality and Clinical Care: Report of the Commission on Patient Safety and Quality, Safety and Risk Management Framework*). These QI guidelines will improve safety and effectiveness of patient care, using performance indicators to support system quality initiatives, based initially on the work of Radiologists and the Radiology department as a whole.

There are currently other programmes planned by different bodies which focus on quality and clinical care in radiology outside of this QI Programme which include:

- Incident Reporting; Medical Exposure Radiation Unit under SI 478
- European Commission Guidelines on Clinical Audit for Medical Radiological Practices 2009 (all aspects of Radiology services)
- Requirements for Clinical Audit in Medical Radiological Practices (Diagnostic Radiology, Radiotherapy and Nuclear Medicine); HSE and Faculty of Radiologists
- National Clinical Care Programme in Radiology, HSE Clinical Strategy and Programmes (CSP) in conjunction with the Faculty of Radiologists encompassing clinical care pathways
- “Discrepancies and Errors” paper developed by the Faculty of Radiologists, RCSI, in conjunction with the National Incident Management Team of the HSE, the Dept. of Health & Children and Health Information and Quality Authority (HIQA). This is a separate initiative aimed at developing procedures for addressing radiological quality issues as and when they arise. The Faculty’s QI programme is designed, among other functions, to minimise the likelihood and impact of quality issues on patient care.
- The Implementation Committee of the Hayes Report Review of Radiology Reporting and the Management of GP referral letters at Tallaght Hospital November 2010

The Faculty recognises that there are other key components of a Radiology Department QI Programme, such as quality of radiographic studies, appropriateness of examinations, equipment maintenance programmes and protocols. The Faculty is, through its Radiation Protection and Research committees considering these and related issues. The PeerVue QICS software facilitates the referral of cases to Radiographic Quality Improvement meetings. The Faculty will address how best to incorporate the other elements at a later date.

2.2 Professional Competence Scheme

A fundamental element of a QI programme is that all Consultant Radiologists providing services in the Irish healthcare environment should be on the Specialist Register of The Medical Council, Since May 2011, the Medical Council stipulates that, as required by Section 11 of the Medical Practitioner Act 2007, to remain on the medical register, all medical practitioners must enroll in the professional competence scheme of their appropriate postgraduate training body and demonstrate their engagement in defined activities.

While these statutory requirements are not specifically included in this QI programme, they form a foundation upon which the programme is built. The programme provides recommendations for Quality Improvement activities (QIA), in addition to (but not replacing) each individual's responsibility to manage their own continuing medical education and professional development.

The Faculty has developed a separate document on the Professional Competence Scheme which is available on the Faculty website http://www.radiology.ie/professional-competence-scheme/.

2.3 Clinical Audit

As part of the enactment of Section 11 of the Medical Practitioner Act 2007, participation in clinical audit is now required for all registered medical practitioners. It is proposed in the Act that all Doctors should engage in clinical audit, and at a minimum participate in one audit exercise pertaining to their personal practice annually. The Act recommends that doctors spend a minimum of one hour per month in audit activity.

The Faculty of Radiologists has facilitated the integration of audit into Radiology practice by:

a) Including audit training and regular audit activity as part of the Radiology Specialist Registrar Training Programme
b) Encouraging health service providers to resource the audit process with both personnel and time
c) Encouraging Radiology departments to undertake standard radiology audit cycle annually (e.g. Royal College of Radiologists Audit Live) and
d) Organising national audits as necessary

Clinical audit is a quality improvement process and this document recommends a number of clinical audit activities in which a Radiology Department should engage.

2.4 Open Disclosure

The Open disclosure standard is specified in the HIQA Standards for Safer Better healthcare 2012, and the national policy document on Open Disclosure was launched by the HSE and State Claims Agency in 2013.

Open Disclosure implies an open, consistent approach to communicating with patients and their relatives when they have suffered an adverse healthcare-related event that may have caused them harm. There should be a prompt acknowledgement that an adverse event has occurred, an apology for what has happened, and an outline of the steps taken to prevent such an adverse event from reoccurring.

Where issues come to light through the activities of the Programme, for instance as a result of Peer Review, the details of the issue should be communicated to the original reporting radiologist whenever possible. Submission of cases to the Radiology Quality Improvement Meeting implies the requirements of Open Disclosure have been met. The specific obligations of the radiologist are detailed in the Faculty of Radiologists Open Disclosure document 2015.

2.5 Time and Resources

While the value of QI must be acknowledged, it is inevitable that this process will result in the loss of some clinical activity. At the time of writing, Ireland has a shortage of consultant radiologists, with just over half of the European average number of radiologists per capita (Ireland has 5.0 radiologists per 100,000 population Vs 7.8 in Germany or 11.3 in France). This has led to high clinical workloads for Irish radiologists when compared with their peers in other countries. The HSE continually tries to balance waiting lists, reporting delays and service quality. This has, at different times, proved impossible in all of these three categories within the structures and resources currently in existence. Understaffing is, in itself, a risk factor for reduced safety and quality and the HSE is strongly recommended to consider Radiology Department staffing levels in comparison to the EU average within the risk matrices and registers for the new Hospital Groups.

Nevertheless, it is strongly recommended that adequate resourcing be made available by hospital management to ensure successful implementation of this QI programme at the local level beyond ICT. Each department should establish a QI committee and should identify a Quality Coordinator and administrative support. The Quality Coordinator and the Radiology Directors should work consistently with the hospital administrative and directorate structures to ensure that the agreed QI processes are appropriately resourced. The Faculty and the National QI Steering Group will continue to raise the issue of the necessity to provide for non-reporting / non-procedural time in the working week of Consultant Radiologists. It is noted that in other jurisdictions, it is the norm for practice plans to have at least 10-20% of service time devoted to administrative, QI and educational activities.

In order to ensure the success of these activities, the service time issue needs to be incorporated into consultant practice plans as without this, in the long-term, there is the potential to seriously undermine the QI initiative regardless of hardware and ICT investment levels. It is encouraging to learn that the National Radiology Programme (co-chaired by Drs. Niall Sheehy and Peter Kavanagh) are now only considering approval of new consultant radiologist posts where there is a component devoted to QI as part of job specification of, typically, ~0.15 WTE/month or 1.5 hr/week .

Within the current restrictions, the Faculty, supported by HSE OCIO (Office of the Chief Information Officer), has developed an Information and communications technology (ICT) solution which will assist the recording, collation, analysis and reporting of data pertaining to these guidelines in a manner which minimises the impact on service delivery. This ICT solution, co-ordinated with a Faculty appointed Working Group, has been designed to satisfy the needs of as many participating departments as possible, integrating fully with existing and emerging ICT systems.

3 Diagnostic Radiology Guidelines

3.1 Peer Review

Accuracy of image interpretation by Radiologists is crucial to patient management. Peer review is a recognised mechanism for evaluating the diagnostic accuracy and completeness of Radiologists' reports. As Medical Registration requires that a doctor's performance be continuously assessed in as objective a way as possible, the practice of peer review is being promoted to maintain safe, high quality patient care.

3.1.1 Retrospective Peer Review

This is the process of evaluating the diagnostic accuracy of a previously authorised report. During the interpretation of an examination, when previous examinations are available for comparison, the interpreting Radiologist forms an opinion of the previous interpretation. Such evaluations of another Radiologist's interpretations can also occur during routine preparation of cases for discussion at MDM. Where potential quality issues arise, the details of the case should be communicated to the original reporting radiologist whenever possible.

- If an opinion is formed on the previous report, a retrospective peer review event has occurred. The reviewing Radiologist should record the level of agreement with the original reporting Radiologist's report, using the scale shown in Table 1 (Peer Review Outcome Table).

- RadPeer scoring is no longer used, as its highly precise numeric output gives a false impression of accuracy and the data derived have been shown to be highly subjective, inaccurate, and thus prone to sampling bias and under / over reporting.

- Departments should aim to Peer-Review a representative number of cases across a range of modalities.

- Focused Peer Review: These are retrospective reviews of experience - commonly performed Radiology academic exercises that attempt to assess local diagnostic performance. For example, a department might review 5 years experience with cancer diagnosis using CT colonography (using a reference standard of colonoscopy results or patient outcome) to derive local sensitivities and specificities and compare them with the international literature and standards.

3.1.2 Assigned Peer Review

- The purpose of Assigned Peer Review is to make contemporary cases available to Radiologists for review. Only cases reviewed, as a percentage of total cases, are counted (not the percentage of cases reviewed out of those assigned).
  - Where an ICT system is capable (e.g. peerVue), Radiologists are assigned 5 randomly selected cases for Assigned Peer Review on a weekly basis.
- These cases will sample from a range of modalities; Radiologists should be provided with cases to review across a spectrum representative of their usual practice. If the Radiologist does not practice the subspecialty assigned to them they can choose to reject the case and not complete the Peer Review.
- The reviewing Radiologist should record the level of agreement with the original reporting Radiologist's report using the scale shown in Table 1.

Table 1: Retrospective Peer Review Outcome Table

Outcome
• Concur with the interpretation
• Minor discrepancy – no further action required
• Consider for RQI Meeting

Note: Studies are submitted to RQI meetings as shared learning exercises and such studies will therefore comprise examples of both best practice and learning opportunities for improvement.

3.1.2.1 Key Quality Indicators

- Number of accession numbers reviewed (expressed for each modality and accession number type and as a % of total accession numbers for each modality)
- Number of accession numbers referred for consideration at radiology quality improvement meetings (expressed as a % of total cases reviewed, by modality.)

3.1.3 Communication of Outcome

- Clinically significant quality issues should be submitted to the local radiology quality improvement meeting for departmental learning.
- Local policies and procedures should be in place to deal immediately with significant disagreements in peer review findings (cf Open Disclosure requirements above), including confidential feedback to the original reporter whenever possible.

3.1.4 Prospective Peer Review

- Prospective Peer Review is where a Radiologist seeks a second opinion from another Radiologist on a particular case prior to authorisation.
- Prospective review currently includes both double reporting (routine double-read) and ad hoc prospective reviews (consultation).
- Generally, a Radiologist should seek a second opinion if there is any doubt about the correct diagnosis. Radiologists should record the involvement of colleagues, with their agreement, in the Radiology report.

3.1.4.1 Key Quality Indicators

- Number of accession numbers with prospective peer review (expressed for each modality and as a % of total accession numbers for each modality)

3.2 Multi Disciplinary Team Meetings (MDMs)

Multi Disciplinary Team Meetings (MDMs) have become a fundamental part of cancer care in many countries, including Ireland. They are focused on a particular type of cancer eg breast, lung, prostate etc. The Multi Disciplinary Team comprises an organiser, specialist surgical oncologists, medical oncologists and radiation oncologists who meet with sub specialist radiologists and pathologists so that all aspects of a patients care; diagnosis and staging to multistage treatment and follow up and management of relapse can be comprehensively evaluated. Improved outcomes have been shown to come from the establishment of MDMs.

With respect to non-cancer care, Clinico-Radiological meetings serve the same function (with occasional Pathologist input). Radiologists with a sub specialty interest meet with clinicians with a sub specialty interest and discuss current inpatients and out patients. Some, but not all, patients names and ID numbers will have been provided to Radiology in advance, for pre-conference preparation. This type of conference enables a consensus opinion to be generated by a number of subspecialists, integrating the clinical and Radiological information.

As practice has evolved since 2010, many conferences now occur involving the Radiology Department including, as follows:

1. Meetings between radiology and other clinical services
    - Multi Disciplinary Team Meetings (MDMs), as above.
    - Clinical / Radiology Conferences – CRCs) as above.
    - Care Pathway Committees

2. Meetings within the Radiology Department
    - Quality Improvement Rounds: addressing learning opportunities arising from a department's practice.
    - CPD rounds: this would include presentation of interesting cases, journal club, didactic lectures and teaching points encountered in clinical practice.

It is recognised that the Consultant Radiologist time required to plan and prepare for such meetings can be significant. Time for such preparation should be allowed on the Radiology Department rota during normal working hours. If a 'Conference Report' is entered on the RIS for each case presented, the Conference/ MDM workload will be measurable, represented in Departmental statistics and available for workforce planning estimations.

3.2.1 MDM / Imaging Conference Coordinator

A key role is played by the coordinators of these meetings. It is recognised that such resources are not in place in most hospitals in Ireland at present for non-NCCP meetings and that clinicians working in clinical-radiologic conferences are frequently working under considerable time and resource constraints. The meeting coordinator should be a person of sufficient stature and clinical experience to perform a high quality liaison role within the group, and will need to be assisted by a clerical infrastructure which may, for large subspecialist groups, require a designated secretary.

Responsibilities:

- To organise meetings and determine cases for review.
- To prepare and disseminate all images and reports to the named lead Radiologist in a timely fashion at agreed intervals prior to the meeting. In the interest of case review quality, a Radiologist may reasonably refuse to perform ad hoc reviews of non-emergency imaging outside of the locally agreed interval.
- To record the clinical decisions made at MDM, whether this is done in note form or electronically and the record of all meetings kept and distributed to all members of the group within a timely period after the meeting has been completed.

3.2.2 Process

- In each department providing Imaging Conference and Multidisciplinary Team Meetings, and in particular disciplines, a lead Consultant Radiologist and, depending on Radiologist numbers, a team of Radiologists or, at a minimum, a deputy Consultant Radiologist, all of whom have significant interest and experience in the discipline, should be named. It is hoped that the lead Radiologists would have the primary interest in the imaging discipline within their own departments. A lead, deputy or team Radiologist should be scheduled to take each meeting. This Radiologist will perform a prior review of all the appropriate imaging and then attend and provide a formal radiological opinion at the meeting. If he/ she notes any discrepancies while preparing the meeting, these should be managed according to the Faculty guide to Open Disclosure in Radiology, 2015.
- The review of a case by the designated meeting Radiologist will be performed with respect to the specific issue being discussed at the meeting and not other issues raised by the reporting Radiologist in the initial report.
- The named Consultant Radiologist is not responsible for clinical follow-up.
- The original reporting Radiologist has primary responsibility for the full report of the study.
- It is recognised that differences of opinion between the lead Radiologist in the MDM and the original reporting Radiologist may arise due to additional information becoming available at the time of the MDM which is subsequent to the initial imaging. Examples of this could be re-interpretation of the most likely diagnosis, or change in TNM tumour staging/ resectability status. Many of these differences of opinion arise because the MDM Radiologist is a subspecialist who is in possession of the entire clinical facts, for example, additional supportive reports, studies and pathology reports, relating to the patient care, In the Faculty guide to Open Disclosure in Radiology, 2015, this circumstance is referred to as ‘refinement of diagnosis’ and it is not be considered an error on the part of the original reporting Radiologist.
- The Faculty guide to Open Disclosure in Radiology, 2015 should be considered in the management of all discrepancies etc identified at clinical-radiologic meetings. The meeting is a good place to decide the clinical importance of discrepancies in the overall clinical context. The decision and plan should be included in the record of the meeting.
- For the below KQI, (captured under the ‘patients referred to RQI meeting” Key Quality Indicator), a ‘referral’ can be as an example of best practice as well as a learning opportunity for improvement.
- In planning clinical-radiologic meetings, it is considered appropriate practice that:

  (i) There are an agreed number of cases to be discussed, allowing for an adequate amount of time committed to each case.
  (ii) The reason and purpose for presenting a case is specified. The specific imaging studies on which the clinican wishes to focus discussion should be identified.
  (iii) Whether the case has been discussed previously is confirmed, yes or no.

(iv) All images and reports are available for review.
(v) Reports and images are formally submitted for review and non-emergency cases are not reviewed on an ad-hoc basis.
(vi) There is an agreed timeframe whereby lists of patients for review are finalised and communicated to Radiology in advance. This will allow for appropriate preparation time. The images and reports needed for review should be made available within that timeframe.

3.2.3 Key Quality Indicators

- Number of MDMs / Clinico-Radiological Meetings held
- Number of patients reviewed at these MDMs / Clinico-Radiological Meetings (expressed as a % of total patients)
- Number of patients referred to a Radiology Quality Improvement Meeting (expressed as a % of total patients reviewed at MDM / Clinico-Radiological Meeting).

3.3 Radiology Quality Improvement (RQI) Meetings

Cases are discussed in the RQI meeting on the understanding that all extant clinical issues are being / have been resolved. By the same token, cases should only be discussed at the Radiology Quality Improvement Meeting when the Open Disclosure standard has been met. This copper-fastens the primary purpose of these meetings as the facilitatation of collective learning from identified quality issues (including good practice) thereby improving patient safety by preventing future occurrences of poor practice and / or promoting good / exceptional practice. In line with the creation of a “just culture” within departments, the process should be seen as educational and never as an opportunity for denigration of another’s performance. It must be recognised by all involved that accession numbers discussed in RQI meetings do not form a statistically significant sample, and represent only a small part of any individual’s practice.

During or after the discussion, the RQI convenor records the consensus opinion according to the options in Table 2 overleaf. The RQI categories emphasise the learning and expertise-sharing intention of the meeting.

Table 2: Radiology Quality Improvement meeting review outcomes

Meaning	Description
Observation	The quality issue is that the reporting radiologist over-stated or under-stated the significance of an observed feature or failed to observe something in the initial report that may have had an impact of the patient's episode of care.
Interpretation	The Reviewing Radiologist's interpretation of the report differed from the reporting radiologist's. This includes 'Refinement of Diagnosis.'
Misleading patient data	Reviewing Radiologist referred the case to a RQI Meeting as they believed there was inadequate or ambiguous patient data upon which the original report was based.
Report Completeness	A Reviewing Radiologist referred a report for consideration at a RQI Meeting, as they believed the initial report was incomplete and the missing information may have been material to the patient's episode of care.
Inter-observer Variability	A difference in interpretation and/or perception of clinical relevance of the same finding between two/or more Radiologists.
Information and educational feedback	Feedback which could be provided to Reporting Radiologist providing them with information to make more informed judgments in the future.
Compliment	Reviewing Radiologist submits a case to an RQI Meeting highlighting quality work by the Reporting Radiologist and wants that work to be recognised as such and shared for learning.
Technical	The case was referred to a RQI Meeting for review as the Reviewing Radiologist could not form an opinion due to the poor technical quality of the image(s) used by the Reporting Radiologist in the preparation of the report.
Other	The "Other" category can be used if the outcomes do not fall into one of the reasons above.

3.3.1 General Guidance

- There should be a supportive process within departments if concerns are raised about repeated lapses in performance, such that the individual has the opportunity to discuss these, and take appropriate corrective steps.
- There have to be mechanisms within the employing authority to ensure that when errors are consequent upon process or system problems, the will and the resources exist to rectify the causative factors.
- Outwith the RQI forum, there must be a robust process for critical incident reporting.

3.3.2 RQI Convenor

- The RQI Convenor should be selected by, and have the confidence of his/her peers. There should be a formal process for Convenor selection, for a fixed term. The convenor should have sessional time available to collect cases and prepare reports.
- The convenor needs to foster a "just culture" (as opposed to blame) and stress the mutual learning aspect of meetings. They should also ensure the anonymity of the original reporter and the submitting radiologist.

Responsibility- (hospital management to be informed):

- The Convenor acts as a facilitator of an educational activity only and has no clinical responsibility for any case, this resting with the original reporter and / or reviewer if appropriate, in the normal clinical pathway. The local RQI meeting is a teaching and learning forum for quality assurance and has no direct link with the clinical management of a particular patient or the Open Disclosure process. Radiology departments should ensure that procedures are in place that ensure that any quality issue is dealt with by the original Reporting Radiologist immediately on being discovered and that the appropriate clinicians are informed as dictated by the clinical situation.

3.3.3 Case collection:

- It should be easy for individuals to submit cases.
- A rationale and description of the case should be provided with the submission. This is anonymous in the ICT system PeerVue. Where the latter is not available, a locked box for paper submission (with standard case submission form) is a reasonable alternative.
- A centrally-placed "quality improvement book" is not advisable because of confidentiality concerns.
- Non-Radiologist clinicians should also be able to submit cases directly to the Convenor
- Quality issues discovered as part of MDMs, peer review processes and audits may be submitted for review at RQI meetings.

3.3.4 Process:

- For the purpose of statistics (captured under the % Attendance Key Quality Indicator), 'Attendance' is defined as the number of attendees at an RQI Meeting divided by the number of Radiologists.
- Minimum frequency should be at least every two months.
- Bias[i] is inherent in this process and steps should be taken when possible to reduce this.
- The convenor should present images with only the original request details and images available to the original reporter and where possible patient and consultant ID should be anonymous.
- Attendees may be asked to commit their opinion on paper (this can be time-consuming), or honest, consensus-aimed discussion can be fostered.
- All attendees should contribute as much as possible, and attendance should be mandatory for all departmental radiologists.
- Having additional clinical information, if available, will facilitate further discussion.
- Consensus should be arrived at, where possible, as to whether an error has occurred and on the associated learning.
- Learning points and action points (if any) for each case should be discussed and agreed, and formally recorded.
- Meeting records should also include all "missed" diagnoses on images that, for whatever reason, were not reported at all.
- Meeting records and outcomes should not be subject to legal discovery.
  Note: This is in accordance with the 2008 Patient Safety Commission Report – Dr Deirdre Madden Recommendations. The National Quality Improvement Programme Steering Committee is seeking this protection within the new Health Information Bill. It is not yet known when this will become law. The Minister for Health has made specific comments recently (early 2015) regarding Open Disclosure in particular.

3.3.5 Communication of outcome:

- Confidential feedback to the original reporter (even if the individual does not work in the hospital, e.g. rotating SpR, teleradiologist) should be provided, whenever possible, by the Convenor on a standardised feedback form (refer to appendix II), if an error has occurred, with a summary of the discussion at the meeting.
- Dissemination of lessons learnt **–**
    - Summarised agreed learning points from the meeting should be circulated to all in the Radiology department to ensure information sharing and learning.
    - Where technical issues have been identified, Senior Radiographers in the relevant areas of the Radiology Departments should be informed of the details of these cases and the consensus opinion reached at RQI rounds. These cases can then be scheduled for discussion at Radiography Improvement Meetings.
    - Nationwide dissemination of specific lessons learnt at a national level could be channeled through the QI Programme and Faculty office.

3.3.6 Key Quality Indicators

- % Attendance
- Number of accession numbers reviewed at RQI meeting (expressed as a percentage of total workload)
- Number of accession numbers reviewed at RQI meeting by source: Peer Review, MDM (to include Clinico-Radiological conferences), other
- Number of accession numbers reviewed at RQI meeting with outcome of: (expressed as a percentage of total workload)
    a) Observation
    b) Interpretation
    c) Misleading patient data
    d) Report Completeness
    e) Inter-observer Variability
    f) Information and educational feedback
    g) Compliment
    h) Technical
    i) Other

3.4 Report Completeness

Measuring the completeness of Diagnostic Radiology reporting is an important component of a department Quality Improvement plan. Studies have shown that standardised reporting forms, including synoptic reports or checklists, are effective in improving report adequacy, particularly for cancer reporting, and help work towards a consistent approach for reporting.

The ability to audit report completeness in a meaningful way on a national level is dependent on the availability of nationally recognised minimum datasets. The Faculty acknowledges that the development and implementation of minimum datasets in Radiology is a recently evolving practice which will see many advances in coming years. The Faculty ultimately intends to develop National Standards in line with international guidelines. The RQI meeting provides a department with a good opportunity to discuss local standards of report completeness.

Many existing standards are available including minimum data sets for Staging, RECIST, NCCP Symptomatic Breast Reporting and CT Colonography which could assist in the development of local standards.

The value of this activity is likely to be increasingly recognised and its implementation, initially targeting common cancers and drawing on existing national and international standards, is encouraged. Radiologists are referred to the sub-specialty societies who regularly publish reporting standards across the breadth of radiology practice.

Currently the monitoring, by a Key Quality Indicator, of Report Completeness within the QI Programme is to be carried out as part of the RQI meeting categorisation. Until such time as minimum data sets can be developed it is challenging to measure.

In addition, the following guidance is offered:

3.4.1 General Guidance

- Target the common cancers initially
- Audit the completeness of a report against standard minimum datasets where available. It is suggested that the completeness of a report could be reviewed at the same time as a peer review is conducted.
- In addition, structured yearly audits for particular diseases with agreed local minimum datasets should be conducted to evaluate the completeness of previous reports.

3.5 Radiology Alerts

Communication of Critical, Urgent and Unexpected and Clinically Significant radiological findings is an important patient safety issue. For the purposes of the QI Programme the term “Radiology Alerts” refers to a critical, urgent, or Unexpected and Clinically Significant finding which must be communicated to, and an acknowledgement received from, the referring clinician (identified in peerVue as the “Attending Clinician”.) It is recommended that a clear pathway for communicating these findings between Radiology departments and referring clinicians is defined. It is recognised that the processes for communication will be different in each hospital depending on the ICT infrastructure and communication systems. It is recommended that each hospital / radiology department, in conjunction with the referring clinicians and hospital management, establish a local policy that clearly defines the processes for communication, and the responsibilities of the radiologists, the referring clinicians and hospital management. The policy will need regular updating as communication and ICT structures evolve.

An escalation process should be in place to ensure that, all **critical, urgent and, unexpected and clinically significant** findings seen on radiological studies by a Radiologist are brought to the attention of the referring Consultant / GP as soon as possible.

It is recommended that hospitals should have an alerts management system in place with administrative support. It is also recommended that outstanding unacknowledged alerts should be actively managed and followed up on by the radiology administrative staff. The alerts support staff should be identified and aware of their responsibilities. The importance of resourcing the department with these administrative staff cannot be overstated.

Sample policies and procedures for Alerts can be found on the RQI ICT project documentation site - https://docs.healthatlasireland.ie/ngais-radiology. See Appendix III for outline of department policies.

3.5.1 Definitions

The following are recommended definitions. It will be a matter of local policy and professional judgment on the part of the reporting Radiologist when additional steps need to be taken to supplement the normal systems of reporting to referrers.

- Radiology Alert - Refers to the communication of a high priority message from one health professional to another. It requires acknowledgement from the appropriate recipient of the message. Acknowledgement by the referring clinician indicates that the receiver is aware that high priority information is available, is aware of the urgency and will follow-up on the radiology alert as appropriate.
- Critical findings – Where emergency action is required immediately.
- Urgent findings – Where medical evaluation is required within 24 hours.
- Unexpected and Clinically significant findings – These are cases where the reporting Radiologist identifies an unexpected finding (in the current presentation) that is / will be clinically significant for the patient e.g. a lung nodule requiring follow-up by Fleischner criteria. The decision to issue an alert requires professional judgement on the part of the Radiologist and should be made in conjunction with the clinical details on the request.The more detailed definitions for the communication of Critical, Urgent and Unexpected and Clinically Significant results are set out below. The Faculty QI Guidelines set these out on the basis as recommendations for local policies.

3.5.2 Critical Results

A. Definition

Critical Results are any new or unexpected findings on an imaging study that suggest conditions that are life-threatening or would require an immediate change in patient management. The following six findings are always defined as Critical Results:

- Tension pneumothorax
- Evidence of ischemic bowel.
- Intracerebral haemorrhage
- Leaking or ruptured aortic aneurysm
- Significantly misplaced tubes or catheters
- Unstable spine fracture

B. Requirements for Communication

Critical Results require immediate, interruptive communication with the ordering clinician, a covering clinician or other care team member who can initiate the appropriate clinical action for the patient. Additional details are as follows:

- the communication must be made via a live conversation within 60 minutes of the time that the finding was noted
- the communication must be from the radiologist to either the referring clinician or delegate.
- If the primary contact cannot be reached in a timely fashion, a defined escalation process must be in place to assure that the communication occurs within 60 minutes

When the interpreting radiologist has specific knowledge that a clinician or other licensed caregiver who is responsible for the patient is aware of the Critical Results (either by prior communication with the responsible physician, or by identification of a note by the responsible clinician regarding the imaging findings) the communication protocols outlined in Sections A, B and C need not be followed. In such a case, the reporting radiologist documents the acknowledgement in the ICT system, PeerVue where available or other local system, and documents in the final radiology report the name of the clinician or licensed

caregiver who was aware of the Critical Results, the manner in which he/she became aware and the time of communication.

C. Requirements for Documentation

The details of the communication of Critical Results should be clearly documented in the final radiology report, including:

- date and time of the communication
- name of the individual who communicated the Critical Results
- name of the individual who received the Critical Results
- method of communication

A sample statement might read: "These findings were communicated by telephone by Dr. [Full name] to Dr. [Full name] at 3:15 PM on Monday, February 2, 2015".

Documentation of Critical Results communication in the final radiology report, or another auditable medium, should be constructed so that it is possible to determine the amount of time that elapsed between the observation of the Critical Results and communication of the Critical Results to the responsible caregiver.

D. Monitoring and Compliance

Each Radiology department will monitor and measure compliance with the standards for non-routine communication of Critical Results.

As a suggestion, this may be audited by reviewing the equivalent of one full (non-weekend) day's worth of final Radiology reports each quarter. The review should be completed by the Department Chairperson, Division Heads, or their designees. The results of this review, which will include the KQIs, should be reported to Radiology Departments, and should include the following:

- the total number of reports reviewed
- the number of reports that included Critical Results
- the number of reports in which Critical Results were included where communication was handled and documented according to the standards described in this document.

An escalation procedure should be in place locally where unanswered communications of alerts within agreed defined timelines should be in place. This escalation procedure should involve the radiology department list of alerts review by the department chair and managed by a designated person within the department at all times. The department should take appropriate actions to assure adherence to the standards.

3.5.3 Urgent results

A. Definition

Urgent Results are any new or unexpected findings on an imaging study that suggest conditions that could result in mortality or significant morbidity if not appropriately treated urgently (within 2-3 days).

Examples of Urgent Results include:

- a new or unexpected intra-abdominal abscess
- an impending pathological hip fracture

B. Requirements for Communication

Urgent Results require notification of the ordering clinician or other licensed caregiver who can initiate the appropriate clinical action for the patient.

- the communication must be made within 24 hours of the time that the finding was noted
- the communication must be directly from the radiologist to either a responsible physician or other licensed caregiver
- if communication via a live conversation is not possible, it should be via an alternative method that is approved by the institution and that permits accurate documentation and auditing
- if the primary contact cannot be reached in a timely fashion, a defined escalation process must be in place to assure that the communication occurs within 24 hours

When the reporting radiologist has specific knowledge that a clinician or other licensed caregiver who is responsible for the patient is aware of the Urgent Results (either by prior communication with the responsible physician, by use of an alternative communication method that complies with institutional policies and procedures, or by identification of a note by the responsible clinician regarding the imaging findings) the communication protocols outlined in Sections A, B and C need not be followed. In such a case, the reporting radiologist documents the acknowledgement via PeerVue where available, or a local ICT system, and should document in the final radiology report the name of the clinician or licensed caregiver who was aware of the Significant and Unexpected Results, and the manner in which he/she was made aware.

C. Requirements for Documentation

The details of the communication of Urgent Results must be clearly documented in the final radiology report or another auditable medium including PeerVue.

Documentation should include:

- date and time of the communication
- name of the individual who communicated the Urgent Results
- name of the individual who received the Urgent Results

3.5.4 Unexpected and Clinically Significant results

A. Definition

Unexpected and Clinically Significant Results are any new or unexpected findings on an imaging study that suggest conditions that could result in significant morbidity if not appropriately treated, but are not immediately life-threatening.

Examples of Unexpected and Clinically Significant results include:

- a lung nodule or a solid renal mass suspicious for a new carcinoma.

B. Requirements for Communication

Unexpected and Clinically Significant Results require notification of the referring clinician who can initiate the appropriate clinical action for the patient.

- the communication must be made within 6 days of the time that the finding was noted
- the communication must be from the radiologist to either a responsible clinician or other licensed caregiver
- the dictated report must specify the concern in question. For example ‘A new 1.0 cm coin lesion is noted in the right mid-zone and follow-up is recommended’ is not adequate. This example report should read ‘A new 1.0 cm coin lesion is noted in the right mid-zone and follow-up is recommended as it may represent an early lung carcinoma.’

- if the communication is not via a live conversation, it should be via an alternative method that is approved by the institution and that permits accurate documentation and auditing
- if the primary contact cannot be reached in a timely fashion, a defined escalation process must be in place to assure that the communication occurs within 6 days

When the interpreting radiologist has specific knowledge that a clinician or other licensed caregiver who is responsible for the patient is aware of the Critical, Urgent or Unexpected and Clinically Significant Result (either by prior communication with the responsible physician, by use of an alternative communication method that complies with institutional policies and procedures, or by identification of a note by the responsible clinician regarding the imaging findings) the communication protocols outlined in Sections A, B and C need not be followed. In such a case, the reporting radiologist must document in the final radiology report the name of the clinician or licensed caregiver who was aware of the Unexpected and Clinically Significant Result, and the manner in which he/she was made aware.

C. Requirements for Documentation
The details of the communication of Unexpected and Clinically Significant Results must be clearly documented in the final radiology report or another auditable medium.
Documentation should include:

- date and time of the communication
- name of the individual who communicated the Unexpected and Clinically Significant Results
- name of the individual who received the Unexpected and Clinically Significant Results

3.5.5 Process

- Define acceptable mechanisms of communication based on the degree of urgency of the findings and the local resources. For critical findings, typically a direct vocal communication of results may be required. For less urgent reports individual hospitals may permit other mechanisms of reporting, for example electronic mail, fax or a 'flagging' mechanism on an electronic patient record. The mechanism chosen must ensure that the clinician is informed in a timely manner. The process should make it clear to the Radiologists what mechanism of communication is to be used in each degree of urgency.
- Identify clearly the responsibilities of personnel, other than Radiologists, who may be integral to the communication process.
- Define a mechanism whereby both the sending of the critical, urgent or unexpected and clinically significant report and the acknowledgement of its receipt is recorded (closing the loop). This system should highlight reports that have not been reviewed within their agreed timeframes as per local policy.
- The mechanism should contain an appropriate escalation policy if it is not possible to notify the referring clinician within the timeframe determined by the hospital policy. For example, if a given consultant has failed to respond within a timeline, the Radiologist should inform his/her Clinical Director.
- Should be clear. transparent and subject to audit.

3.5.6 Responsibilities

Consultant Medical Staff:

- Consultant medical staff are responsible for ensuring that team members are aware of the hospital/radiology communication policy and that it is implemented appropriately.

Referring Clinicians:

- Maintain the responsibility to read and act upon all radiology reports for investigations which they generate. A recognised procedure to ensure all results are checked should be included in the protocol.
- Must ensure their contact details are clearly identified on the request form
- Are responsible for adhering to the procedural steps of the policy
- Ensure that they are ready at all times to receive critical, urgent and unexpected and clinically significant communications, by the mechanisms agreed with by the clinicians and the hospital or to delegate this responsibility to their clinical team, SHO grade or above, or medical secretary.
- Only a fully registered medical practitioner, SHO grade or above, may acknowledge the alert to the reporting radiologist. If defined in local policies, the communication of this acknowledgement may reasonably be delegated to a medical secretary by the fully registered practitioner.
- All critical, urgent and unexpected and clinically significant finding reports must be notified by the team member(s) to the consultant.

Reporting Radiologists:

- Maintain responsibility for ensuring that critical, urgent and unexpected and clinically significant radiological findings are reported and available to the referring consultant or delegate in the stated timeframe.
- Confirmation must be received e.g. if the communication is by voice mail, e-mail or sms, the communication is not legally deemed to have occurred until an acknowledgement is received. This should be done in a timely fashion as determined by the agreed protocol.
- The protocol should include the documentation of a register of cases and close out confirmation.
- It is acknowledged that the support of the referring clinicians is required and the Faculty recommends that individual Radiology departments consult with the referring clinicians for the protocol.

Hospital Management:

- Should ensure appropriate resources are in place to achieve compliance with the policy. This may need the development and provision of appropriate IT support.
- Should ensure appropriate resources are in place to ensure audit of the policy.
- Should ensure governance structures are in place to allow development and review of the policies.

3.5.7 Key Quality Indicators

- Number of radiology alerts where the acknowledgement was received within the guideline acknowledgement time (expressed as a % of the number of radiology alerts)
- Number of radiology alerts for each urgency level (expressed as % of total cases)
- Number of acknowledged communicated cases of unexpected and clinically significant radiological findings (expressed as % of total cases)

3.6 Focused Audit

Currently ad hoc audit is a frequent activity in many Radiology Departments but may not be recorded in a formalised manner or credit given for participation. As part of the enactment of Section 11 of the Medical Practioner Act 2007, participation in clinical audit is now required for all registered medical practitioners. Clinical audit should be conducted in all aspects of Radiology services covering structure, process and outcomes. Routine focused audit of report turnaround time and report completeness should be conducted. Local protocol will determine what other audit(s) to conduct, frequency of audit(s) and number of cases to be considered. As far as possible the audit cycle[ii] should be completed through the implementation of change and the assessment of improvements made.

The Royal College of Radiologists (UK) has an extensive list of audit recipes which could assist radiology departments in the selection of audits www.rcr.ac.uk/clinical-radiology/audit-and-qi/auditlive. Similarly, a range of Practice Quality Improvement project outlines are available from the American College of Radiology (ACR) http://www.acr.org/Quality-Safety/Quality-Measurement/Quality-in-Practice/PQI-Projects.

3.6.1 Key Quality Indicators

- Number of Audits Commenced
- Audit Type - Individual can be divided into the following categories:
  - Structure
  - Process
  - Outcome
- % of Audits with Audit Cycle complete
- % of Audits cancelled

3.7 Report Turn Around Time (TAT)

Although Turnaround Time is not a marker of the accuracy or quality of an individual report, it is reflective of the value of the report in a patient care episode, particularly in time critical clinical circumstances. The most meaningful definition of turnaround is from the time of request to final report; however, for the purposes of these guidelines, and focusing on the work of the Radiologist and that which is in their control, turnaround time refers to the time from exam completion and presentation to the radiologist, to the final report. Report turnaround time can justifiably be considered a reflection of a department's quality because of the potential impact of a delayed diagnosis on patient management. Individual radiologists clearly have an important role in ensuring the timely reporting of studies; however, prolonged turnaround times are more likely to reflect an inadequate number of radiologists within a department for the number of examinations being performed. Many other factors also have an impact e.g. the adequacy of clerical staffing, staff efficiency, voice recognition effectiveness, case complexity and IT infrastructure.

3.7.1 Definition

- Report Turn Around Time (TAT) is the time from when the exam is complete and the image made available for interpretation to the Radiologist, to the time the report is finalised.

3.7.2 Process

- Typically, a report is dictated at the completion of a radiologic examination. This is increasingly via voice recognition software, with final sign-off at completion of dictation, but in departments without this software, the dictation requires transcription and subsequent entry into a computer network or printing, after which it is verified and signed by the radiologist.
- As a minimum, departments are recommended to monitor overall report turnaround time.
- Overall Report turnaround time is calculated from the time the imaging is made available to the Radiologist to the time the report is sent to the requesting clinician. Turnaround time calculation is based on working days and does not include weekends or bank holidays.
- It is recommended that departments collate all cases into the following recommended subgroups, measure and analyse TAT, and report by subgroup classification. Subgroups could be formed on the basis of case turnaround time priority e.g.
    - {Subgroup A} – {In-patients}
    - {Subgroup B} – {GP studies}
    - {Subgroup C} – {OPD studies}
    - {Subgroup D} - Other cases

- Each department is responsible for improving and maintaining report TAT. To this end TAT targets can be set locally for each of the above subgroups until intelligent National Targets are made available.
- Subsequently the overall TAT can be broken down into its constituent processes to identify key rate limiting steps within the overall process. Inefficiencies may be directly attributable to the Radiologist, the department or hospital management.
- It is recognised that in order to enable the routine review of report turnaround time adequate IT capabilities should be in place.

3.7.3 Key Quality Indicators

- The % of cases with Report Turnaround Times within either 8hrs, 24hrs or 72hrs for all and by referral source and modality.

3.8 External Review

3.8.1 Inter-Institutional Review

Inter institutional case review provides a necessary unbiased mechanism for evaluating diagnostic accuracy at the original institution. It is a very useful form of peer review.

Process

- Occurs prospectively when a Radiologist seeks a second opinion from a radiologist in another hospital prior to authorisation of the final report.
- Occurs retrospectively when a patient's treatment is transferred to another institution and a review of original diagnosis is requested. It can also occur when a clinician requests a review of original diagnosis by an external institution.
- It is the responsibility of the referring institution to ensure all images, reports and relevant clinical information is disseminated to the reviewing Radiologist in a timely fashion. A full record is deemed to include images and reports and one without the other is incomplete.
- The reviewing Radiologist forms an opinion of the previous interpretation of the original Radiologist.
- The reviewing Radiologist should record the level of agreement with the original reporting Radiologist's diagnosis, see Table 1.

- It is recognised that differences of opinion between the reviewing Radiologist and the original reporting Radiologist may arise due to the availability of additional information subsequent to the initial imaging. Many of these differences of opinion arise because the reviewing Radiologist is in possession of additional clinical facts relating to the patient's care; this may not have been the case in respect of the original reporting Radiologist. In the Faculty guide to Open Disclosure in Radiology, 2015, this circumstance is referred to as 'refinement of diagnosis' and it is not be considered an error on the part of the original reporting Radiologist.
- With the introduction of Quality Groups, it is anticipated that the number of Inter-Institutional Reviews will increase in those hospitals engaging in a Quality Group, as they will be routinely reviewing cases which have originated in other hospitals within their Group.
- If a quality issue has been noted, the reviewing Radiologist should inform the original reporting Radiologist, whenever possible, if deemed necessary. The specialist opinion of the reviewing Radiologist and any additional clinical information should be made available to the Radiology department of the original institution.
- The overriding concern is always patient safety and clinical need is always the first priority. In the event a reviewing Radiologist identifies an issue, their first obligation is to confer with the originating Radiologist, to ensure that the patient's safety is prioritised. Failing this radiologist to radiologist communication, direct communication with the referring clinician is appropriate. Where there is an electronic system the inter-institutional review can be captured at the time of retrospective peer review, where the other institution is noted.
- If the reviewing Radiologist submits the case for a Quality Improvement Meeting, this is a separate and secondary process to the clinical care episode.

3.8.2 Monitoring and Compliance

As a suggestion, an audit of this quality activity can be carried out which would include the following measurements:

- Number of accession numbers received in for review.
- Number of accession numbers received from other institutions referred back to the original institutions RQI meeting (expressed as a % of total accession numbers reviewed, by modality)

3.8.3 External Quality Assessment (EQA)

This is a process whereby an external accredited unit would assess the diagnostic capabilities of a department. This is done by submitting images of known diagnoses to a Radiology department to report. The accreditation unit evaluates and scores the responses and feeds back the score to the department. This is a continual assessment in which a radiology department voluntarily participates.

There are few established EQA Schemes currently in place for Radiology. PERFORMS is an EQA scheme for Mammography operating in UK. The Faculty of Radiologists, RCSI, will evaluate existing schemes with respect to efficacy, cost and adaptability to the Irish Healthcare System. Depending on the outcome of this evaluation the Faculty of Radiologists, RCSI, will make recommendations on best practice EQA for diagnostic radiology.

4 Interventional Radiology Guidelines

In addition to the guidelines for diagnostic radiology which will apply equally to interventional radiology, there are some specific areas of quality assurance to interventional radiology which are outlined in this section.

4.1 Use of a safety checklist.

Arising from lessons learnt in the civil aviation industry and overwhelming evidence in the Surgical literature, Professor Michael Lee led a CIRSE Task force in the creation of a patient safety checklist for Interventional Radiology, based on the WHO model, with a view to decreasing mobidity and mortality associated with IR procedures. The checklist (Appendix IV) was successfully tested in four hospitals across Europe before launch in 2012. The single-page document comprises pre-procedural ("Sign-in") and post-procedural ("Sign-out") components and can easily be modified to suit the requirements of individual hospitals.

The first section is titled "Procedure Planning." It is envisaged that this should be completed by the IR nurse/ward nurse. The preprocedure checklist contains important items such as whether or not the patient is receiving anticoagulation medication, whether the patient is allergic to contrast material, and whether the patient has abnormal renal function requiring prophylaxis for contrast-induced nephropathy. These are items that can be easily forgotten on a busy day in the interventional suite, but their omission could result in potentially disastrous complications for the patient. It is hoped that adoption of the checklist will ensure that all of these items are recognised ahead of time and dealt with appropriately.

The second section of the checklist is a sign-in section, which can be completed by the IR resident, nurse, or staff interventional radiologist, and which deals with immediate checks that should be performed when the patient is in the IR room. This includes items such as checking that the patient is the correct patient, and that the correct side and site are being operated on.

The third section is entitled "Sign-out" and should be completed by the interventional radiologist who performed the procedure. The sign-out section encompasses patient orders, follow-up tests, and appointments made.

Interventional Radiologists are encouraged to incorporate the checklist into their clinical practice to help improve the safety of their patients. One could start by using the checklist for the most invasive procedures before applying it across the board.

4.2 Outcomes Meetings

Outcomes Meetings may include all procedure-related radiology in the department (i.e. not confined to formal Interventional Radiology, although it is likely to contribute most of the activity reviewed). Outcomes meetings include Morbidity & Mortality (M&M) meetings. The purpose of outcomes meetings is to review indications for, outcomes and potential complications of, interventional radiological procedures. Outcomes can be defined as radiology outcomes and clinical outcomes. These meetings do not replace the formal clinical follow-up of patients by an Interventional Radiologist.

Particular cases should be reviewed where an unexpected outcome has occurred or where there has been a complication or learning point. Equally, a series of cases may be reviewed where the outcomes of a group of similar procedures within a given unit may be analysed. In practice at present, these cases are discussed as part of the MDM of the sub-specialty in question.

Radiology Quality Improvement (RQI) meetings may also apply to Interventional Radiology, for example in cases where invasive procedures are performed on the basis of findings on non-invasive imaging, which may not prove accurate.

These meetings should be seen as an opportunity to review, learn and improve a service. In addition, nationally there is a forum at the bi-annual meetings of The Irish Society of Interventional Radiologists for the discussion of outcomes and complications. Cases with a particular learning point can be presented at this meeting improving learning nationally.

4.2.1 Key Quality Indicators

- Number of meetings held
- Number of patients reviewed (expressed as a percentage of total accession numbers)
- Number of patients for which learning points were listed or difficulties perceived (expressed as a percentage of total accession numbers)

4.3 MDMs - Clinical-Radiology Conferences

Interventional Radiologists will be present at many of these conferences and will sometimes participate as lead Radiologist. All aspects described in section 3.2 above apply equally to Interventional Radiologists. As above, outcome discussions form a portion of these meetings.

4.4 Radiology Alerts

As described in Section 3.5 together with Key Quality Indicators.

4.5 Focused Audit

Audit should be used by all practitioners of radiology be it basic biopsy and drainage work or more complex embolisation work. For interventional Radiologists these audits should be steered towards procedure success, complication rate, patient experience and patient outcomes.

Within the Royal College of Radiologists' (UK) list of audit recipes there is a category for audits applicable to Interventional Radiology which could assist radiology departments in the selection of audits Link to RCR Audit Live - Intervention Audits

4.5.1 Key Quality Indicators

- Number of Audits commenced
- Name of Audit
- Audit Type: audits can be based on any aspect of interventional practice including,
    - Indications for procedures
    - Patient (and procedure) outcomes
    - Radiation exposure
    - Equipment and disposable usage
    - Procedure success
    - Complication rate
    - Peri-procedural care
    - Patient experience
- % of Audits with Audit Cycle complete
- % of Audits cancelled

4.6 Report Completeness

Measuring the completeness of Interventional Radiology reporting is an important component of a department Quality Improvement plan and serves as one indicator of quality of care. Many studies have shown that standardised reporting forms, including synoptic reports or checklists, are highly effective in improving report adequacy, and help work towards a consistent approach for reporting.

There are a large number of documents and standards published for interventional radiology procedures, examples of which are those published by the professional societies e.g. CIRSE Standards of Practice (found at: http://www.cirse.org/index.php?pid=755) and SIR Reporting Standards (found at http://www.jvir.org/content/reporting). For specific procedures, it is recommended that these published documents should be reviewed.

Interventional Radiology departments can then develop reporting for other procedures and it is suggested here that a complete report should include:

- Indication for procedure
- Consent from patient
- Technical aspects of the procedure (include disposables, implantables, medications used)
- Final outcome
- Any complications
- Any follow up treatment
- Any post procedure care
- Any further recommendations

It is acknowledged that the assessment of completeness of a report could prove difficult given the range of procedures, associated minimum datasets and other reports generated with varying subjectivity on report completeness. An approach to consider is to audit report completeness on those reports submitted for outcomes meetings and submission to external registries.

The RQI meeting facilitates capture of a KQI in relation to Report Completeness as a meeting outcome (see Table 2 and 3.3.6 RQI Meeting KQI.)

4.7 External Review - Registries

A number of registries of Interventional Radiology procedures are in existence internationally.

Application to such confidential registries provides very robust information concerning the practice of an individual Radiologist or unit in comparison to a large peer group. Departments can submit cases for procedures they perform and this allows a large cohort of cases and outcomes. The outcomes for a large group practising throughout the UK and Ireland are available. Some of the registries (e.g. iliac stents) will give feedback to the individual operator/unit as to where they sit in terms of their peers for success rates, complications etc. Some do not provide this service, but a comparison can still be made between an individual unit's outcomes and that of the larger cohort.

The British Society of Interventional Radiology provides several registries available to members to whom cases can be contributed (http://www.bsir.org/registries/). In some cases comparative information is provided to the contributor to see where they sit in terms of their

peer group with respect to complications, outcomes and other indicators. Examples of such registries include aortic stents, iliac stents, biliary drainage, caval filters, carotid stents, vertebroplasties, and colorectal stents. It is recommended that all Radiology departments performing interventional procedures should submit cases to a recognised registry of Interventional Radiology. The registries are considered useful and should be encouraged, but are not yet compulsory.

4.7.1 Key Quality Indicators

- Number of accession numbers submitted to a recognised Interventional Radiology Registry (expressed as a % of total cases)
- Rates of complication, relative to registry successful outcomes and use of medication in comparison to peers.

4.8 Annual Report

An anonymised annual report is helpful in identifying department-wide errors and should be circulated to all participating Radiologists and the hospital Clinical Director outlining performance to KPI's. This anonymised annual report should document key learning and action points, including any recurrent patterns of error to demonstrate a departmental process for learning from mistakes. It is recognised that the identification of patterns of error should be sensitive to workload and work pattern.

5 Glossary Of Terms

Term	Definition
Accession number	The term Accession number refers to an identifier assigned to a radiology image. The identifier is unique within the hospital. The identifier is typically associated with one radiology image but may be associated with multiple images (for example taken from different angles).
Radiology Alert	The term “alert” refers to the communication and acknowledgement of a high priority message from one health professional to another.
Audit Cycle	The basic framework upon which all audit projects are based. An audit topic is chosen and a standard to be met is defined. Data is collected to identify what is really happening and this is compared with the standard. If the required standard is not achieved, changes are introduced to improve performance. The cycle should then be repeated to assess whether changes have led to the standard now being met.
Radiology alert acknowledgement	The term Radiology Alert acknowledgement, in relation to the QI programme, is used to describe the communication by a referring Clinician to the department that he/she is aware of the report and what the radiology finding is.
Clinical Audit	Clinical Audit is a subset of Quality Assurance. It is 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.
Critical Incident Reporting	Errors that lead to mismanagement with resultant significant morbidity or mortality should be recorded as critical incidents. What constitutes a radiological critical incident needs to be clearly defined in advance and not decided arbitrarily on a case by case basis. Critical incident reporting should be used appropriately to avoid errors being covered up or Radiologists being unfairly treated (European Society of Radiology).
Quality Issue	Quality issue is defined as an interpretation or event with learning potential for the radiologists (or radiographers) in the department to include examples of differences of opinion, exemplary practice or expertise sharing with a view to improving patient safety and care.
Exam	The term examination or exam refers to an order for a radiology image and the resultant radiology images and radiology report. There will typically be one radiology report for each exam and may contain links to a number of accession numbers. An exam may also be called a case, a study or an order.
Imaging Conference	Imaging conferences are held with representatives from different disciplines and professional backgrounds who each have complementary experience, qualications, skills and expertise. Members of the team provide different services for patients in a co-ordinated and collaborative way. Membership of the team may vary and will depend on the patient's needs
MDM	Multidisciplinary Team Meeting. These are focused on a particular discipline eg Oncology, Vascular Surgery, Rheumatology. Oncology MDMs are most frequently subdivided according to organ e.g. breast, lung, prostate etc. The MDT team comprises an organiser, specialist surgical, medical and radiation oncologists who meet with sub specialist radiologists and pathologists so that

	all aspects of a patients care; diagnosis and staging to multistage treatment and follow up and management of relapse can be comprehensively evaluated.
NQAIS	National Quality Assurance Intelligence System – The QI Data Reporting Tool for the KQIs set out in these guidelines.
Outcomes	A result of the procedure: radiology outcome, clinical outcome and financial outcome.
PeerVue QICS	The QI ICT Data Collection procured for public hospitals.
Percentage Attendance	% of attendees from total number of Radiologists in a department.
Report Completeness	When reviewing a report for completeness it is recommended that the report be evaluated for the presence of core items defined by a standard. If any one of these core items is omitted the report is considered incomplete. If all core items are present the report is considered complete.
Percentage Completeness	% of reports which are 100% complete when compared to a minimum dataset.
QI Data	All data pertaining to the National Radiology QI Programme as set out in the KQI of these guidelines.
Quality Groups	Two or more hospitals that work together in Quality Improvement activities (including those set out in these guidelines) in a formal relationship.
Referring Clinician	A medical practitioner, hospital Consultant /GP, who refers a patient to a radiology department for diagnosis/treatment. Sometimes referred to as “Attending Clinician.”
Registry	A medical registry is a record of actual medical procedures and associated outcomes. International registries provide the opportunity to gather and analyze a large volume of data to better inform practice.
Reporting Radiologist	The term “reporting radiologist” refers to a medical specialist who is creating and signing the radiology report for an examination. Sometimes referred to as “Interpreting” Clinician.
Reviewing Radiologist	The term “reviewing radiologist” refers to the reporting radiologist reviewing a report created by another radiologist at an earlier time.
Quality Improvement	Quality Improvement (QI) is a framework for a complete and organised approach to service improvement comprising a systems approach for strategies for error reduction and prevention.

6 References

1	Irish Statute Book Medical Practitioner Act 2007, Section 11
2	Building a Culture of Patient Safety - Report of the Commission on Patient Safety and Quality Assurance. Department of Health and Children. Dublin: 2008.
3	HSE Risk Assessment tool and guidance (Including guidance on application). Revision 5. October 2011. Quality and Patient Safety Directorate
4	Requirements for Clinical Audit in Medical Radiological Practices (Diagnostic Radiology, Radiotherapy and Nuclear Medicine). HSE, Faculty of Radiologists (2011).
5	European Commission Guidelines on Clinical Audit for Medical Radiological Practices (Diagnostic Radiology, Nuclear Medicine and Radiotherapy) - http://ec.europa.eu/energy/nuclear/radiation_protection/doc/publication/159.pdf
6	Guidelines for Quality Assurance in Mammography Screening. Breast Check. The National Screening Programme. (Ireland)
7	RCR Audit Live - https://www.rcr.ac.uk/audittemplate.aspx?PageID=1016
8	Clinical Audit in Radiology: 100 + Recipes Gerald de Lacy, Ray Godwin and Adrian Manhire
9	Clinical Practice in Interventional Radiology, from the task force on clinical practice in IR , CIRSE (Cardiovascular and Interventional Radiology Society of Europe)- this comprehensive 2 volume report details standards for individual procedures and peri-procedural care
10	Interventional Radiology- improving quality and outcomes for patients. A report of the National Imaging Board, UK, Nov 2009.This report details how a health service can improve quality, safety and productivity while delivering comparable or better outcomes for patients with shorter hospital stays and fewer major complications. It describes how IR services can help to ensure patient safety whilst delivering the highest quality care
11	Shaping the Future of interventional Radiology, Royal College of Radiologists, London, 2007. This document aims to identify the challenges facing the field of Interventional radiology over the next 10 years and advise on how the service should be adapted to meet future needs including patient safety, provision of 24 hour care etc.

12	Interventional oncology: guidance for service delivery, Royal College of Radiologists, London, 2013. This document aims to identify best practice in interventional oncology. It looks at current models of practice ensuring that areas of clinical responsibility are clear and that interventional radiology procedures are part of the overall multidisciplinary care pathway.
13	Royal College of Radiologists, UK www.rcr.ac.uk **2012** **BFCR (12)11** Standards for the communication of critical, urgent and unexpected significant radiological findings **2010** BFCR(10)6 Standards for the recording of second opinions or reviews in radiology departments BFCR(10)5 Standards for a results acknowledgement system **2007** BFCR(07)8 Standards for Radiology Discrepancy Meetings **2005** BFCR(05)9 Cancer Multidisciplinary Team Meetings - Standards for Clinical Radiologists
14	American College of Radiologists (ACR) www.acr.org 2005 ACR Guidelines and Technical Standards. ACR Position Statement on Quality Control and Improvement, Safety, Infection Control, and Patient Education Concerns.
15	ACR Practice Guideline for Communication of Diagnostic Imaging Findings
16	Radiological Society of North America (RSNA) www.rsna.org
17	Rethinking Peer Review: What Aviation Can Teach Radiology about Performance Improvement. Radiology.rsna.org volume 259 number 3. Larson, Nance
18	American Roentgen Ray Society (ARS) www.ars.org
19	Journal of Digital Imaging. Business Intelligence Tools for Radiology: Creating a Prototype Model for Open-Source Tools. Prevedello, Andriole, Hanson, Kelly, Kharasani
20	Radiographics, Vol 30 Number 3. Massachusetts General Hospital and Harvard Medical School. Quality Initiatives: Key Performing Indicators for Measuring and Improving Radiology Department Performance. Abujudeh et al.

21	Ulster Med J 2012;81(1):3-9 ; Discrepancy and Error in Radiology, Concepts, Causes and Consequences. Brady,O'Laoide, McCarthy, McDermott
22	National QA Programme in Histopathology, Faculty of Pathology, RCPI: Guidelines and Implementation
23	Quality Management in Anatomic Pathology. Promoting Patient Safety Through Systems Improvement and Error Reduction. College of American Pathologists 2005 Nakhel RE, Fitzgibbons PL
24	Patient Safety in Interventional Radiology: A CIRSE IR Checklist. Michael J. Lee, Fabrizio Fanelli, Patrick Haage and Krijn P. van Lienden. CVIR (April 2012, Volume 35, Issue 2, pp 244-246).
25	S.I. No. 478/2002 - European Communities (Medical Ionising Radiation Protection) Regulations 2002, http://www.irishstatutebook.ie/2002/en/si/0478.html.
26	Faculty of Radiologists Guidance Document on Open Disclosure in Radiology, June 2015, www.radiology.ie

7 Footnotes

[i] Bias

- *Sampling bias* – only a percentage of radiology discrepancies will be uncovered and reviewed. Therefore, quality improvement meetings cannot be used to derive error rates for individual Radiologists.
- *Selection bias* – can arise if a certain type of study is reported by only one Radiologist, if a Radiologist reports more examinations than others (and thus may be over-represented in discrepancies), or if there is friction between individuals, which can lead to a lower threshold for submission of cases (Hawk effect). The corollary may potentially occurs where radiologists have a close personal relationship (e.g. good friends or Husband and Wife, which may dissuade them from highlighting the other's error (Dove effect). Ultrasound also tends to be under-represented relative to CT, MR and plain films, because of the nature of the permanent record.
- *Presentation bias* – presentation and discussion needs to be focused to learning points, so inevitably, discrepancies provide the focus of the discussion
- *Information bias* – can be minimised by only giving the clinical information that was available at the time of the original report
- *Hindsight bias* – cases are being reviewed in a quality improvement meeting, so inevitably participants suspect a discrepancy has occurred.
- *Outcome bias* – there is a recognised tendency to attribute blame more readily when the clinical outcome is serious. This can be reduced by withholding information on the subsequent clinical course of the patient when coming to a consensus decision on the degree of error.
- *Attendance bias* – poor attendance may inhibit ability to reach a reasoned consensus on whether an error has occurred, or its severity, because of a lack of critical mass of individuals who carry out the same type of work.
- *Variation* – all processes are subject to variation in performance over time (common cause variation). Sometimes variation is greater than expected, suggesting a specific cause for performance falling outside the usual range (special cause variation). Causes for special cause variation need to be sought in particular, once it is identified [1,2]

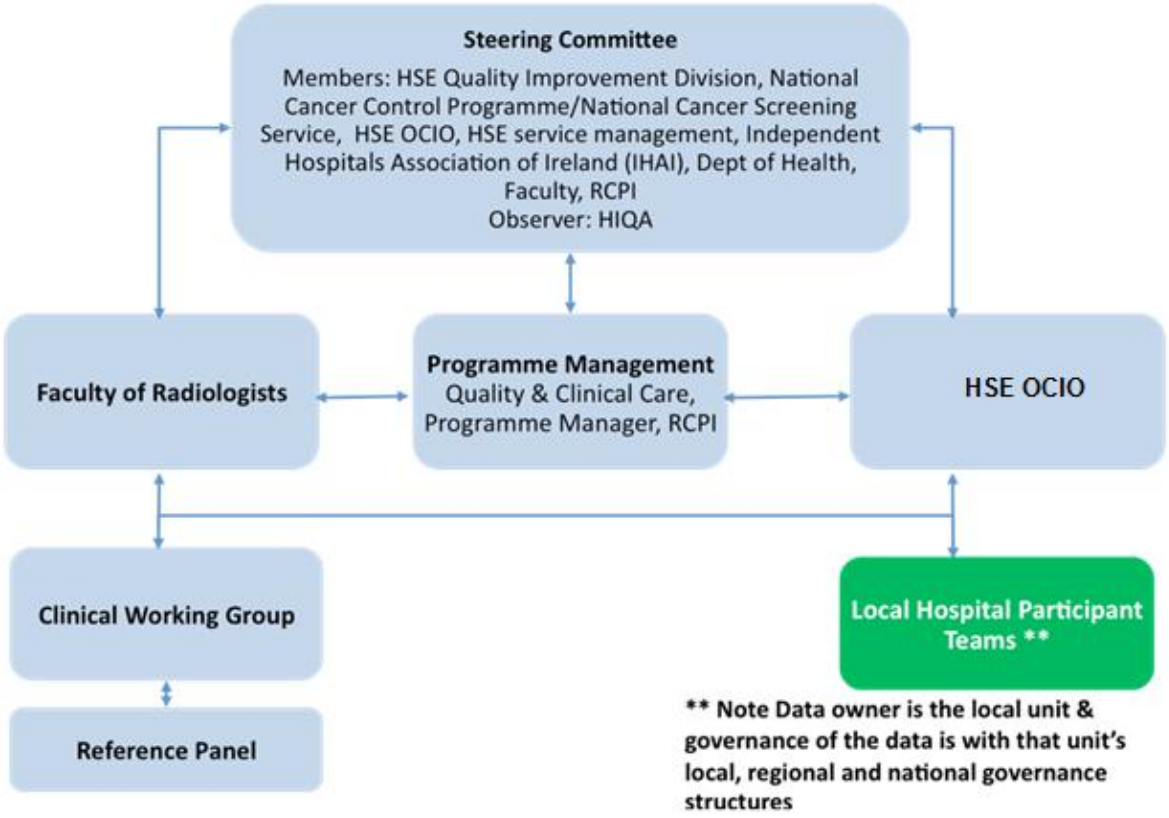
[ii] *Audit Cycle* **- a cycle that encompasses the clinical audit through to the implementation of change and improvements made**

Recommended reading:

- Quality and Safety in Radiology. Hani H. Abujudeh, Michael Bruno. Oxford University Press. ISBN 978 -0-19-973575-4.

8 Appendices

8.1 Appendix I : Governance Structure



8.2 Appendix II : Standarised Feedback Form from RQI Meeting

Purpose of this form:
An RQI meeting was held at the hospital named below in accordance with the quality assurance activity described in the National QI Guidelines in Radiology by the Faculty of Radiologists. The purpose of the Radiology Quality Improvement (RQI) meeting is to improve patient safety and care by mutual learning. An accession number that you originally reported on was discussed at this meeting and in line with the Guidelines, this form sets out the feedback to you:

Required Action:
If the quality issue identified has any clinical implications, the responsibility and duty of care to the patient remains with the original reporting radiologist.

WITHIN THE HOSPITAL

Discussed at Radiology Quality Improvement Meeting

Date:
Hospital:
Convenor Name:
Feedback to original reporting Radiologist : YES/NO
Outcome:

Meaning	Description
Observation	The quality issue is that the reporting radiologist over-stated or under-stated the significance of an observed feature or failed to observe something in the initial report that may have had an impact of the patient's episode of care.
Interpretation	The Reviewing Radiologist's interpretation of the report differed from the reporting radiologist's. This includes 'Refinement of Diagnosis.'
Misleading patient data	Reviewing Radiologist referred the case to a RQI Meeting as they believed there was inadequate or ambiguous patient data upon which the original report was based.
Report Completeness	A Reviewing Radiologist referred a report for consideration at a RQI Meeting, as they believed the initial report was incomplete and the missing information may have been material to the patient's episode of care.
Inter-observer Variability	A difference in interpretation and/or perception of clinical relevance of the same finding between two/or more Radiologists.
Information and educational feedback	Feedback which could be provided to Reporting Radiologist providing them with information to make more informed judgments in the future.
Compliment	Reviewing Radiologist submits a case to an RQI Meeting highlighting quality work by the Reporting Radiologist and wants that work to be recognised as such.
Technical	The case was referred to a RQI Meeting for review as the Reviewing Radiologist could not form an opinion due to the poor technical quality of the image(s) used by the Reporting Radiologist in the preparation of the report.
Other	The "Other" category can be used if the outcomes do not fall into one of the reasons above.

Comment:

EXTERNAL HOSPITAL

Quality issue noted within Hospital : Name of Hospital

Notification sent to Chair of the Radiology Unit/Lead Radiologists of External Radiology Dept:

Name of Chair /Lead Radiologist:
Name of External Radiology Dept:

Outcome:

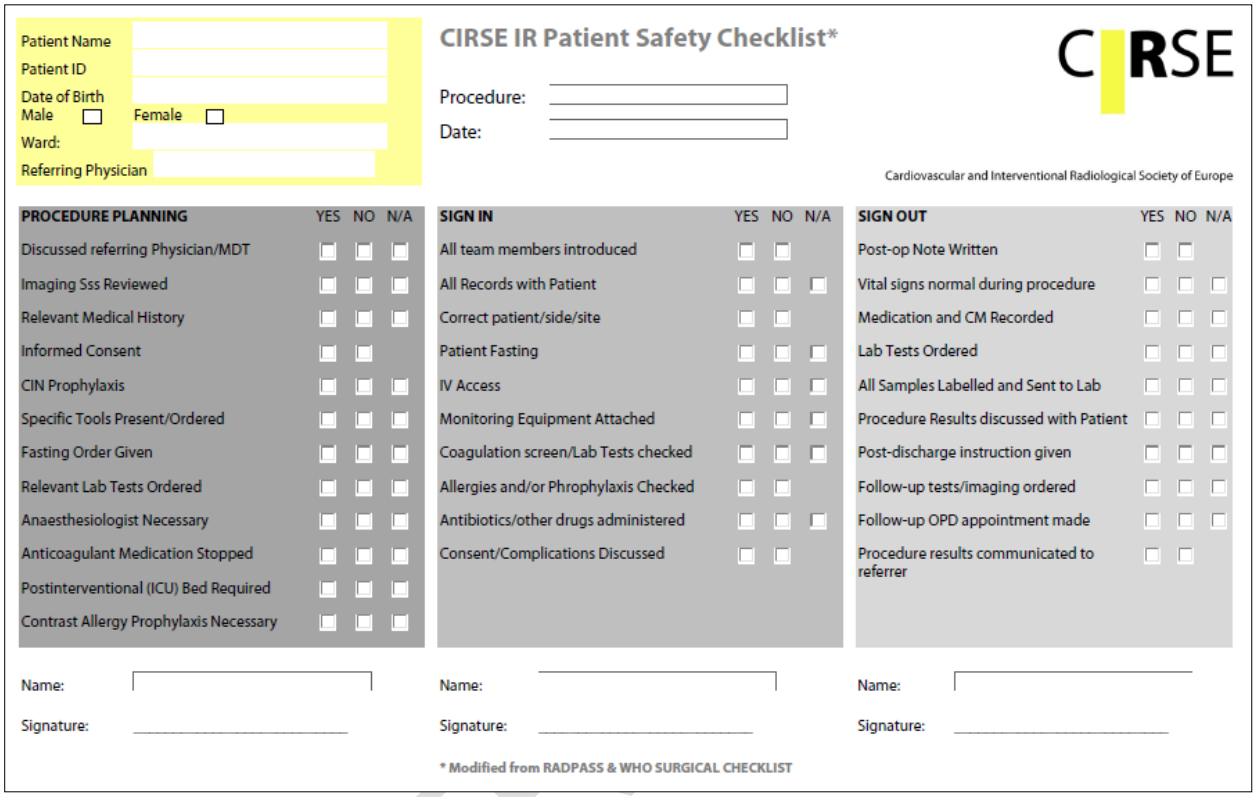
Meaning	Description
Observation	The quality issue is that the reporting radiologist over-stated or under-stated the significance of an observed feature or failed to observe something in the initial report that may have had an impact of the patient's episode of care.
Interpretation	The Reviewing Radiologist's interpretation of the report differed from the reporting radiologist's. This includes 'Refinement of Diagnosis.'
Misleading patient data	Reviewing Radiologist referred the case to a RQI Meeting as they believed there was inadequate or ambiguous patient data upon which the original report was based.
Report Completeness	A Reviewing Radiologist referred a report for consideration at a RQI Meeting, as they believed the initial report was incomplete and the missing information may have been material to the patient's episode of care.
Inter-observer Variability	A difference in interpretation and/or perception of clinical relevance of the same finding between two/or more Radiologists.
Information and educational feedback	Feedback which could be provided to Reporting Radiologist providing them with information to make more informed judgments in the future.
Compliment	Reviewing Radiologist submits a case to an RQI Meeting highlighting quality work by the Reporting Radiologist and wants that work to be recognised as such.
Technical	The case was referred to a RQI Meeting for review as the Reviewing Radiologist could not form an opinion due to the poor technical quality of the image(s) used by the Reporting Radiologist in the preparation of the report.
Other	The "Other" category can be used if the outcomes do not fall into one of the reasons above.

8.3 Appendix III : Local Department Policy

It is recommended that any department policy for communication of unexpected clinically significant, urgent and critical findings, and the department escalation process, contain the following elements:

1) Background
2) Purpose of the policy and procedure
3) Scope
4) Glossary of Terms
   - Definitions – e.g. What findings are considered Critical results?
   - Abbreviations
5) Roles and Responsibilities
   - If the referring clinician has nominated individuals who can acknowledge alerts on their behalf (while they still have overall responsibility), they should be detailed in writing and recorded here.
6) Policy
   - A Policy is a short synopsis on the approach that the department has set for itself. It provides guidance to be followed in drafting Procedures.
7) Procedure
   - A description of how to complete the alerts process
8) References / Bibliography
9) Revision History
10) Signature Sheet
   - For all members of the department to sign

8.4 Appendix IV : CIRSE IR Patient Safety Checklist



Patient Name
Patient ID
Date of Birth
Male ☐ Female ☐
Ward:
Referring Physician

CIRSE IR Patient Safety Checklist*

Procedure:
Date:

CIRSE

Cardiovascular and Interventional Radiological Society of Europe

PROCEDURE PLANNING	YES	NO	N/A
Discussed referring Physician/MDT	☐	☐	☐
Imaging Sss Reviewed	☐	☐	☐
Relevant Medical History	☐	☐	☐
Informed Consent	☐	☐	
CIN Prophylaxis	☐	☐	☐
Specific Tools Present/Ordered	☐	☐	☐
Fasting Order Given	☐	☐	☐
Relevant Lab Tests Ordered	☐	☐	☐
Anaesthesiologist Necessary	☐	☐	☐
Anticoagulant Medication Stopped	☐	☐	☐
Postinterventional (ICU) Bed Required	☐	☐	☐
Contrast Allergy Prophylaxis Necessary	☐	☐	☐

SIGN IN	YES	NO	N/A
All team members introduced	☐	☐	
All Records with Patient	☐	☐	☐
Correct patient/side/site	☐	☐	
Patient Fasting	☐	☐	☐
IV Access	☐	☐	☐
Monitoring Equipment Attached	☐	☐	☐
Coagulation screen/Lab Tests checked	☐	☐	☐
Allergies and/or Phrophylaxis Checked	☐	☐	
Antibiotics/other drugs administered	☐	☐	☐
Consent/Complications Discussed	☐	☐	

SIGN OUT	YES	NO	N/A
Post-op Note Written	☐	☐	
Vital signs normal during procedure	☐	☐	☐
Medication and CM Recorded	☐	☐	☐
Lab Tests Ordered	☐	☐	☐
All Samples Labelled and Sent to Lab	☐	☐	☐
Procedure Results discussed with Patient	☐	☐	☐
Post-discharge instruction given	☐	☐	☐
Follow-up tests/imaging ordered	☐	☐	☐
Follow-up OPD appointment made	☐	☐	☐
Procedure results communicated to referrer	☐	☐	

Name: Signature:

Name: Signature:

Name: Signature:

* Modified from RADPASS & WHO SURGICAL CHECKLIST

Michael J. Lee, Fabrizio Fanelli, Patrick Haage and Krijn P. van Lienden. CVIR (April 2012, Volume 35, Issue 2, pp 244-246).

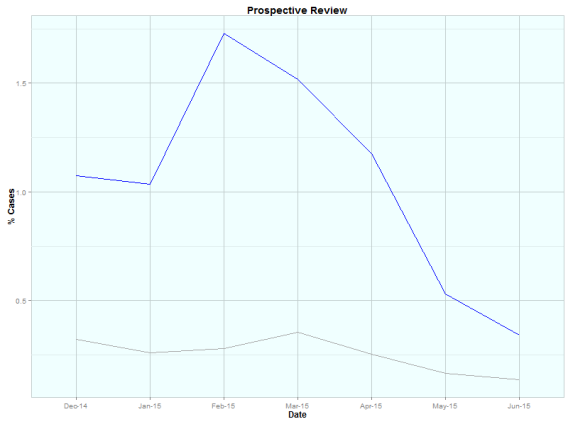
8.5 Appendix V : Activities and KQIs at a glance

Prospective Review

Prospective Review Rate

No. of Prospective Reviews divided by the Study Volume

Analysis over time, by modality and by patient class



Other statistics

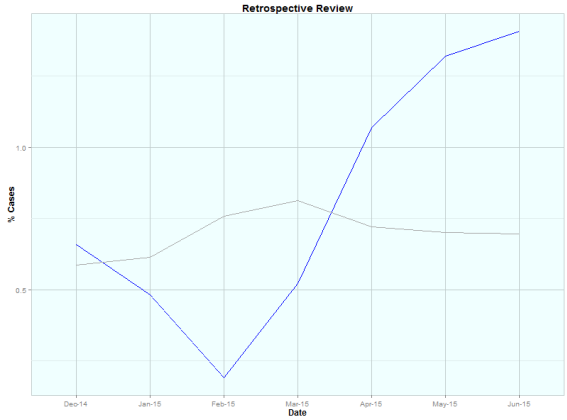
- Prospective Review Type[1]

Retrospective Review

Retrospective Review Rate

No. of Retrospective Reviews divided by the Study Volume

Analysis over time, by modality and by patient class



Other statistics

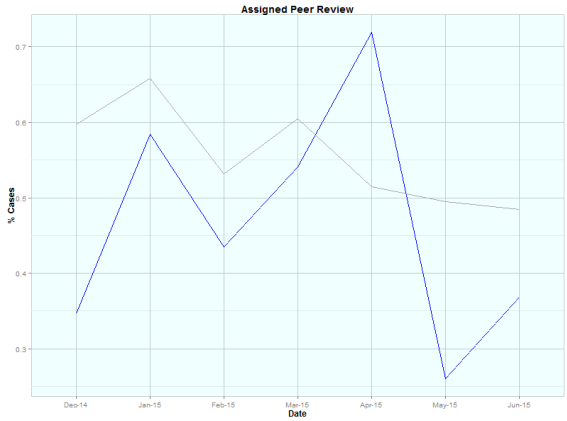
- Retrospective Review Outcome[2]

Assigned Peer Review

Assigned Peer Review Rate

No. of Assigned Peer Reviews divided by the Study Volume

Analysis over time, by modality and by patient class



Other statistics

- Assigned Peer Review Outcome[3]
- Assigned Peer Review Rejection Reason[4]

Combined Retrospective Peer Review

Combined Retrospective Review Rate

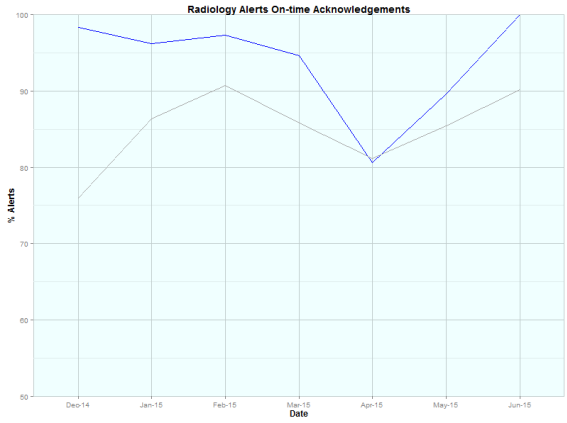
No. of Retrospective Reviews and Assigned Peer Reviews divided by the Study Volume

Analysis over time, by modality and by patient class

Other statistics

- Combined Retrospective Peer Review Outcome

Radiology Alerts



Radiology Alert On Time Ack. Rate

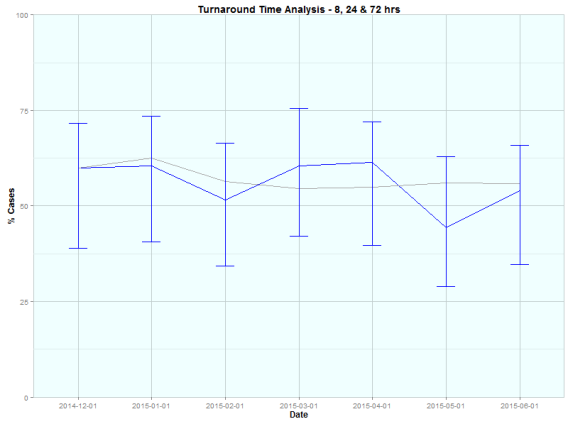
No. of Radiology Alerts acknowledged within the timeframe defined in the Guidelines divided by Radiology Alert Volume

Analysis over time and by patient class

Other statistics

- Radiology Alerts over time, by modality and by urgency[5]
- Radiology Alert Actions and Communications
- Escalated Radiology Alerts

Turnaround Time



Turnaround Time Within 24 hrs

No. of Studies with a Turnaround Time of less than 24 hours divided by Radiology Alert Volume

Analysis over time, by modality and by patient class

Other statistics

- Turnaround time within 2 hours, 8 hours and 72 hours and over 72 hours over time, by modality and by patient class
- Turnaround time percentiles (25th, 50th, 75th and 90th)

RQI Meetings

RQI Meeting Volume

No. of RQI Meetings

Other statistics

- RQI Meeting Attendance Rate
- RQI Meeting Studies
- RQI Meeting Study Source[6]
- RQI Category[7]

Multi-Disciplinary Meetings

Multi-Disciplinary Meeting Volume

No. of Multi-Disciplinary Meetings

Other statistics

- Multi-Disciplinary Meeting Studies

Outcome Meetings

Outcome Meeting Volume

No. of Outcome Meetings

Other statistics

- Outcome Meeting Reviews
- Outcome Meeting Studies

Focused Audits

Focused Audits Completed Volume

No. of Focused Audits completed

Other statistics

- No. of Focused Audits started, cancelled and on-going
- Focused Audit Categories[8]

External Registry Reviews

External Registry Review Volume

No. of External Registry Reviews submitted

Other statistics

- No. of External Registry Reviews with response
- No. of External Registry Reviews with:
  - Acceptable complications
  - Acceptable outcomes
  - Normal medication

---

1 Prospective Review Type: Consultation; Routine Double Read
2 Retrospective Review Outcome: Concur; Minor discrepancy; RQI meeting
3 Assigned Peer Review Outcome: Concur; Minor discrepancy; RQI meeting; Reject case
4 Assigned Peer Review Rejection Reason: Incorrect Specialty; Workload; Other
5 Radiology Alert Urgency: Critical; Urgent; Unexpected-significant
6 RQI Meeting Study Source: Retrospective Review; Retrospective Review (MDM); Assigned Peer Review
7 RQI Category: Observation; Interpretation; Misleading Patient Data; Report Completeness; Inter-observer Variability; Information or Educational Feedback; Compliment; Technical; Other
8 Focused Audit Category: Structure; Process; Outcome; Interventional Radiology

9 Comments: Revision History

Name	*Date*	*Reason For Changes*	*Version*
LC	24.09.10	Original Baseline Guidelines	1.0
LC	20.03.12	Revisions for consistency with ICT specification, further clarifications on peer review scoring, discrepancy meetings and general updating. General Updating minor comments Expanded definitions of the critical, urgent and significant clinically unexpected radiological results and inclusion of standardised form for communication of results from Discrepancy meeting.	2.0
BC	09.04.14	This revision focused on the replacement of RADPEER scoring, the renaming of discrepancy meetings to Radiology Quality Improvement Meetings, emphasizing the learning potential of the meetings where 9 options are available for improving quality, and some revisions to bring the guidelines into line with the PeerVue specifications (as part-designed by the Working Group and the Reference panel). General Updating minor comments Expanded definitions of the critical, urgent and significant clinically unexpected radiological results and inclusion of standardised form for communication of results from Discrepancy meeting.	3.0
CM	02.11.14		
SB	10.04.15	Standardised consistency with language and terminology throughout Updated references, glossary and appendices	
SB	10.06.15	Completed changes initiated with CM and Working Group. Developed formatting and corrected document for QA-QI, outdated info, and made up to date in light of PeerVue roll out changes. Significant changes arising from the incorporation of the Open Disclosure standard. Final Changes made following input from Dean of Faculty and Chair of the Working Group.	