

National Radiology Quality Improvement Programme

3rd National Data Report
1 JAN - 31 DEC 2021



RCSI FACULTY OF
RADIOLOGISTS



**ROYAL
COLLEGE OF
PHYSICIANS
OF IRELAND**

CONTENTS

FOREWORD	5
KEY RECOMMENDATIONS	6
KEY FINDINGS AND OBSERVATIONS	8
GLOSSARY OF TERMS	10
CHAPTER 1 INTRODUCTION TO THE PROGRAMME	13
CHAPTER 2 DATA QUALITY	16
CHAPTER 3 WORKLOAD AND RESOURCES	26
CHAPTER 4 PROTECTED TIME IN RADIOLOGY DEPARTMENTS	31
CHAPTER 5 REPORT TURNAROUND TIME	34
CHAPTER 6 PEER REVIEW	40
CHAPTER 7 RADIOLOGY ALERTS	52
CHAPTER 8 RADIOLOGY QUALITY IMPROVEMENT MEETINGS	61
CONCLUSION	65

WORKING GROUP, NATIONAL RADIOLOGY QUALITY IMPROVEMENT PROGRAMME

Dr Catherine Glynn (Chair)	Consultant Radiologist, University Hospital Galway
Dr Peter Kavanagh	Dean, Faculty of Radiologists, RCSI Consultant Radiologist, Connolly Hospital Blanchardstown, Dublin
Dr Patricia Cunningham	Consultant Radiologist, Our Lady of Lourdes Hospital, Drogheda and Our Lady's Hospital, Navan
Dr Rachel Ennis	Consultant Radiologist, University Hospital Galway
Dr Ferdia Bolster	Consultant Radiologist, Mater Misericordiae University Hospital, Dublin
Dr Angela Byrne	Consultant Radiologist, Children's Health Ireland at Crumlin, Dublin
Dr Tadhg Gleeson	Consultant Radiologist, Wexford General Hospital
Dr Jennifer Kerr	Consultant Radiologist, Beaumont Hospital, Dublin
Dr Grainne Govender	Consultant Radiologist, St. James's Hospital, Dublin
Dr Darragh Halpenny	Consultant Radiologist, Tallaght University Hospital, Dublin
Dr Barry Hutchinson	Consultant Radiologist, Tallaght University Hospital, Dublin

PROGRAMME MANAGEMENT TEAM, RCPI

Joanna Wolak	Programme Manager, National Radiology Quality Improvement Programme, RCPI
Caitríona McGrath	Manager, National Specialty Quality Improvement, RCPI

FOREWORD

I am delighted to have taken up the role of Chair of the National Radiology Quality Improvement (NRQI) Working Group since October 2021, as part of my role as a Board member of the Faculty of Radiologists.

This is the third national data report from the NRQI programme, covering the calendar 2021 year. This report presents anonymised aggregate quality improvement (QI) data collected from radiology departments in 48 participating public and voluntary hospitals.

As we all know, the COVID-19 pandemic continued to have an impact on service delivery across the Irish health services throughout 2021, and radiology services did not escape this impact.

The ransomware cyber-attack on the HSE in May 2021 also had a marked and immediate negative impact on all services, particularly on those specialties which are heavily dependent on technology, such as radiology. Building work arounds and bringing hospital Picture Archiving and Communication Systems (PACS) back online was very labour intensive and we acknowledge the huge efforts across many different HSE departments, especially ICT departments, that ensured it happened safely.

However, it has taken some time for certain aspects of radiology, such as quality improvement related activity, to come back online. This has been largely due to enhanced security measures put in place subsequent to the cyberattack, impacting the connectivity of QI data collection and reporting systems at a national level. This led to uncertainty in late 2021 as regards the accuracy and completeness of any data obtained from May 2021 onwards.

I am happy to now report that in early 2022, the connectivity between the various PACS systems around Ireland to the National Quality Assurance and Improvement System, NQAIS-Radiology was restored and all 2021 data were retrospectively uploaded from the 48 participating hospitals. The data in this report are as complete as in previous years, which should allow for direct comparison. As a reminder, the QI data collected allows individual departments to compare their performance against national aggregate results. That said, there are inevitable gaps in data, as documented in previous years reports.

The NRQI working group would like to sincerely thank all the QI Lead Radiologists and QI Tech Leads in each hospital for data collection, collation and quality improvement initiatives in their departments.

The commitment of the National Specialty QI Programme Steering Committee, the Faculty of Radiologists, the National Quality and Patient Safety team, HSE and the Programme Management Team, RCPI is, as always, deeply appreciated and we sincerely thank you for your ongoing support.

Dr Catherine Glynn
Chair, National Radiology QI Programme Working Group

KEY RECOMMENDATIONS

DATA QUALITY

- 1** The NRQI working group recommends that sites manually upload summary data in conjunction with the preparation of the quarterly report. Sites are reminded on a quarterly basis to access reports in NQAIS-Radiology for the purposes of sharing with colleagues and senior hospital management.

See Chapter 2
- 2** The NRQI working group recommend that further technical improvements are implemented to enhance automated uploading functionality; this would facilitate the recording of radiology QI activities which may be happening in practice but which are not being captured.

See Chapter 2

WORKLOAD

- 3** Radiology departments must be resourced adequately and in line with European best standards to continue to provide the optimum level of service to patients and to ensure a reduced burden on existing staff to decrease the risk of burnout. This is strongly supported by international research.

See Chapter 3
- 4** There is a backlog of patients requiring radiological examination. The NRQI working group recommend that additional resources are put in place to ensure patients receive diagnoses in an appropriate timeframe.

See Chapter 3

PROTECTED TIME IN RADIOLOGY DEPARTMENTS

- 5** The NRQI working group recommend that hospital management should provide greater support for radiology QI activities by complying with previously agreed recommendations to ensure protected time for Lead QI Radiologists (4 hours per week), and all other consultant radiologists (2 hours per week).

Embedding these protected hours in revised work plans for all existing and new consultant radiologists is essential.

See Chapter 4

TURNAROUND TIME

6

The NRQI working group encourage sites to audit local processes to assess any potential improvements that could be implemented in order to achieve 90% radiology reports authorised within the specified turnaround time.

See Chapter 5

PEER REVIEW

7

The NRQI working group strongly recommend that all radiologists complete their assigned peer review cases each week.

See Chapter 6

RQI MEETINGS

8

The NRQI working group recommend that radiology quality improvement (RQI) meetings are used to encourage a culture of mutual respectful learning with emphasis on positive learning and feedback with “good pick up” cases forming a central role.

See Chapter 8

3rd NATIONAL DATA REPORT

KEY FINDINGS AND OBSERVATIONS

CHAPTER 2: DATA QUALITY

1. It is clear that the rate of recording QI activity is low in multiple sites in Irish hospitals, albeit that the verbal feedback from departments is that QI activity is happening locally. Therefore, the data in the report do not accurately reflect national QI activity occurring, but are what is available to work with currently. Working group members are concerned about this and are eager to increase this activity and documentation of same. Low participation in radiology QI, if real, carries a potential risk for patient safety.
2. Improvement of the remote reporting functionality on NIMIS and other PACS platforms will enable off-site delivery of radiology services and QI activities and can provide a greater level of safety for radiologist staff during a pandemic situation.

CHAPTER 3: WORKLOAD AND RESOURCE

3. This report presents 2.7 million radiology cases recorded in 2021, from the 48 public hospitals participating in the NRQI programme. This represents a 6% workload increase (151,479 cases) in comparison to 2020 records.

CHAPTER 4: PROTECTED TIME IN RADIOLOGY DEPARTMENTS

4. 41% of survey respondents stated that they perform QI activities less frequently than 2-4 hours per week.

CHAPTER 5: REPORT TURNAROUND TIME

5. Despite difficulties in processing radiology cases, caused by both the COVID-19 pandemic and cyber-attack, the number of radiology reports completed returned to normal levels in the third and fourth quarters of 2021.
6. In 2021, 18 out of 41 NQAIS sites met or exceeded the recommended TAT target of 90%, this was a decrease of five sites from 2020 and similar to 2019 findings.

CHAPTER 6: PEER REVIEW

7. The percentage of completed cases subject to the retrospective review remained low in 2021, with a decrease in many hospitals when compared to 2020. Most sites recorded less than 1% cases as retrospectively peer reviewed.

CHAPTER 7: RADIOLOGY ALERTS

8. A decrease in the overall number of alerts for emergency department, external, inpatient and outpatient referrals can be seen for 2021. Referrals sent from GPs saw an increase of 3,000 radiology alerts raised. These results and particularly differences in records between 2020 and 2021, should be reviewed in the broader context of the annual workload, the impact of the COVID-19 pandemic and the cyber-attack in May 2021. Due to the consequences of the cyber-attack, local systems were offline for a considerable time and it is likely that radiologists have reverted to other methods of communication, such as phone calls.

CHAPTER 8: RADIOLOGY QUALITY IMPROVEMENT MEETINGS

9. In 2021 attendance at RQI meetings was recorded by seven sites, while in 2020 records were submitted by ten sites. It is recognised by the working group, that access to external applications such as NQAIS and ability to record summary data was disrupted by the cyber-attack in May 2021 and radiology departments across Ireland were recovering from this event at a varied pace. This could have an impact on the completion level of summary data submitted in 2021.

GLOSSARY OF TERMS

Accession number	This is a number assigned to each case by the local information system.
Anonymisation	Anonymisation of data means that data are processed in such a way that identification of persons or other data subjects is prevented. When data are anonymised, it is not possible to link them back to an identified or identifiable natural person.
Case	A case refers to a single examination. One case can contain one image (e.g. plain film) or multiple images (e.g. Magnetic Resonance).
CT	Computed Tomography, utilises x-ray photons and digital image reconstruction to create a two- or three-dimensional image.
DXA	Dual-energy X-Ray Absorptiometry, also called bone densitometry.
ED	An emergency department in a hospital. In this report ED relates to patients referred to a radiology department from an emergency department.
Exam	A request to a radiology department to carry out diagnostic imaging, an interventional procedure or some other service for a patient. For the Key Quality Indicators and purpose of this report an Exam will be classified as a Case.
Ext	External Referral. When a patient is referred to a radiology department from another hospital/centre.
External Review	A review of a radiology procedure carried out by a third party.
FL	Fluoroscopy. This is an imaging modality that uses x-rays to allow real-time visualisation of body structures, often with the use of high-density contrast agents.
Focused Audit	A Focused Audit is a review carried out by a radiologist into an aspect of the radiology service.
GP	General Practitioner. In this report GP relates to patients referred to radiology department by a general practitioner.
HSE	Health Services Executive
ICT	Information and Communications Technology
IP	Inpatient. This is a patient referred to radiology department after they have been admitted to hospital.
IR	Interventional radiology. This is a therapeutic and diagnostic specialty that includes a wide range of minimally invasive image guided therapeutic procedures, including minimally invasive diagnostic imaging.
KQI	Key Quality Indicator. These are standardised, evidence-based measures of health care quality e.g. Report Turnaround Time.

MDM	Multidisciplinary Team Meeting. These meetings form an essential part of the clinical care of patients with cancer, suspected cancer or other clinical conditions and involve specialists in many areas coming together to agree on the best treatment options for individual patients.
MG	Mammography. This modality uses low energy x-rays specifically for imaging of breast tissue.
Modality	A term used in radiology to describe the form of imaging (e.g. Computed Tomography, Ultrasound, Magnetic Resonance etc).
MR	Magnetic Resonance imaging. This is the use of magnetic fields and radio waves to visualise detailed internal structures, providing real time, three-dimensional image of body organs with good soft tissue contrast.
NIMIS	National Integrated Medical Imaging System. Public hospitals using NIMIS are connected on a single imaging platform to allow sharing of images between specialists.
NM	Nuclear Medicine. This involves use of radioactive tracers to visualise various organs. The radioactive tracer emits gamma radiation, which is then imaged using a gamma camera. The tracer can be injected, inhaled or inserted.
NQAIS	National Quality Assurance and Improvement System. A platform for the generation of local and aggregate national QI data activity reports. It is part of a Health Atlas Ireland platform https://www.healthatlasireland.ie/
NQAIS Site	Refers to the hospital or hospitals that are uploading data to NQAIS-Radiology. Some smaller hospitals upload information under joint NQAIS-Radiology accounts with bigger, model 3 or 4 hospitals in their hospital group. Each NQAIS account is referred to as a NQAIS-Radiology site.
NRQI	Refers to National Radiology Quality Improvement Programme
OP	Outpatient. This is a patient referred to a radiology department without hospital admission at the time of radiological exam.
OUS	Obstetric Ultrasound. This is performed to assess the foetus and related structures in pregnant women.
Outcome Meeting	An Outcome Meeting is a meeting between Interventional Radiologists to discuss interventional procedures.
PACS	Picture Archiving and Communication System. Software used in radiology departments to store, review and report on radiology images across different modalities.
Patient Class	Describes the patient being examined based on referral source (i.e. General Practitioner referral, Inpatient referral).
peerVue QICS	peerVue Qualitative Intelligence and Communication System. This local data collection system used within PACS in radiology departments, which enables anonymised QI data exports to NQAIS-Radiology.

PET	Positron Emission Tomography. This uses small amounts of radioactive materials called radiotracers or radiopharmaceuticals to evaluate organ and tissue functions. By identifying changes at the cellular level, this imaging method may help the early detection of a disease.
Pseudonymisation	Pseudonymisation of data takes place when any identifying characteristics of data are replaced with a pseudonym or a value which does not allow the data subject to be identified. Pseudonymised data can no longer be attributed to a specific data subject without the use of additional information.
QI Activity	A quality improvement task carried out on a case. It is described by multiple QICS records and linked by the original case ID. There will be one key QICS record that identifies the QI Activity; the remaining QICS records provide additional information on the QI Activity.
Radiology Department	The organisational structure within which a radiology service is provided. A radiology department can provide its service at one or more hospitals.
RCPI	Royal College of Physicians of Ireland.
RCSI	Royal College of Surgeons in Ireland.
Recommendation	Refers to suggestions for quality improvement put forward by the working group. They are based on the data presented in this report that should be implemented in each radiology department to support ongoing quality improvement activities.
RIS	Radiology Information System. The workflow engine supporting everyday activities of a radiology department in providing diagnostic imaging services to the hospital and patients.
RQI Meeting	Radiology Quality Improvement Meeting
NSQI Team	National Specialty Quality Improvement programme management team, based in RCPI.
TAT	Turnaround Time. This is the time between the moment an image is available for a radiologist to report on, to the time when the radiology report is finalised and authorised by the reporting radiologist.
TH	Surgical theatre
US	Ultrasound. This modality utilises high-frequency sound waves to provide cross-sectional images of the body.
VUS	Vascular Ultrasound. This is performed to assess the heart and vascular structures.
XR	X-Ray (radiography). Use of electromagnetic radiation with short wavelengths, to visualise the internal structures of a patient. Also called plain film.

CHAPTER 1

INTRODUCTION TO THE PROGRAMME

1

The National Radiology Quality Improvement (NRQI) Programme has been at the core of quality improvements in radiology since 2009. The programme was launched by the Faculty of Radiologists, Royal College of Surgeons in Ireland (RCSI), in collaboration with the National Cancer Control Programme (NCCP) in response to findings of reports into cancer misdiagnoses at the time. The programme continues to be led by the Faculty of Radiologists, RCSI today.

The NRQI Programme is funded by HSE National Quality and Patient Safety Team and is managed by the National Specialty Quality Improvement (NSQI) programme management team, Royal College of Physicians of Ireland (RCPI).

The programme provides a national framework, which establishes routine reviews of performance, and highlights areas for improvement within quality activities and against national aggregate results, recommendations and agreed targets, in line with international best practice.

THE AIMS OF THE NATIONAL RADIOLOGY QI PROGRAMME ARE TO:

- Ensure a high quality, consistent and accurate radiology service nationally, providing the optimum patient experience with consistently high standards of quality care.
- Improve patient safety and enhance patient care through timely, accurate and complete radiology diagnoses and reports.
- Increase public confidence in diagnostic reporting by providing evidence-based assurance of the quality of the diagnostic service.
- Continue to develop a standardised national quality improvement system for radiology.
- Enable individual departments to review their performance against national targets and drive decision making through the upload and analysis of real-time data using a national data repository.
- Identify and share best practice between participating radiology departments.
- Provide a safe space for learning and continuous improvement where QI activities are performed routinely by all.
- Recognise and encourage opportunities for quality improvement locally.
- Improve communication between participating sites.
- Actively promote a culture of quality improvement by engaging key hospital stakeholders.

PURPOSE OF THIS DATA REPORT

The QI data collected by participating hospitals are submitted to NQAIS-Radiology for inclusion in the NRQI Programmes annual national data report.

This report facilitates informed decision making on the future steps necessary to support ongoing quality improvement processes within the Irish radiology services.

The NRQI working group encourages participating hospitals to review their own data and discuss local performance against the targets, recommendations and national aggregate results with their colleagues in radiology departments, local hospital management and Quality and Patient Safety teams.

Where findings suggest that there may be an area in need of improvement, these should be discussed locally using local hospital data extracted from NQAIS-Radiology.

WHAT IS BEYOND THE SCOPE OF THIS REPORT

This report cannot and should not be used to produce league tables or compare hospitals, as no two hospitals will have the same patient profile. Different hospitals specialise in treating patients with different and sometimes much more complex care needs, making comparisons between hospitals invalid.

Owing to varying resourcing levels some smaller hospitals upload information under joint NQAIS site accounts with larger hospitals in their hospital group. When interpreting the data displayed in the report, it must be taken into consideration that a NQAIS site may represent a pairing of two or more hospitals or a single hospital and that each NQAIS site is unique.

This report cannot distinguish between the data that is recorded in an on-call environment or during high holiday season, versus normal working hours. This is important to highlight as differing levels of support are available.

OUTLIER MANAGEMENT

The NRQI Programme does not engage with individual sites that could be identified as outliers in this report. Hospitals are requested to report and manage the QI data within their radiology department and to ensure the necessary actions to improve quality are initiated and/or referred to the appropriate person / role locally.

The programme requests that participating hospitals ensure QI data reports, once generated and shared by the department, are reviewed by the Quality and Patient Safety teams or an appropriate local structure, linking with relevant hospital governance and programme structures as set out in the programme guidelines and taking action as required.

All responsibility rests with participating sites to address any issues relating to their data and the potential to reach agreed targets or recommended standards.

OPPORTUNITIES AND CHALLENGES

The NRQI Programme is central to maintaining quality within radiology departments.

It is imperative that the support and resources required for successful quality improvement are provided by the hospital management.

Local leadership and quality management systems should be in place to support and coordinate quality improvement activities. Quality improvement must be woven into all systems of the department to achieve the best possible outcome.

NATIONAL DATA REPORT APPROVAL PROCESS

This report has been developed by the working group of the NRQI Programme and the RCPI programme management team.

It was approved by the working group on the 7th September 2022.

The report was then submitted to the Faculty of Radiologists, RCSI, for review and received approval on 23rd September 2022.

The NSQI programmes steering committee approved the report on 13th October 2022

The report was also submitted to the HSE National Steering Group for Clinical Audit on the 21st November 2022 for noting.

CHAPTER 2

DATA QUALITY

2

In preparation of this report, the national QI data related to the following four key quality indicators (KQIs) were analysed:

- **REPORT TURNAROUND TIME**
- **PEER REVIEW**
- **RADIOLOGY ALERTS**
- **RADIOLOGY QUALITY IMPROVEMENT MEETINGS**

DATA SOURCE

The data source for this report is the National Quality Assurance and Improvement System (NQAIS) Radiology by Health Atlas Ireland.

While the local reports can be generated by participating sites directly from NQAIS-Radiology, the national data report is based on an aggregate national QI data extract acquired directly from the NQAIS provider. This report presents analysis of the data extracted on 6 May 2022.

The NQAIS-Radiology database is a dynamic database to which new data is added and existing data can be updated daily. The timing of the extract is important due to the dynamic nature of the database, if the extract is taken on a different day to when a user looks at the NQAIS-Radiology application, the data will not be the same. This is due to the fact that the data are dynamic and not static. If an extract report is created on the same day that data is taken from the NQAIS-Radiology application, the values will be identical.

NQAIS-RADIOLOGY

This online platform is a quality improvement (QI) data repository, an essential tool for the NRQI Programme. It has been developed and validated by HSE eHealth and Disruptive Technologies (formerly OCIO), as the national database for QI data storage, analysis and report generation.

It allows sites to generate local reports and the programme to generate national reports on KQIs in participating radiology departments across Ireland.

DATA AND INFORMATION LIFECYCLE

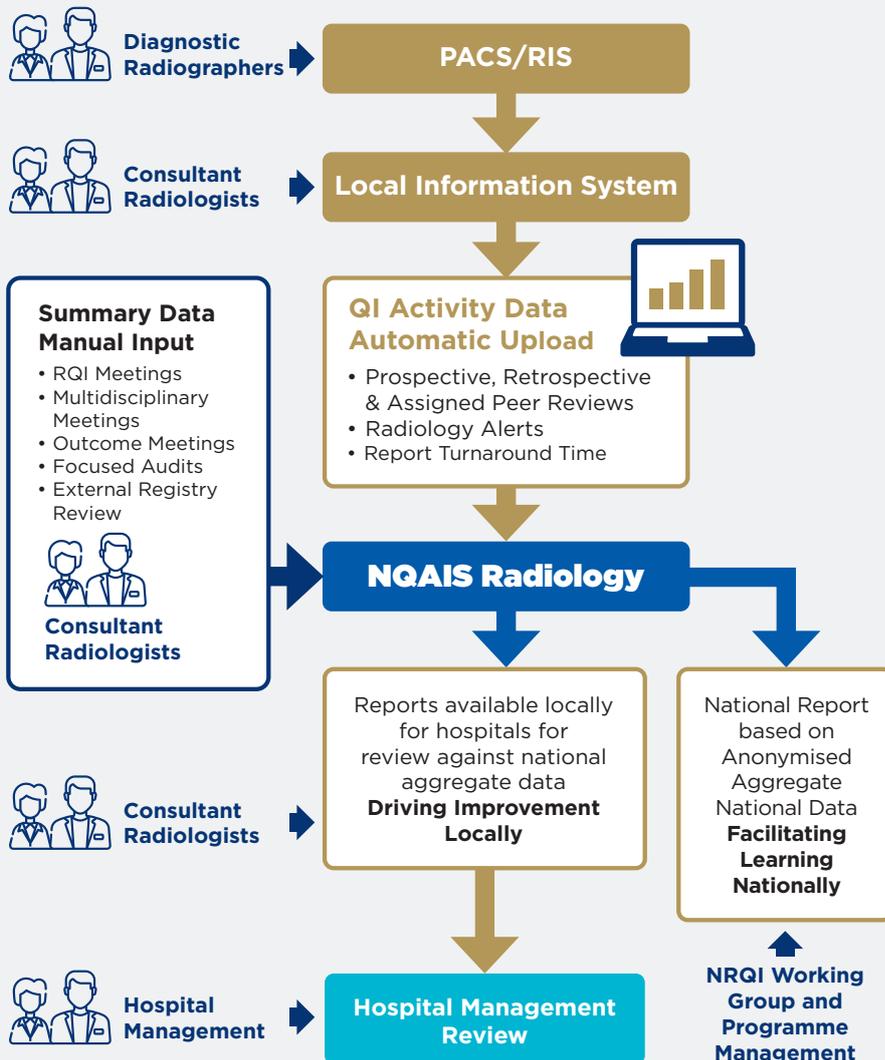
Radiology Information Systems (RIS) and Picture Archiving Communication Systems (PACS) within hospitals are connected to a third local information system which allows for recording of QI activities which are input by radiologists daily.

Encrypted QI data relating to the predefined KQIs listed above, are collected in the local information systems, automatically exported to a secure HSE server and then submitted to NQAIS-Radiology on nightly basis.

A portion of QI activity related to KQIs listed under Summary Data (Table 2.1) requires manual input into NQAIS-Radiology by a QI Lead Radiologist.

The NRQI programme management team use a data extract from NQAIS-Radiology to prepare and publish the national data report annually.

How are QI Data collected?



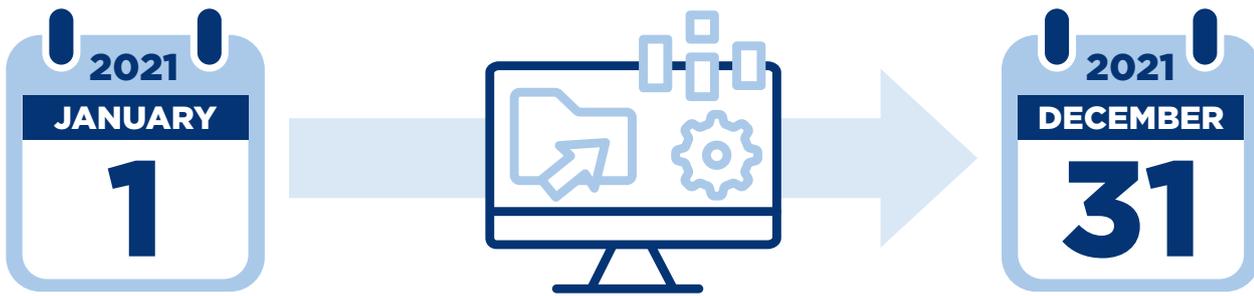
LOCAL REPORTING

Radiology departments can access their own data in NQAIS-Radiology; from there they can generate local reports enabling comparison of their records with national aggregate data, targets and recommendations. Those reports can be used to identify best practice and any variations on this, to review, improve and sustain the quality of their work in the context of national norms and targets. Radiology departments can use information gained from these reports to identify areas for quality improvement to enhance patient care and minimise the potential for error.

As outlined in the Memorandum of Understanding issued to all participating sites, the NRQI working group recommend that the QI Lead Radiologist communicates the local QI data reports to senior hospital management and clinical governance, Quality and Patient Safety teams including clinical director/consultant in administrative charge, on a quarterly basis at minimum.

DATA COLLECTION TIMELINE

The data contained in this report were collected between 1st January and 31st December 2021.



SCOPE OF THE REPORT

IN SCOPE:

Both adult and paediatric cases are recorded in the workload in this report, however no distinction is made in the report at this time.

Inpatient (IP) and outpatient (OP) cases are collected and differentiated in this report, in addition to cases referred by general practitioners (GP) and those arising from sources external to the hospital in which the examination takes place.

OUT OF SCOPE:

No private hospitals are participating in the NRQI programme at this time, however work is ongoing to onboard the first private hospitals.

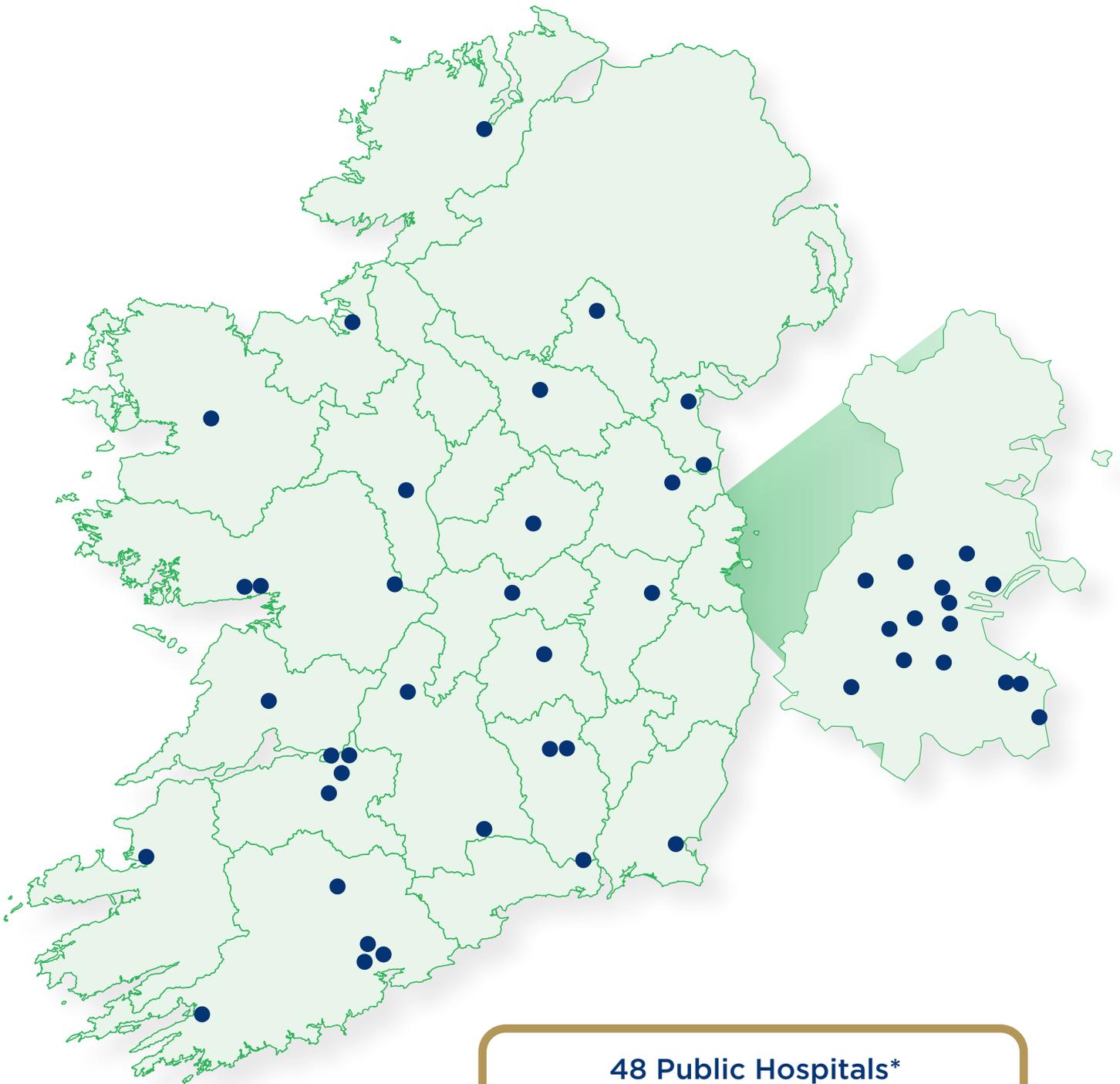
The dataset does not contain data from obstetric ultrasounds.

Mammograms performed as part of the BreastCheck screening programme are not included in this dataset.

The proportion of data that are recorded in the on-call environment or during high holiday season and during normal working hours are not distinguished in this report. This should be taken into consideration as differing levels of support are available during these times.

DATA COVERAGE

HOSPITALS WE WORK WITH



**48 Public Hospitals*
Contributed QI Data to This
National Data Report 2021**

**The number of hospitals does not correlate with number of NQAIS sites as some hospitals upload data under joint NQAIS Account.*

TABLE 2.1. List of Public Hospitals participating in NRQI Programme and contributing to National Data Report 2021

Dublin Midlands Hospital Group	Saolta Hospital Group
Tallaght University Hospital	Letterkenny University Hospital
Coombe Women & Infants University Hospital	Mayo University Hospital
Midland Regional Hospital, Portlaoise	Portiuncula University Hospital
Midland Regional Hospital, Tullamore	Roscommon University Hospital
Naas General Hospital	Sligo University Hospital
St. James's Hospital	University Hospital Galway
St. Luke's Hospital, Rathgar	Merlin Park University Hospital
Ireland East Hospital Group	South/South West Hospital Group
Cappagh National Orthopaedic Hospital	Kilcreene Orthopaedic Hospital
Mater Misericordiae University Hospital	South Tipperary General Hospital
Our Lady's Hospital, Navan	University Hospital Kerry
Regional Hospital Mullingar	University Hospital Waterford
Royal Victoria Eye and Ear Hospital	South Infirmary Victoria University Hospital
St. Columcille's Hospital	Mercy University Hospital, Cork
St. Luke's General Hospital, Kilkenny	Cork University Hospital
Wexford General Hospital	Mallow General Hospital
RCSI Hospitals Group	Bantry General Hospital
Beaumont Hospital	Children's Health Ireland (incl. TUH Paediatric RCSI Group)
Cavan General Hospital	
Connolly Hospital Blanchardstown	Children's Health Ireland at Temple Street
Louth County Hospital	Children's Health Ireland at Crumlin
Monaghan General Hospital	UL Hospital Group
Our Lady of Lourdes Hospital, Drogheda	University Hospital Limerick
Rotunda Hospital	University Maternity Hospital Limerick
No Group	Ennis Hospital
National Rehabilitation Hospital	Nenagh Hospital
St. Mary's Hospital	Croom Hospital
	St. John's Hospital

DATA PROTECTION

Each participating hospital owns its data and is therefore the data controller in relation to data collected there. This means that the hospital is responsible for the integrity of its data and can authorise or deny access to data. This is performed under the direction and governance of local and hospital group management and in accordance with Data Protection Acts 1988 and 2003 and General Data Protection Regulation (GDPR).

The data collected and analysed in the radiology departments do not contain patient identifiable information. It should also be noted that data collected by the NRQI Programme do not include information which could identify radiologists or other members of the radiology department.

The NRQI Programme analyses and reports on anonymous data and is therefore, in accordance with the Data Protection Commission's Guidance on Anonymisation and Pseudonymisation¹, outside the scope of the GDPR.

The NSQI Programmes Information Governance policy can be accessed to provide detailed information on the collection, processing, storing, accessing and reporting of QI data withing the programme.

DATA QUALITY

Those collecting and using the QI data must have confidence in the quality of the data. The data collected must be reliable, accurate, relevant and timely, to facilitate decision making and associated quality improvements to provide safer higher quality care for patients.

HIQA recommends the use of a data quality framework, which will enable the programme to assess the current data quality and necessary improvements using the following four tools 1) data quality strategy 2) data quality assessment 3) reporting on data quality and 4) a data quality improvement cycle.²

Data Quality Statement

The NRQI Programme acknowledges the challenges that exist in relation to the quality of the data submitted and collected. The data collected are not subject to a sign-off process as authorised reports are automatically uploaded; the benefits of an automatic upload are many including consistency and efficiency. As systems evolve and new user requirements are gathered it is hoped that processes can be amended to ensure additional data quality checks are built in.

As in previous years the working group continue to encourage sites to engage with this report and the QI Guidelines to ensure participating departments are familiar with the data required for this (particularly data that require manual input) and local reporting.

Data Quality Assessment

Here we consider data under the following five dimensions of quality²:

- 1. Accuracy and Reliability**
- 2. Timeliness and Punctuality**
- 3. Coherence and Comparability**
- 4. Accessibility and Clarity**
- 5. Relevance**

¹ Data Protection Commission (2019) "Guidance on Anonymisation and Pseudonymisation" <https://www.dataprotection.ie/sites/default/files/uploads/2019-06/190614%20Anonymisation%20and%20Pseudonymisation.pdf>

² Health Information and Quality Authority (2018) "Guidance on a data quality framework for health and social care" <https://www.hiqa.ie/sites/default/files/2018-10/Guidance-for-a-data-quality-framework.pdf>

1. Accuracy and Reliability

The QI data collected for the NRQI Programme are designed to measure quality at both a local and national level in radiology departments. Trends are analysed on an annual basis for each KQI in the national data report, comparing data points from 2019, 2020 and 2021. Data visualisation provides information and comparisons between sites over the course of the year in relation to patient class and referral source.

The data coverage is outlined in Table 2.1, with 48 public and voluntary hospitals participating, this represents significant coverage across the country.

To avoid creation of duplicate data entries, and as a part of data validation process, an automatic data upload system has been configured in such way that only the most up to date version of each case is uploaded to NQAIS-Radiology from a local information system.

Completeness: The nature of the automatic data upload process ensures that vital data are included in the data extract used for the national data report, this results in almost a 100% data completeness level. However, the programme acknowledges a very low level of data completeness for those data that require manual input.

FIGURE 2.1: Percentage of NQAIS Sites which Submitted Summary Data to NQAIS-Radiology Out of All NQAIS Sites, 2019-2021

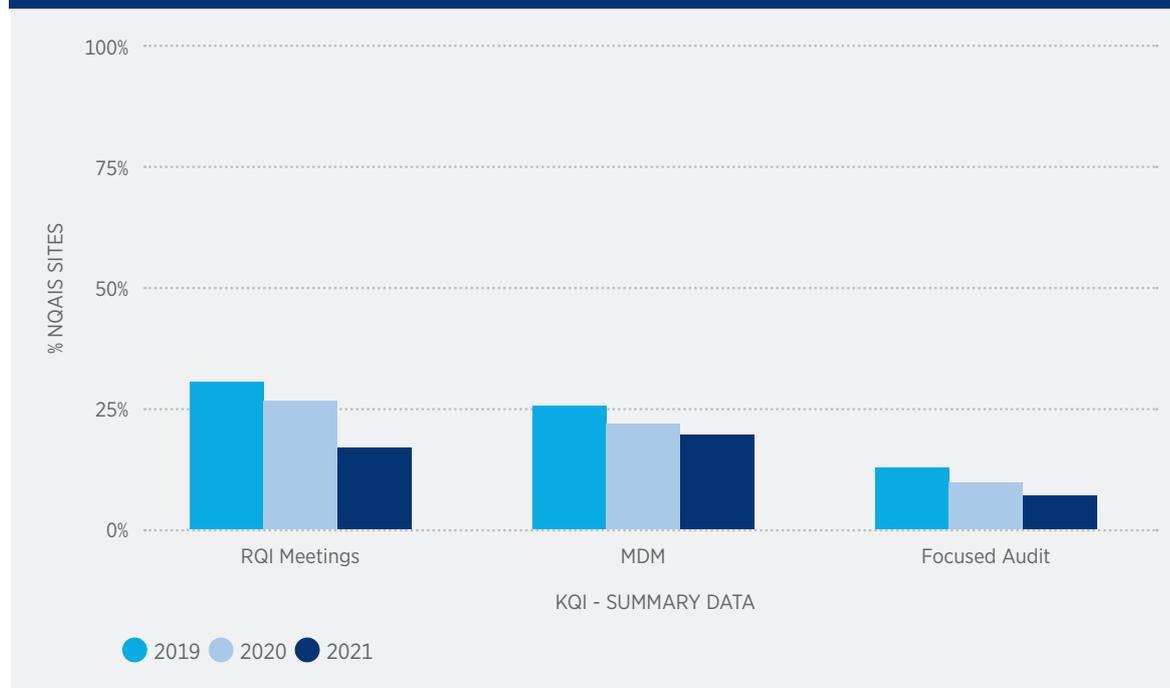


Figure 2.1 illustrates percentages of NQAIS sites which manually inputted data related to key quality indicators under the Summary Data section in NQAIS-Radiology. This includes all sites which submitted data at least once for at least one KQI within a given year.

Records show a year-on-year decrease in the number of sites manually recording data in NQAIS-Radiology under Summary Data, with data completeness remaining consistently low.

In 2021, 17% of NQAIS sites recorded attendance at RQI meetings, while in 2020 and 2019 it was 27% and 31% respectively. The number of multidisciplinary meetings (MDM) was inputted by 20% sites in 2021, which is 2% less than in 2020 and 6% less than in 2019. A decrease was also noted for focused audit records, where data related to this KQI were manually inputted by 7% sites. This is 3% less than in the previous year and 6% less than in 2019.

1. Accuracy and Reliability *continued*

The Summary Data section in NQAIS-Radiology includes also Outcome Meetings and External Review Registry, however these KQIs are specific to interventional radiology (IR) and not all sites perform IR examinations, as a result these two KQIs were omitted since the first report. There are no data collected in relation to external registry review, which is also part of summary data section in NQAIS-Radiology.

It is clear that the rate of recording QI activity is low at multiple sites in Irish hospitals, albeit that the verbal feedback from departments is that QI activity is happening locally. Therefore, the data in the report do not accurately reflect national QI activity occurring, but it is what is available to work with currently. Working group members are concerned about this and are eager to increase this activity and documentation of same. Low participation in radiology QI, if real, carries a potential risk for patient safety.

The data presented in this report are accurate at the time the dataset extract was created.

2. Timeliness and Punctuality

Data relating to the same suite of KQIs are automatically uploaded to NQAIS-Radiology on a nightly basis. Additional data must be entered manually by the QI Clinical Leads, ideally on a monthly basis, however low levels of data completeness indicate that these data are not routinely recorded.

Local uploading processes allow for some QI activity to be uploaded in the period between data extraction and publication of this report. Radiology departments are not formally requested to complete manual input for summary data by a certain date, as a result it is possible that some of those data are not included in the annual national data report.

The NRQI working group acknowledges that summary data uploads which are performed manually can be time consuming, contributing to some expected delays in the uploading of data.

The annual national data report is launched within the 12 months after the reporting period.

3. Coherence and Comparability

The current convention in the national data report is to identify hospitals with a pseudo-identifier, known only to the hospitals themselves. The working group advise against using the report to produce league tables or to compare hospitals to one another as no two hospitals will have the same patient profile. Owing to varying resourcing levels some smaller hospitals must upload information under joint NQAIS site accounts with larger hospitals in their hospital group. When interpreting the data displayed in the report, it must be taken into consideration that a NQAIS site may represent a pairing of two or more hospitals or a single hospital and that each NQAIS site is unique.

Radiology departments are contacted on a quarterly basis by the programme manager and encouraged to access their own data in NQAIS-Radiology provided they have the appropriate permissions. Here they can compare their own performance over time to the national aggregate and provide a report for colleagues and hospital management.

There are currently two different local information systems in operation across the country, not all sites are on NIMIS which contributes to challenges in the uniform collection of data.

The current dataset reported on by the NRQI Programme in this report facilitates quality improvements within radiology but cannot be linked with datasets provided by the other National QI Programmes in GI Endoscopy and Histopathology or with the HIPE database.

A data dictionary is maintained by the programme manager, cataloguing and describing the structure and content of the data to maintain consistency in data collection.

4. Accessibility and Clarity

All participating radiology departments can access their own data in NQAIS-Radiology providing the relevant staff have a NQAIS account and appropriate permissions have been assigned. Training is provided by the programme management to aid the reliability of this process.

Further training or any refreshing of specific elements can be requested from the programme manager.

The analysis of the data once extracted from NQAIS-Radiology is performed consistently by the programme management team and presented graphically in the national data report.

Previous reports can be viewed [here](#).

5. Relevancy

The NRQI Programme has set out seven KQIs (see Table 2.2); however, not all are included in this report. The KQIs that are not covered in this report include those where the data in NQAIS-Radiology may not be currently reliable due to a low level of data completion and data immaturity.

The working group review and assess the KQIs on an ongoing basis in terms of relevance and based on feedback from colleagues. Additional work is due to commence in the coming months on the setting of evidence-based targets for some KQIs covered in the national data report.

The purpose of the data collected and reported on is to aid decision making on patient care in a busy radiology department.

REPORTING ON DATA QUALITY

Data quality is monitored by the programme management, with reports currently made to the working group and steering committee when issues arise.

CONTINUOUS IMPROVEMENT OF DATA QUALITY

Limitations are encountered in relation to the data captured by local systems in the form of gaps, leading to low levels of data completeness that are difficult to quantify. The NRQI programme working group are exploring ways to enhance current upload processes, ensuring they are not onerous on the radiology department, to try and increase data completeness.

Greater discussion between all parties will indicate if the data currently available meets the needs of radiology departments and on the use of local reports which will enable the programme to generate a more detailed picture on the use of the data such as service planning.

KEY RECOMMENDATIONS

The NRQI working group recommends that sites manually upload summary data in conjunction with the preparation of the quarterly report. Sites are reminded on a quarterly basis to access reports in NQAIS-Radiology for the purposes of sharing with colleagues and senior hospital management.

The NRQI working group recommend that further technical improvements are implemented to enhance automated uploading functionality: this would facilitate the recording of radiology QI activities which may be happening in practice but which are not being captured.

TABLE 2.2: NRQI Programme Key Quality Indicators, as outlined in “Guidelines for the Implementation of a National Radiology Quality Improvement Programme”.

KEY QUALITY INDICATORS	
Automatic Nightly Upload to NQAIS-Radiology	
PEER REVIEW	
Prospective Review	Number of accession numbers with prospective peer review (expressed for each modality and as a % of total accession numbers for each modality)
Retrospective Review	Number of accession numbers reviewed (expressed for each modality and accession number type and as a % of total accession numbers for each modality)
Assigned Review	Number of accession numbers referred for consideration at Radiology Quality Improvement meetings (expressed as a % of total cases reviewed, by modality) (Apply to both Retrospective and Assigned Review.)
RADIOLOGY ALERTS	
Critical	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 workload) Number of acknowledged communicated cases of unexpected and clinically significant radiological findings (expressed as % of total workload)
Urgent	
Unexpected – Clinically Significant	
REPORT TURNAROUND TIME	
The % of cases with Report Turnaround Times within either 24hrs or 72hrs for all and by referral source and modality	
Summary Data - require manual input to NQAIS-Radiology by Consultant Radiologist	
RADIOLOGY QUALITY IMPROVEMENT (RQI) MEETINGS	
Attendance expressed as percentage of persons in attendance out of all invited. 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) Number of accession numbers reviewed at RQI meeting by outcome: (expressed as a percentage of total workload)	
MULTIDISCIPLINARY MEETINGS (MDM)	
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)	
OUTCOME MEETINGS (Interventional Radiology)	
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).	

Detailed characteristics of each discussed Key Quality Indicator can be found in the respective chapters.

CHAPTER 3

WORKLOAD AND RESOURCES

3

The COVID-19 pandemic has continued to impact radiology, like so many other key areas of the health service since March 2020. Radiology departments have faced challenges in relation to patient management, work practices and resources. However, radiology services have continued to function in difficult and unprecedented circumstances.

In May 2021, these circumstances were further exacerbated when HSE IT services suffered a serious cyber security attack resulting in major disruption to the health service in many hospitals.

Radiologists now work in predominantly digital environments; this was hugely beneficial at the start of the pandemic when remote working, conferencing and education could be carried out online. However, the cyber-attack severely impacted many sites' ability to work as normal, with many exams being delayed or postponed, resulting in a serious backlog of cases. In many sites it was necessary to revert to maintaining detailed written records to ensure all exams were documented clearly, reducing the risk of any adverse events occurring.

A paper written by colleagues in Tallaght University Hospital outlined some unexpected positives arising during this time, such as increased real-time scanning and interaction between sonographers, SpR's and consultants, an improved patient experience through a greater team presence and more teaching opportunities.³ However, sites are still faced with trying to reach pre-pandemic reporting levels with a workload increasing in both volume and complexity, resourcing issues and a backlog of cases as a consequence of the cyber-attack.

As outlined in previous reports, digital capabilities facilitate easy extraction of data for reports such as this one; however, these data do not necessarily provide the context or reveal the challenges that accompany this workload, nor do they capture all the activities of the radiologist or the radiology department.

For the purposes of this chapter, workload refers to exams available for reporting between 1st January and 31st December 2021. It is acknowledged that each exam requires considerable activity to reach report completion. These cases range in complexity from chest X-rays to PET scans and Interventional radiology procedures. The various QI activities that also take place on any given case are not recorded in this chapter. These are explained throughout this report.

This report presents 2.7 million radiology cases recorded in 2021, from the 48 public and voluntary hospitals participating in the NRQI programme (please refer to 2021 Workload on page 27). This represents a 6% workload increase (151,479 cases) in comparison to 2020 records.

³ Anderson, T. and Torreggiani, W.C, (2021) "The Impact of the Cyberattack on Radiology Systems in Ireland", Irish Medical Journal, Vol 114, No. 5, P347

2021 ACTIVITY

TOTAL CASES RECORDED
2,708,540
6% INCREASE FROM 2020



↑6%

COMPUTED
TOMOGRAPHY (CT)
383,923

↑6%

ULTRASOUND (US)
340,885

↑18%

DUAL X-RAY
ABSORPTIOMETRY
(DXA)
18,088

↑4%

X-RAY
1,608,201

↑16%

MAGNETIC
RESONANCE (MR)
169,692

↓-2%

NUCLEAR
MEDICINE (NM)
17,834

↑8%

MAMMOGRAM (MG)
46,253

↑4%

THEATRE (TH)
30,523

↑6%

FLUOROSCOPY (FL)
9,846

↑5%

INTERVENTIONAL
RADIOLOGY (IR)
23,581

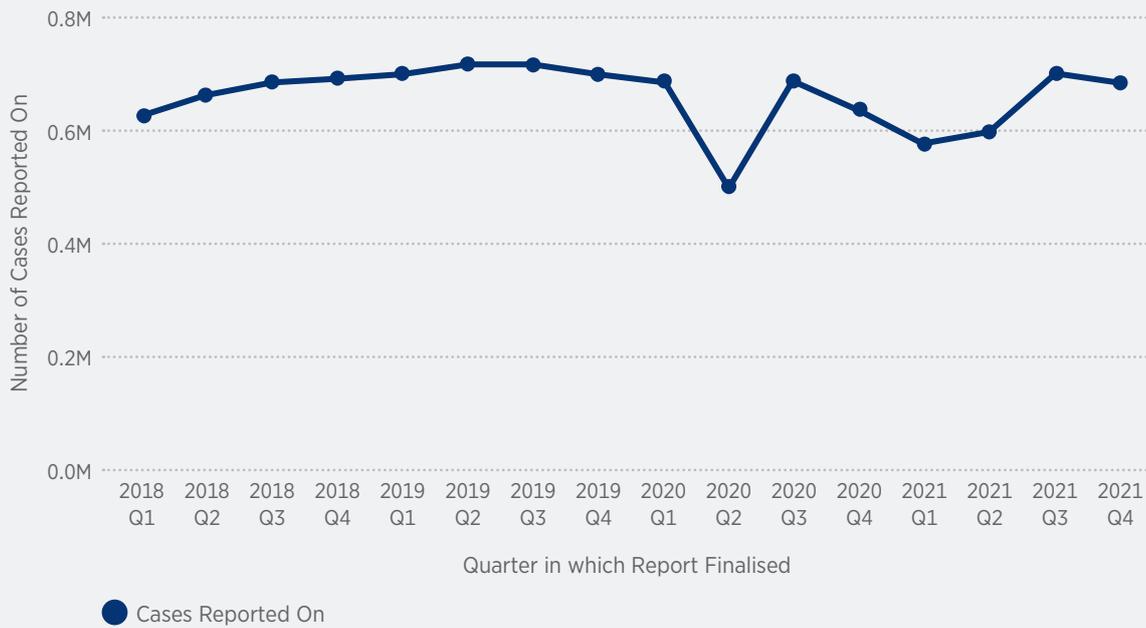
↑11%

VASCULAR
ULTRASOUND (VUS)
46,041

↑1%

POSITRON EMISSION
TOMOGRAPHY (PET)
4,247

FIGURE 3.1: Number of Radiology Reports Completed, National Aggregate, 2018 to 2021



Changes in quarterly workload records from 2018 to 2021 are illustrated in Figure 3.1. It can be seen that, despite difficulties in processing radiology cases caused by the COVID-19 pandemic and the cyber-attack, the number of radiology reports completed returned to normal levels in the third and fourth quarters of 2021.

FIGURE 3.2: Number of Radiology Reports Completed, National Aggregate, 2018-2021

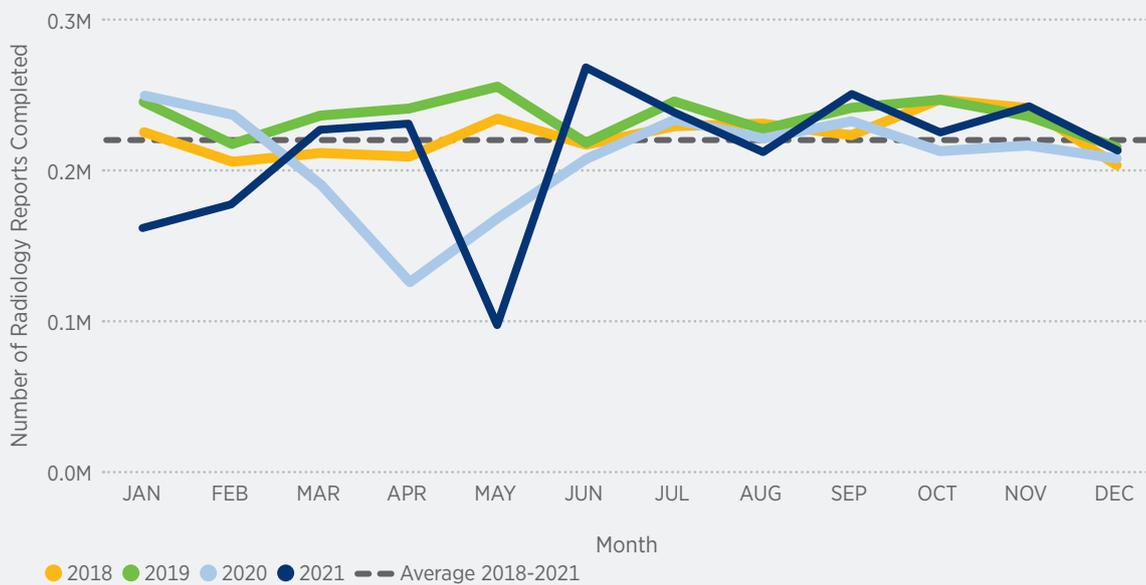
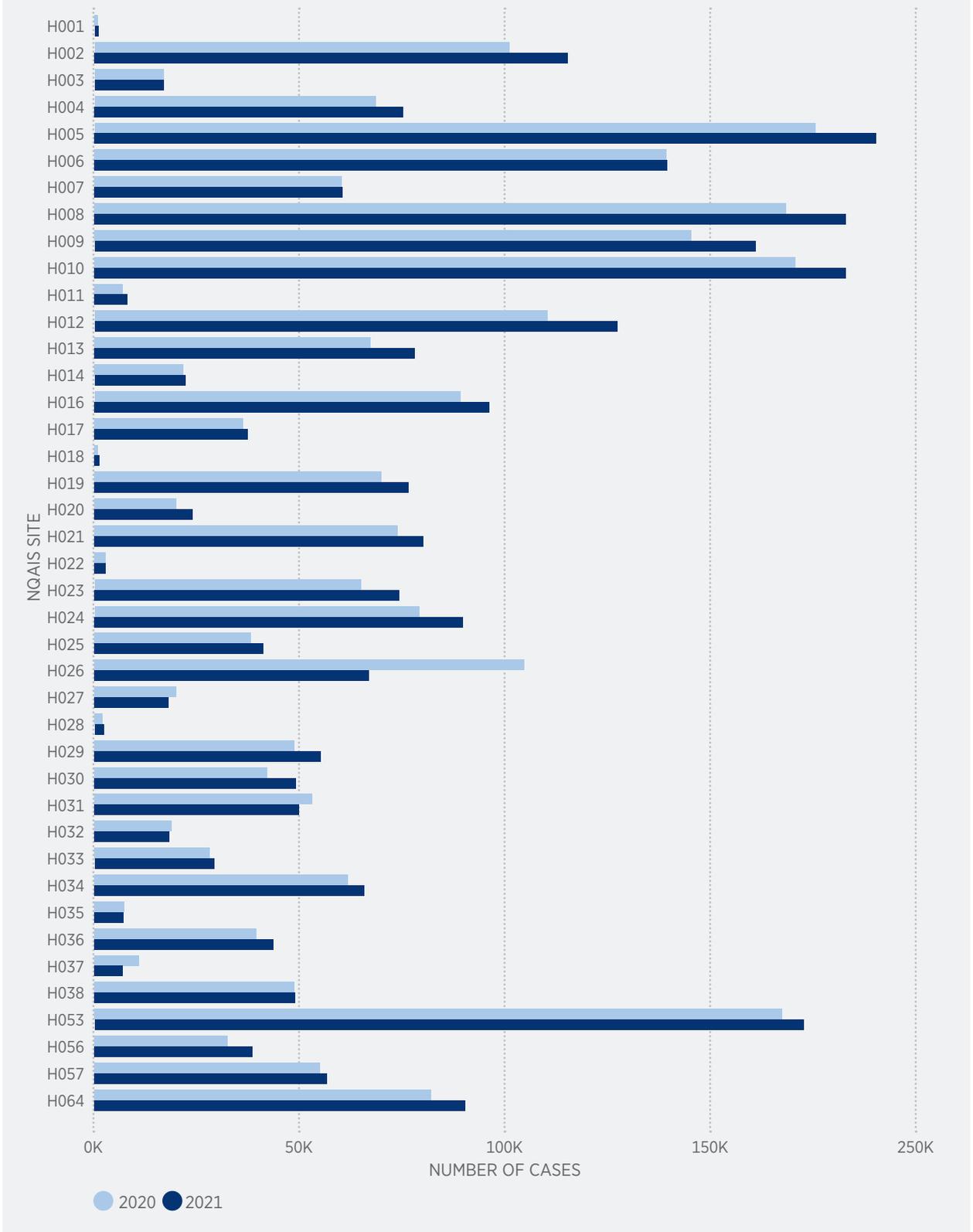


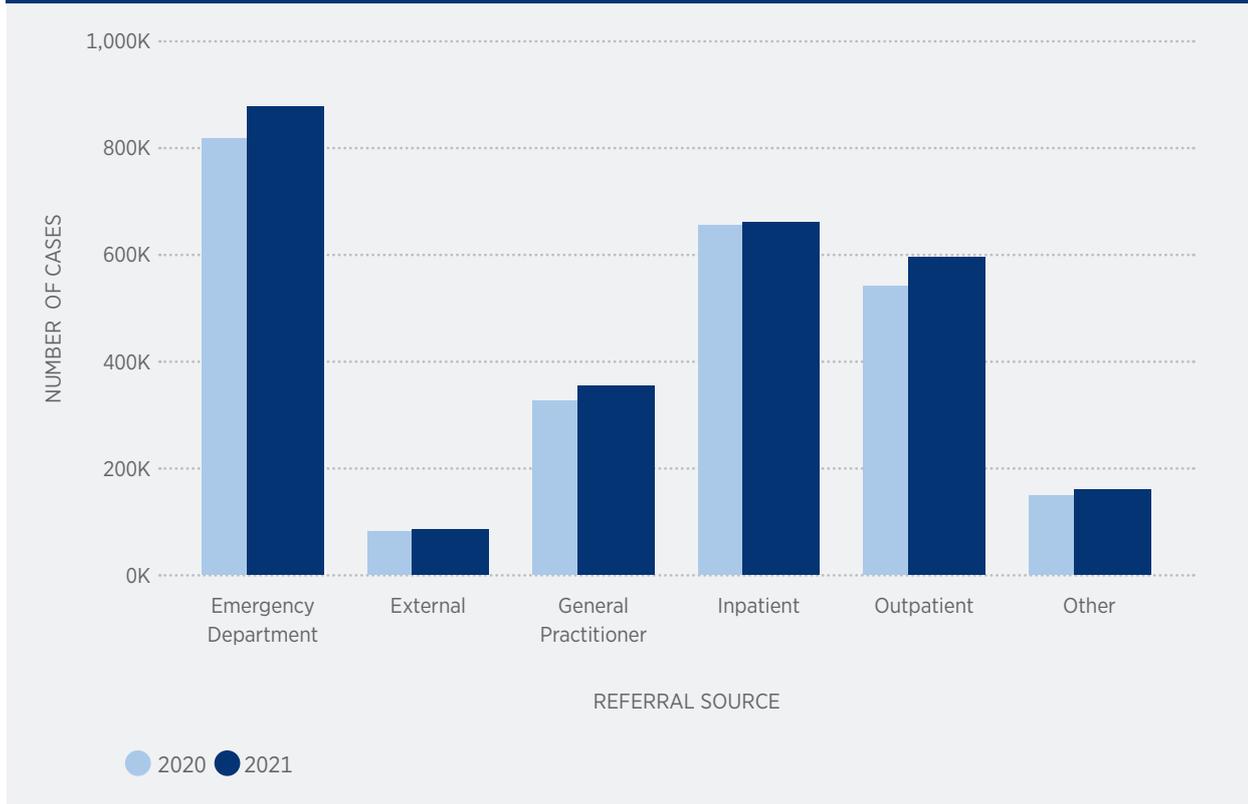
Figure 3.2 presents monthly data for each of four years from 2018 to 2021. As illustrated by the dark navy line, between March and April 2021 the number of authorised radiology reports recovered to just above the four-year average levels, however the cyber-attack on HSE ICT services in May 2021 caused a sudden and significant disruption to radiology services. Many hospitals and particularly radiology departments which rely heavily on technology and digital communication, were still experiencing some difficulties throughout the summer months of 2021. However, as illustrated by the data, numbers of radiology exams reported on recorded a sharp increase almost immediately in June 2021 and remained at levels similar to previous years.

FIGURE 3.3: Radiology Workload per NQAIS Site (2020 vs 2021)



A workload increase can be seen for most participating hospitals between 2021 and figures recorded in 2020 (Figure 3.3).

FIGURE 3.4: Number of Cases Recorded in 2020 vs 2021, by Patient Class (Referral Source)



While workload growth can be noted across all referral sources, the highest increase in 2021 referrals was recorded for outpatient referrals and cases referred from an emergency department, for which data show 10% and 9% more cases than in 2020, respectively (Figure 3.4).

KEY OBSERVATION

The improvement of remote reporting functionality on NIMIS and other PACS platforms would enable radiology services and QI activities to be more efficiently delivered off-site when working from home, which can provide a greater level of safety during a pandemic situation.

However, some PACS systems/IT setups in local hospitals did not allow for QI software to be used on home workstations, thus obviously limiting access to them & subsequent decrease of QI data entry.

KEY RECOMMENDATIONS

Radiology departments must be resourced adequately and in line with European best standards to continue to provide the optimum level of service to patients and to ensure a reduced burden on existing staff to reduce the risk of burnout, this is strongly supported by international research.

There is a backlog of patients requiring radiological examination. The NRQI working group recommend that additional resources are put in place to ensure patients receive diagnoses in an appropriate timeframe.

CHAPTER 4

PROTECTED TIME IN RADIOLOGY DEPARTMENTS

4

The NRQI Programme, in collaboration with the Faculty of Radiologists conducted a survey to assess the protected time afforded to radiologists to carry out QI related activities in Irish hospitals. The survey was sent on the 22nd March 2022 to 300 Members and Fellows of the Faculty of Radiologists.

WHY WAS THIS SURVEY SENT?

The aim of this anonymous survey was to establish how much protected time is being afforded to consultant radiologists in Ireland to perform QI activity and to investigate if the allocated time is sufficient.

QI activity in the context of this survey referred to

- performing peer reviews of radiology reports (including consultations prior to report authorisation)
- performing retrospective review of completed reports
- preparation for and attendance at radiology quality meetings, multidisciplinary meetings and outcome meetings (interventional radiology),
- management and monitoring of radiology alerts and
- any other activities within a radiology department that may have a positive impact on the quality of services provided

SURVEY RESPONSE RATE

The survey was sent to 300 recipients and was completed by 98 recipients, resulting in a 33% response rate. Not all questions were completed by respondents and therefore the number of responses for individual questions vary.

SURVEY FINDINGS



98

98 survey responses were collected in total (Not all respondents answered all questions within the survey)



93%

93% respondents work full time



44%

The highest percentage of respondents (**44%**) work in Model 4 hospitals



100%

All respondents work in hospitals in the Republic of Ireland



84%

84% answered that they perform QI activity as part of their role



41%

The majority of respondents (**41%**) stated that they perform QI activities less frequently than weekly or 2-4 times per week.



1.5h

On average, and where possible respondents spend **1.5** hours per week on QI activity (33 respondents noted that they spend less than one hour or no time at all per week)



84%

84% of respondents answered that protected time for QI activity is not included in their work schedule



71%

71% respondents confirmed that their departments hold departmental QI meetings for radiologists



64%

64% respondents do not have time required for RQI meetings covered by protected time



75%

75% respondents are of the opinion that having protected QI time would increase the level of QI activity in their department



72%

72% respondents are of the opinion that having protected QI time would increase the level of attendance at departmental QI meetings

SUGGESTIONS TO INCREASE QI ACTIVITY

The following six categories were identified through the respondents' answers, highlighting the improvements and supports that they believe would aid their ability to perform QI activity

Improvement Category	Number of Related Responses
Protected Time	18
Increased Resources	6
Education / Faculty Support	6
Software Improvements and IT Supports	5
Mandatory QI	5
Legal Framework	5

Protected time was most cited as the means by which QI activity could be increased, followed by increased resources, increased education on QI and support from the Faculty of Radiologists, software improvements and IT support, mandating QI and legal framework.

NEXT STEPS

Highlighting the importance of QI activity within a department as a whole and for individual radiologists as well as increasing engagement with local QI leads, requires a change in departmental culture.

It is important that time to perform QI activities is included in the radiologists' weekly job plan and within the training programme itself, so that QI is embedded in normal daily/weekly activity for new consultants joining departments and to enhance the clinical leadership of radiology departments.

KEY OBSERVATION

Increased radiologist resourcing to better align demand for radiology services with the capacity to deliver it would facilitate radiologists in engaging in non-interpretive tasks (including QI) that are an essential part of their professional work.

KEY RECOMMENDATIONS

The NRQI working group recommend that hospital management should provide greater support for radiology QI activities by complying with previously agreed recommendations to ensure protected time for Lead QI Radiologists (4 hours per week), and all other consultant radiologists (2 hours per week).

Embedding these protected hours in revised work plans for all existing and new consultant radiologists is essential.

CHAPTER 5 REPORT TURNAROUND TIME

5

Report Turnaround Time (TAT) is the time from when images from a completed examination are available to the radiologist for interpretation, to the time the report is authorised.

KEY QUALITY INDICATOR

The % of cases with report TATs within defined timescales for all cases and by referral source and modality.

RECOMMENDED TARGET

The NRQI Programme working group encourage sites to achieve 90% reports completed within the set TAT.

Report TAT does not represent the accuracy or correctness of radiology reports on its own, however, it does contribute to timely diagnosis and quality of patient care.

This KQI can be viewed as indicative of the resources available in a department compared to the volume and complexity of work demanded of it.

The demands on radiologists' time go beyond 'simple' reporting, such as interventional caseload, multidisciplinary team meetings, administrative duties, quality improvement activities, teaching and research, which all have an impact on TAT. Radiologist availability, subspecialty expertise and complexity of exams are among factors having the biggest impact on report turnaround time.

THE IMPACT OF THE CYBER ATTACK

The decrease in percentages of reports authorised within defined timeframes (see Table 5.1 below) might be directly related to the cyber-attack in May 2021. The process of issuing radiology reports was longer than usual due to technical challenges. This very often involved handwritten provisional reports which were inputted to the system at a later date, when local PACS were working again. This resulted in creating timestamps in the local system which were not fully reflective of real turnaround times for radiology reports.

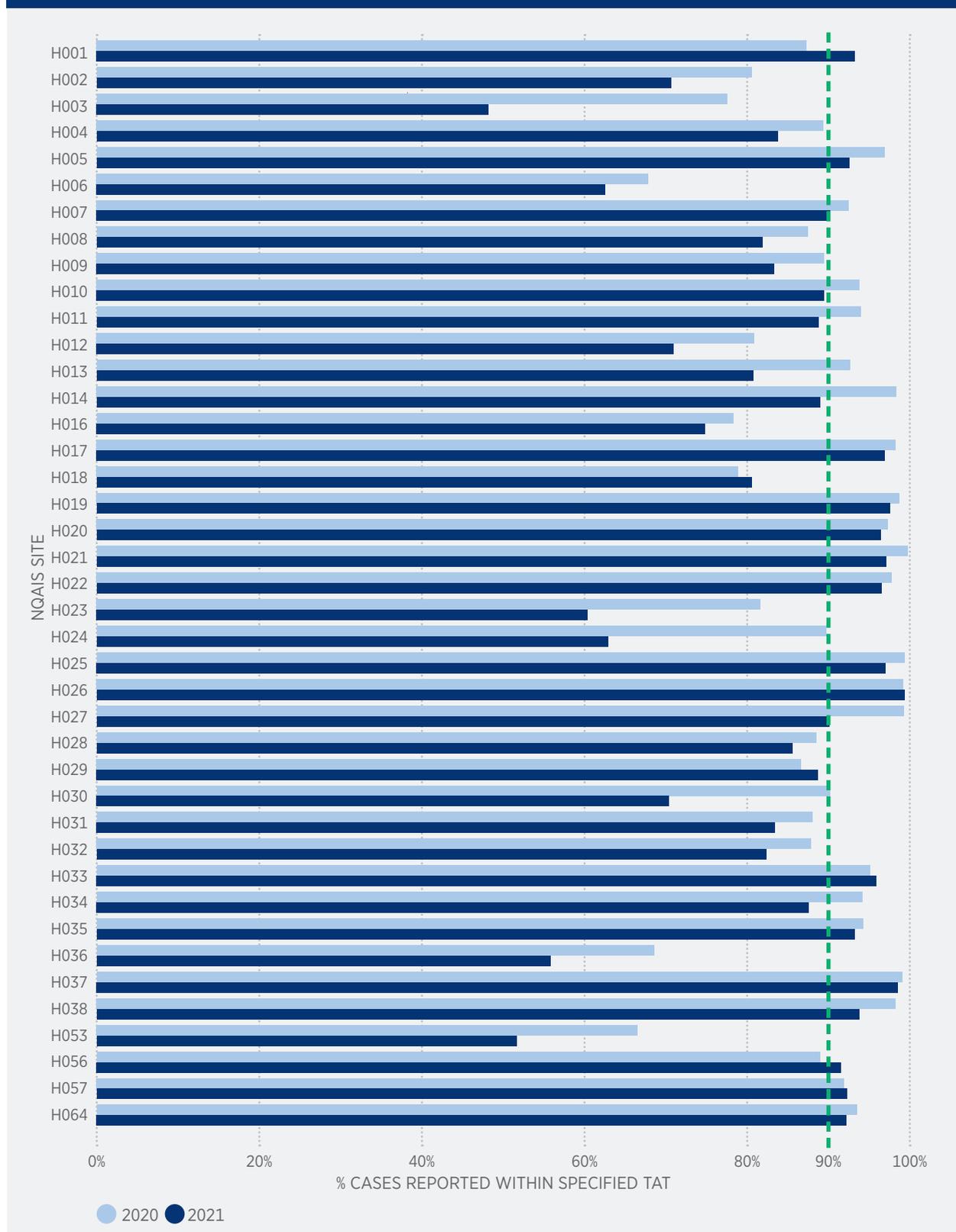
Findings suggest that more complex and time sensitive CT, MR or US cases could have been prioritised over less urgent XR reports.

TABLE 5.1: Report TAT maximum targets for each modality depending on patient class (referral source).

Patient Class (Referral Source)	CT	MRI	US	XR
Emergency Department		12 hours		48 hours
Inpatient		24 hours		72 hours
Outpatient			10 days	
General Practitioner			10 days	

The NRQI Programme QI Guidelines specify the recommended target time for report completion depending on referral source for the four modalities with the highest national aggregate cases count, Computer Tomography (CT), Magnetic Resonance (MR), Ultrasound (US) and X-Ray (XR) (see Table 5.1). Inpatient cases and those referred for imaging from the Emergency Department (ED) should also be reported on within a timeframe of hours, as appropriate for each modality. For outpatients (OP) and General Practitioner (GP) referrals, it is recommended that the radiology report is complete within 10 days for all four modalities listed in Table 5.1.

FIGURE 5.1: Percentage of Cases Where Specified Report Turnaround Times Have Been Achieved, for MR, CT, US, XR Combined, for All Patient Classes, by Participating Site, 2020 vs 2021



To illustrate where radiology departments have made improvements regarding the percentages of reports authorised within defined timeframes over the last number of years, a three-year comparative analysis has been provided where possible between 2019, 2020 and 2021.

The impact of the COVID-19 pandemic, the cyber-attack on the HSE IT systems and increased complexity of cases is visible in the findings.

Figure 5.1 shows a comparison of the percentage of cases where specified report TATs have been achieved, for MR, CT, US, XR combined, for all patient classes between 2020 and 2021. The NRQI working group recommend that sites aim for 90% reports authorised within the defined TATs for these modalities, in line with best practice.

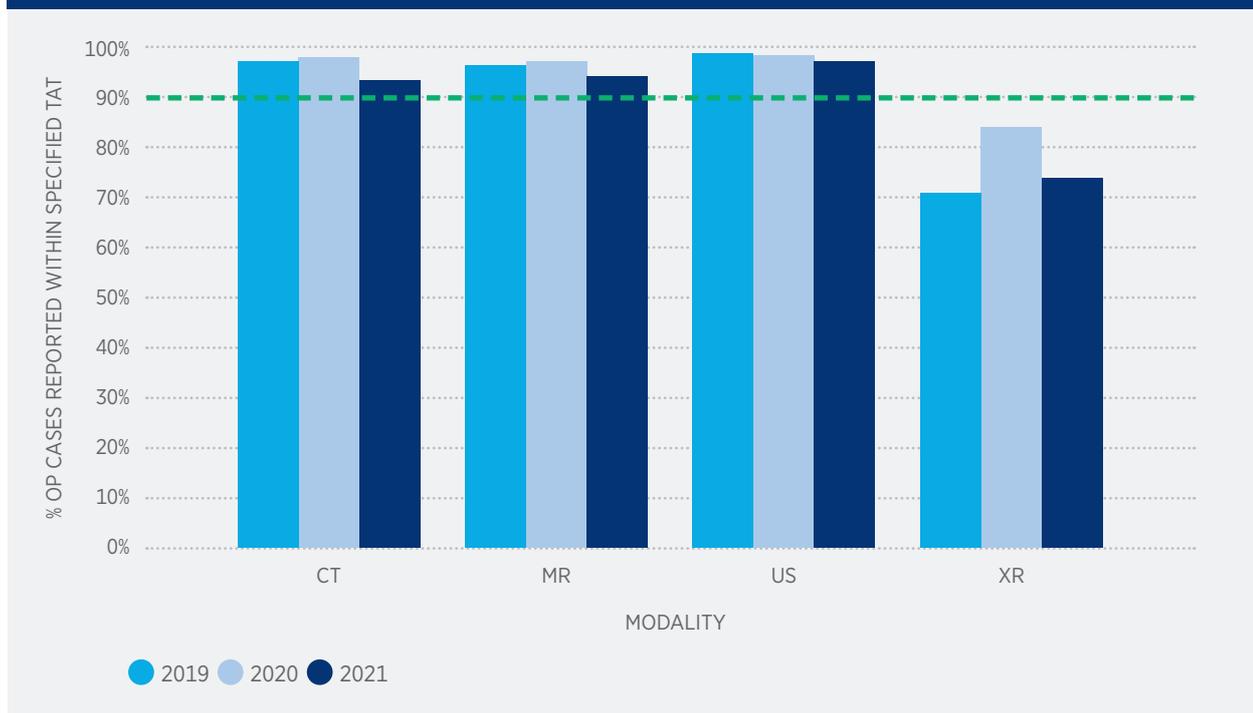
In 2021, 18 out of 41 NQAIS sites met or exceeded the recommended TAT target of 90%, this was a decrease of five sites from 2020 and similar to 2019 findings. These findings present 16 sites maintaining above the recommended target in 2021, which is one less than in both 2020 and 2019.

Ten out of 41 sites authorised less than 80% reports within the defined timeframe in 2020, which is an increase of four sites in comparison to 2020 findings but a decrease from 11 out of 39 sites in 2019.

While these data do not provide context with respect to complexity and volume of workload, a comparison with the volume of cases (Figure 3.3), indicates that the results for individual sites are heavily dependent on workload and available resources.

OUTPATIENT REFERRALS

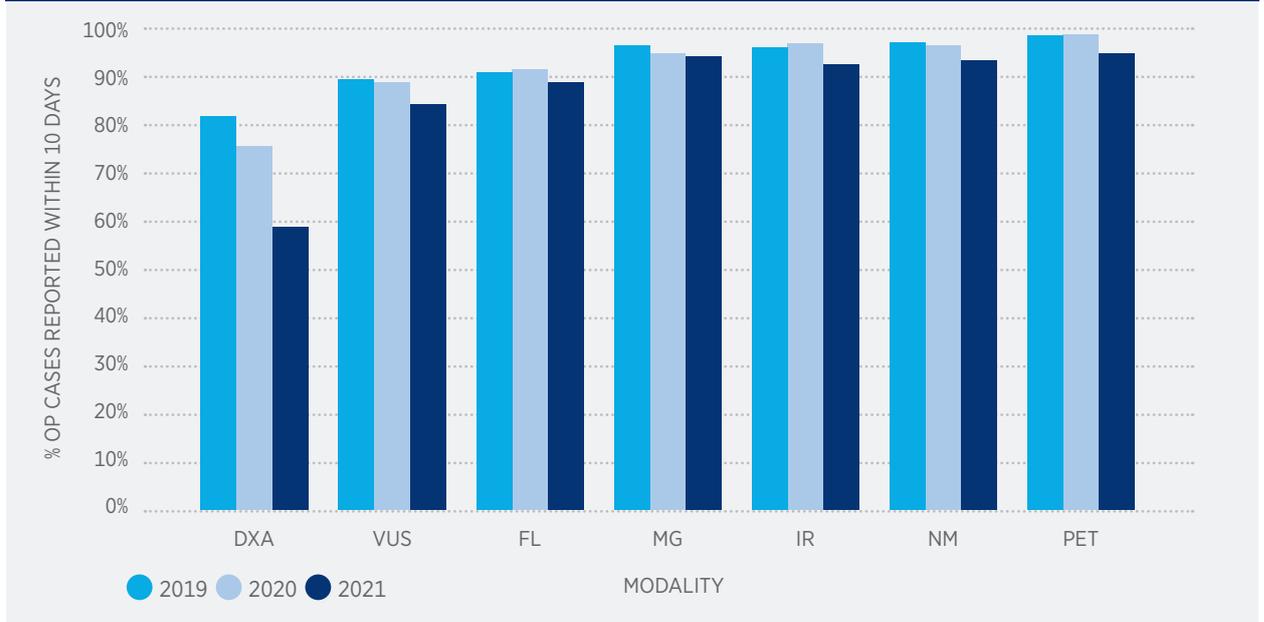
FIGURE 5.2: Percentage of Reports Completed Within 10 days for Outpatient Referrals, for CT, MR, US and XR, 2019 - 2021



Outpatient (OP) referrals have followed a similar pattern for CT, MR, US and XR TAT in 2019, 2020 and 2021 (Figure 5.2). In 2021, the percentage of sites authorising OP reports within the recommended TAT target of 10 days or less decreased for each modality. The data reveal a very minor decrease for CT, MR and US which all remained above 90%, however a further decrease was observed for XR which dropped 10% from 2020 findings but remains above the 2019 figure of 70%.

As previously stated, these data do not provide any context in terms of the workload experienced however, the significant decrease seen may reflect a higher overall number of XR cases in comparison to other modalities, and a prioritisation of the more complex cases performed for patients requiring urgent or unscheduled care.

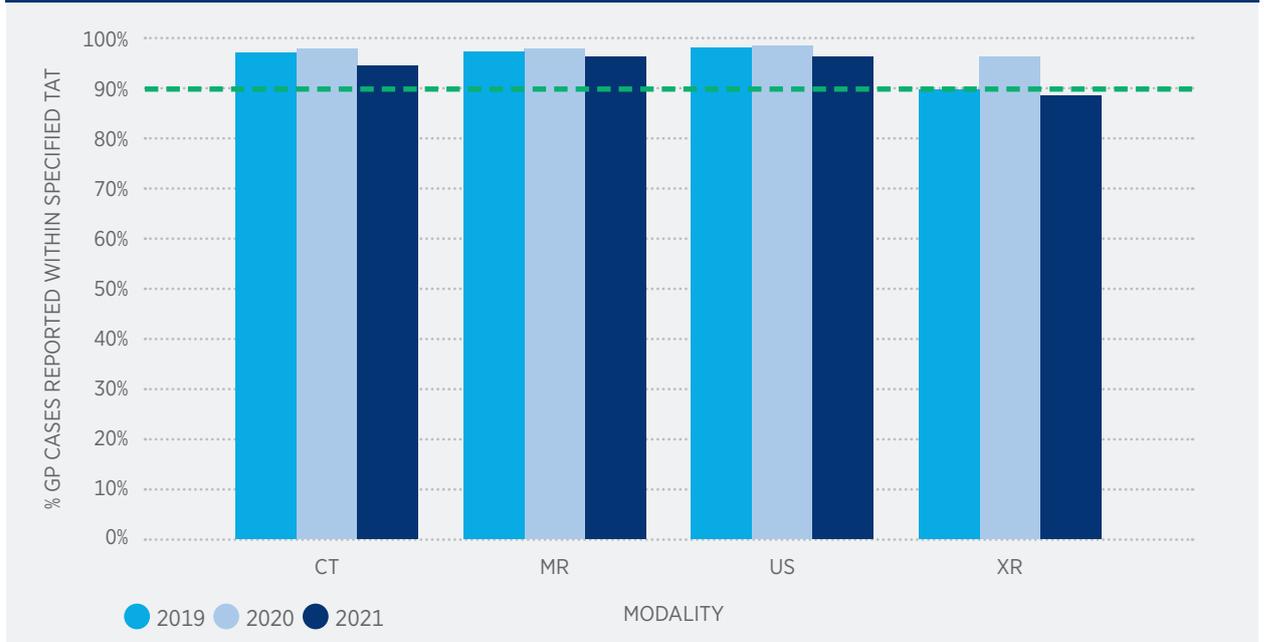
FIGURE 5.3: Percentage of Reports Completed Within 10 days for Outpatient Referrals, for All Modalities Without a Recommended TAT, 2019 - 2021



The primary focus of this chapter is on the TAT for reports authorised for CT, MRI, US and XR, for which the recommended 90% target applies. Figure 5.3 above presents reports completed from OP referrals for the remaining seven modalities from 2019 to 2021 which do not currently have associated TAT targets. Findings in 2021 reveal an overall drop in the percentage of OP referrals completed within 10 days in comparison to 2020 and 2019. The most significant decrease was recorded for Dexa Scans (DXA) at 59% in 2021, down 22% from 2019.

GENERAL PRACTITIONER REFERRALS

FIGURE 5.4: Percentage of Reports Completed Within 10 days for GP Referrals, for CT, MR, US and XR, 2019 - 2021



Similar to OP referrals, those cases referred for CT, MR, US or XR imaging by general practitioners (GP) should also be reported within 10 days. Figure 5.4 illustrates that over 90% of reports for CT, MR and US reports from GP referrals were authorised within the required 10-day timeframe in 2021, 2020 and 2019. GP referrals for XR fell just below 90% in 2021, following a decrease of 7% from 2020.

FIGURE 5.5: Percentage of Reports Completed Within 10 days for GP Referrals, for Modalities Without a Recommended TAT, 2019 - 2021

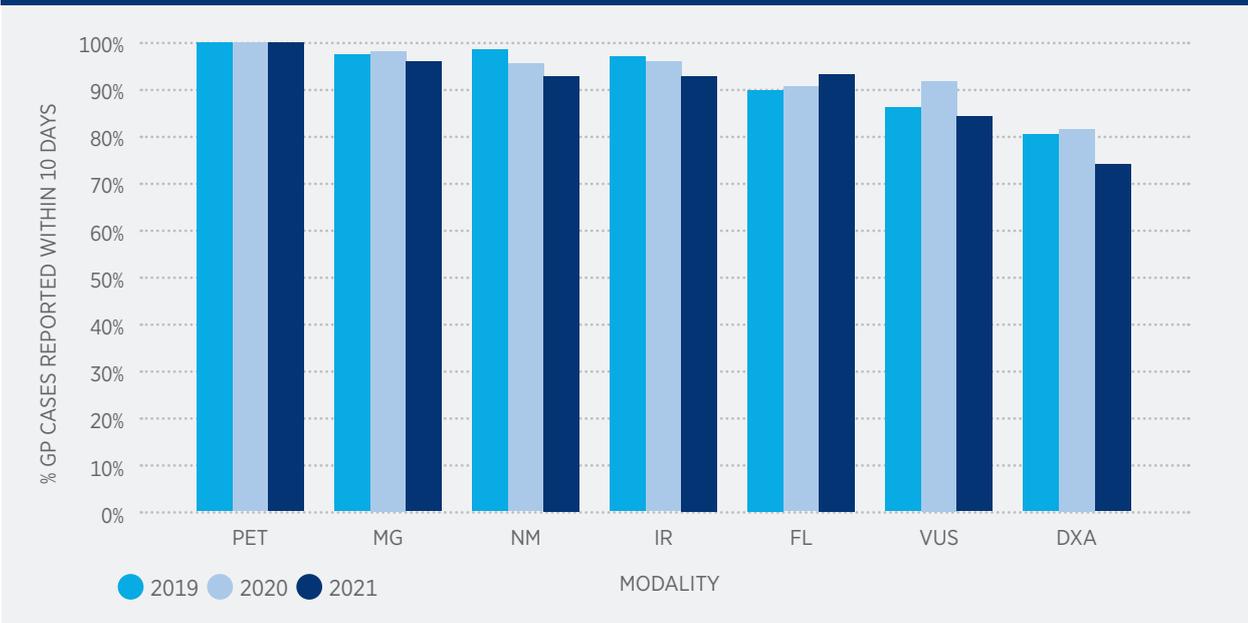
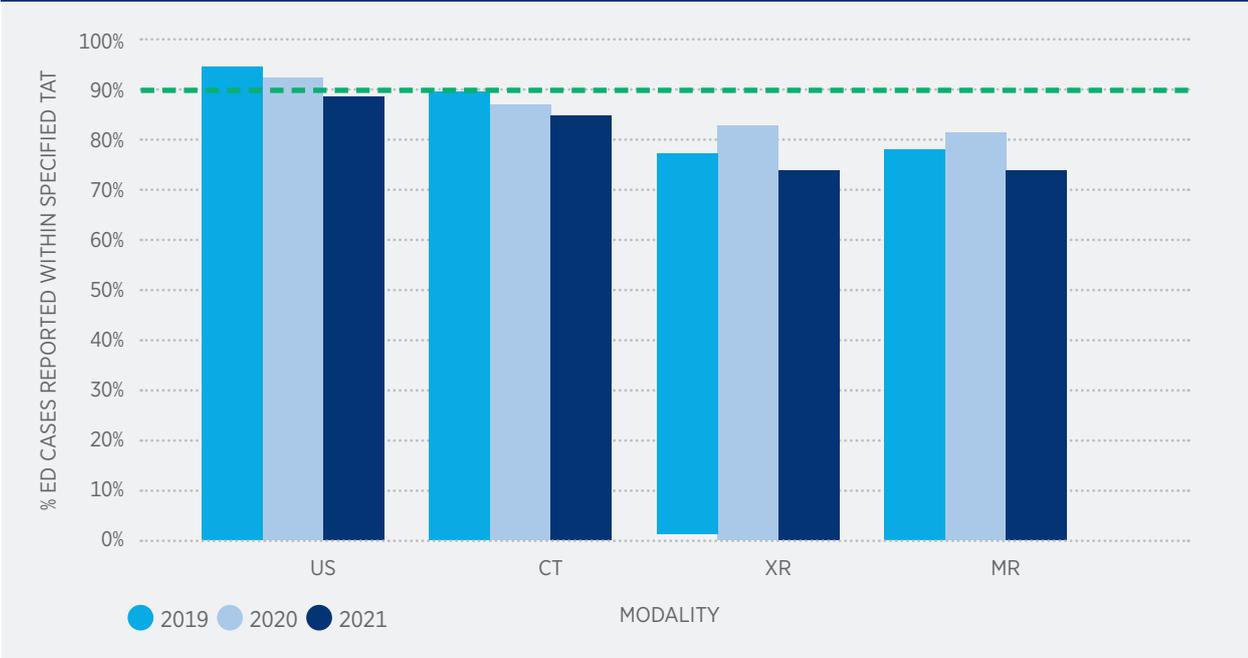


Figure 5.5 highlights the percentage of reports authorised for GP referrals within the 10-day timeframe has remained at 100% for PET scans from 2019 to 2021, however similar to OP referrals, the percentage of reports authorised from GP referrals for DEXA Scans has encountered a decrease, in this case 8%.

EMERGENCY DEPARTMENT REFERRALS

FIGURE 5.6: Percentage of Reports Completed Within Defined Timeframe for Emergency Department Cases: 12 hours for CT, MR, US and 48 hours for XR, 2019 - 2021



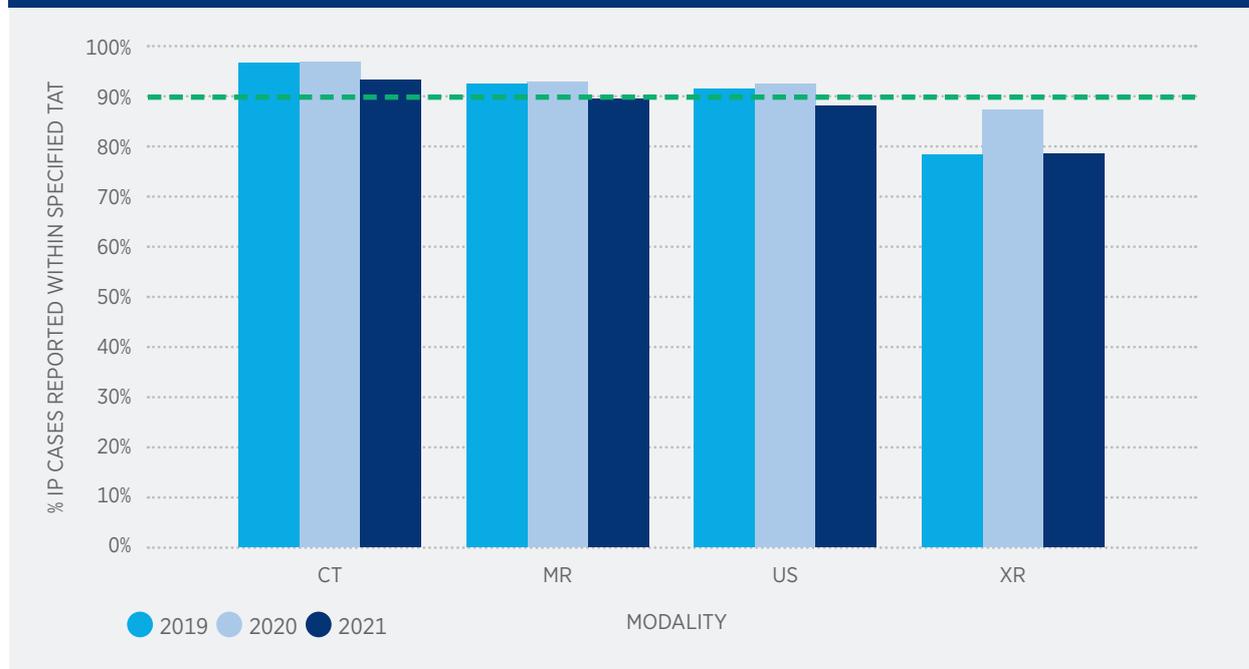
The report TAT for CT, MR and US cases referred from ED is 12 hours, while XR reports should be completed within 48 hours from when an image is available (see Table 5.1).

In 2021, the percentage of reports completed from ED referrals was below 90% for CT, MR, US

and XR. Figure 5.6 reveals that reporting time for each of the four modalities here has decreased across the past three years. MR and XR have remained consistently below the recommended target of 90% from 2019 to 2021. The percentage of CT reports authorised when referred from the ED has dropped from 90% in 2019 to 85% in 2021.

INPATIENT REFERRALS

FIGURE 5.7: Percentage of Reports Completed Within Defined Timeframe for Inpatient Cases: 24 hours for CT, MR, US and 72 hours for XR, 2019 - 2021



All CT, MR and US cases referred as Inpatient (IP) cases should be reported on within 24 hours, while the specified TAT for reporting XR images is 72 hours.

Figure 5.7 reveals a drop in the percentage of reports authorised for each modality between 2020 and 2021, with the percentage of XR reports below the recommended TAT target of 90% since 2019. CT and MR have maintained above the recommended target with US falling outside the target in 2021 with a decrease of 2%.

SUMMARY

The findings outlined in this chapter highlight the challenges facing radiology departments. Many of the 2021 figures reveal difficulties achieving 90% of XR reports authorised for the various referral sources.

In order to continuously improve and to achieve better TATs overall, an uplift in radiologist numbers is required across the country.

As numbers improve, in time, sub-analysis may identify capacity in one hospital to aid another in the same health region via NIMIS.

KEY RECOMMENDATION

The working group encourage sites to audit local processes to assess any potential improvements that could be implemented to reach 90% radiology reports authorised within the specified turnaround time.

CHAPTER 6

PEER REVIEW

6

6.1 INTRODUCTION

The process of peer review is promoted by the NRQI Programme as a way of maintaining safe, high quality patient care. During the peer review process, radiology reports on past and current exams are reviewed to assess their diagnostic accuracy and completeness.

There are a number of different types of peer review which have been outlined in “[Guidelines for the Implementation of a National Radiology Quality Improvement Programme](#)”:

- ✓ **PROSPECTIVE** - a review conducted on a report which has not yet been authorised.
- ✓ **RETROSPECTIVE** - the process of evaluating the diagnostic accuracy of a previously authorised report.
- ✓ **ASSIGNED** - performed on a previously authorised report where cases completed within the previous seven days are randomly assigned by the peerVue system on a weekly basis.

TABLE 6.1: Number of Cases Completed in 2021 by Modality

Modality	Number of Cases 2021
CT	383,923
DXA	18,088
FL	9,846
IR	23,581
MG	46,253
MR	169,692
NM	17,834
OUS	9,426
PET	4,247
TH	30,523
US	340,885
VUS	46,041
XR	1,608,201

Throughout this chapter it is important to look at the findings in the broader context of the overall workload for each modality (Table 6.1). It must also be considered that most cases consist of multiple images which must be reviewed with equal attention.

6.2 PROSPECTIVE PEER REVIEW

When a radiologist seeks a second opinion from another radiologist on a particular case prior to authorising a radiology report this is referred to as a prospective peer review.

This KQI demonstrates the percentage of cases (accession numbers) that were completed within a defined timeframe and were also reviewed by an additional radiologist before completion of the radiology report.

KEY QUALITY INDICATOR

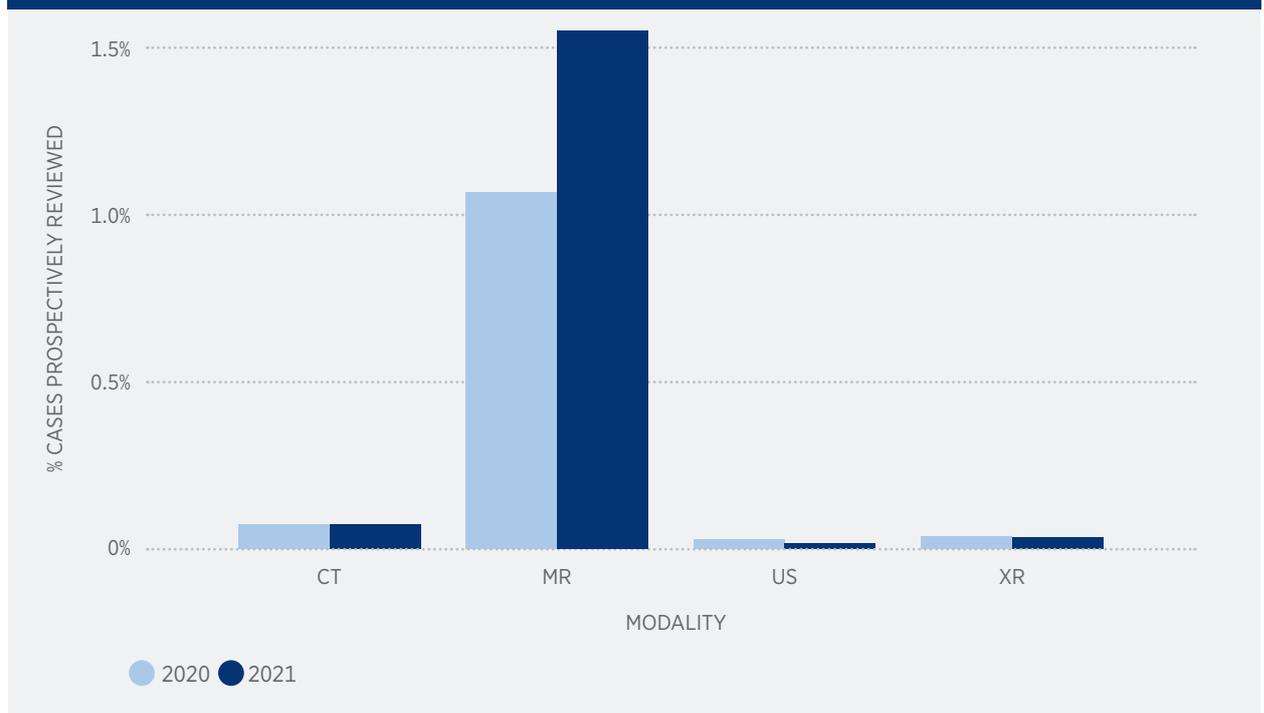
Number of accession numbers with Prospective Peer Review (expressed for each modality and as a % of total accession numbers for each modality)

A radiologist is advised to seek a second opinion if there is any doubt regarding a reported diagnosis, particularly if the colleague consulted has subspecialty training or particular expertise relevant to the case. Peer-to-peer review serves as an important education function and is likely to improve the reporting radiologist's performance on similar cases in the future.

Participation in routine reporting and ad hoc prospective reviews are considered a form of prospective review.

Radiologists should record the involvement of colleagues, with their consent, in the radiology report.

FIGURE 6.1: Percentage of Cases Completed (National Aggregate) Where Prospective Review has been Recorded in the Local System for the Four Modalities with the Highest Number of Cases (CT, MR, US and XR) 2020 vs 2021



Of the three types of peer review, prospective are the least often recorded. As such this report focuses on the prospective peer reviews recorded for the modalities with the highest number of cases. As illustrated in Figure 6.1, the highest percentage of prospective peer reviews in 2021 was recorded for MR cases at 1.5% which was almost a 0.5 % increase from 2020. The percentage of cases reviewed as part of the prospective review process for the remaining three modalities, CT, US and XR combined was just over 0.1% each year.

FIGURE 6.2: Percentage of All Cases Completed (National Aggregate) Where Prospective Review has been Recorded, for All Other Modalities, 2020 vs 2021

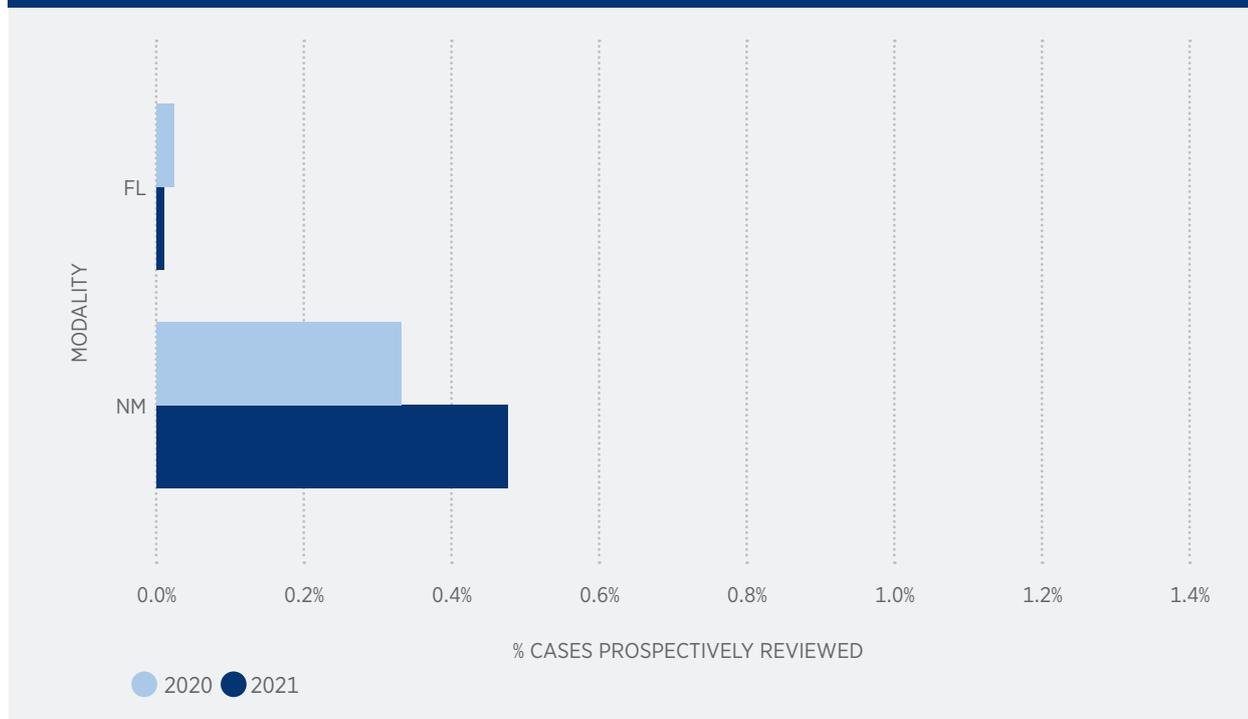
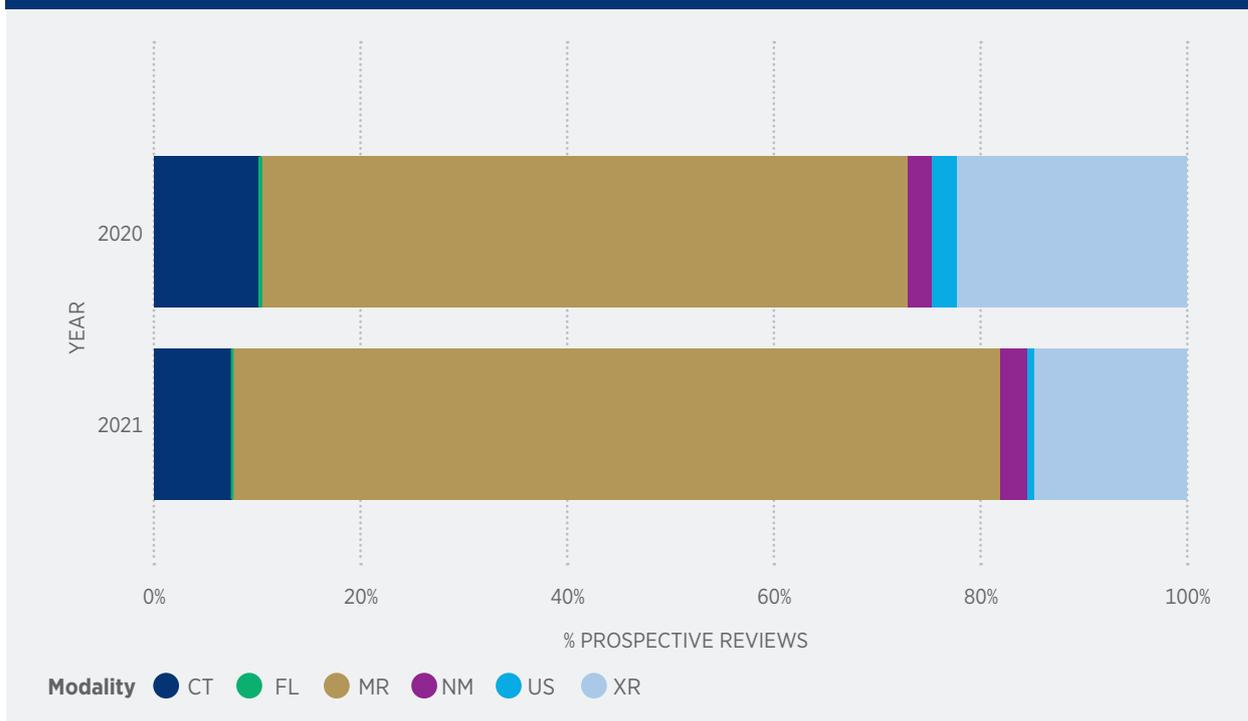


Figure 6.2 demonstrates the percentage of prospective peer reviews recorded for fluoroscopy and nuclear medicine cases, which were not captured in Figure 6.1. The percentage of NM cases where the report was recorded as prospectively reviewed increased from 0.3% in 2020 to nearly 0.5% in 2021, remaining under 0.5% for two consecutive years.

Prospective reviews recorded for other modalities were lower than 0.01% which may indicate that those reviews are not being consistently recorded in the local systems.

Due to the interruptive nature of the communication required to act on any findings discovered in the course of a prospective review, only a portion of these reviews that take place are being recorded in the local system. The NRQI working group and the Faculty of Radiologists continue to work with the software suppliers to develop improved ways of recording this activity.

FIGURE 6.3: Percentage of Prospective Reviews by Modality Expressed Against All Prospective Reviews Recorded for Cases Completed, 2020 vs 2021



Similar to 2020 findings, in 2021 the majority of prospective peer reviews were recorded for MR cases (Figure 6.3). Out of the total prospective reviews recorded in 2021, 74.3% were recorded for MR reports, which was 11.9% more than in 2020. A decrease can be seen in the prospective reviews recorded for CT, 7.8% in 2021 in comparison to 10.6% in the previous year and for FL with 14.5% reviews recorded against reports for that modality in 2021 which was 7.5% less than in 2020. Prospective reviews recorded in 2021 for US reports contributed only 0.9% those records, while in 2020 this was 2.5%.

6.3 RETROSPECTIVE PEER REVIEW

A retrospective peer review takes place where a radiologist is required to review an original image and report on it during patient management forming an opinion regarding the accuracy of that report. This should be recorded as a retrospective peer review in the local system. Where potential quality issues arise, the details should be communicated to the original reporting radiologist and where possible to afford them the opportunity to engage in further discussion.

The reviewing radiologist should record the level of agreement with the original reporting radiologist's report, using the scale shown in Figure 6.8.

This type of Peer Review may be performed during:

1. Routine review of prior images while interpreting a new image
2. Routine preparation of exams for discussion at an MDT Meeting
3. Review based on new clinical findings or information
4. Focused peer review of a specific set of exams

It is best practice for radiology departments to ensure that a representative number of cases are retrospectively peer reviewed across a range of modalities.

Focused peer reviews are an additional category which are also categorised as retrospective reviews but commonly performed as radiology academic exercises that attempt to highlight best practice.

KEY QUALITY INDICATOR

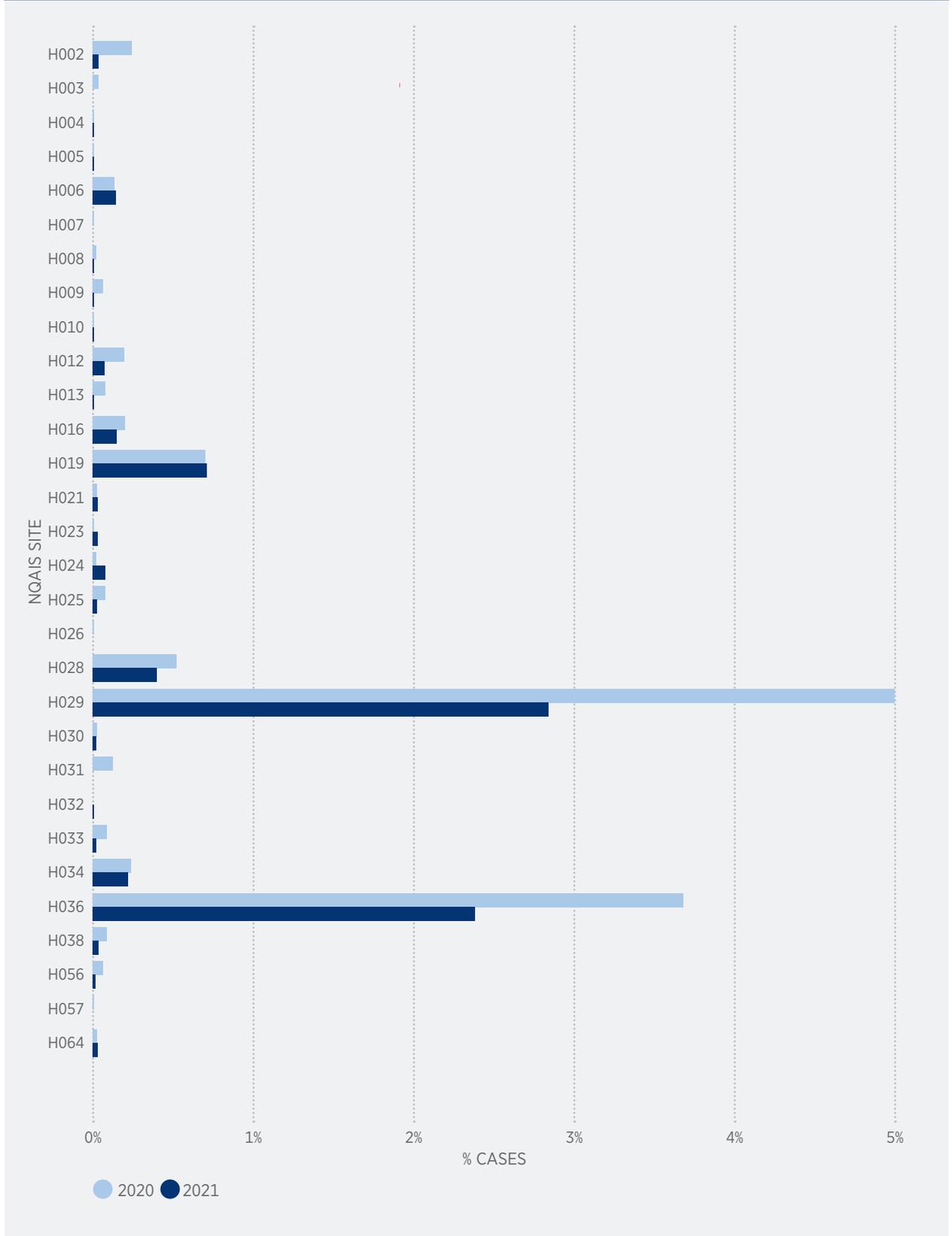
Number of accession numbers retrospectively reviewed (expressed for each modality and accession number type and as a % of total accession numbers for each modality).

Number of accession numbers referred for consideration at Radiology Quality Improvement meetings as a result of retrospective review (expressed as a % of total cases reviewed, by modality).

Currently only a small percentage of retrospective peer reviews are being recorded by participating sites, although the NRQI programme is aware that these reviews are performed as a part of everyday activity in radiology departments.

The majority of radiologists perform multiple retrospective peer reviews as part of their daily reporting and MDM preparation, however many of these are not being recorded in the local system as the current process is cumbersome and it adds extra time to each report which can cumulatively be time significant over the course of the day.

FIGURE 6.4: Percentage of Cases Completed Where Retrospective Review Has Been Recorded, by NQAIS Site, 2020 vs 2021



It is important to highlight that this report presents only those retrospective reviews that were recorded in the local system and uploaded into NQAIS-Radiology and not the reviews that may have been completed but not recorded, as this is not possible.

Figure 6.4 shows that the percentage of completed cases subject to retrospective review remained low in 2021, with a decrease in many hospitals when compared to 2020. Most of the sites recorded less than 1% cases as retrospectively peer reviewed. Two hospitals have consistently recorded more than 2% cases retrospectively reviewed, at 2.8% and 2.3% respectively. However, each hospital saw a significant year on year decrease.

As these figures reflect only those retrospective reviews that were recorded in the local system, it is likely that the cyber-attack of May 2021 contributed to this decrease in certain hospitals. Other factors which may have contributed to the relatively low percentage overall of cases recorded as retrospectively reviewed are consistent issues such as high workload, and a lack of time and resources needed to complete the current data submission process. Staff turnover and outsourcing of reporting can be also be contributing factors.

Departments should ensure that all radiologists including locum radiologists know how to record QI activity in local system and encourage them to do so as part of their routine work.

FIGURE 6.5: Percentage of Cases Completed (National Aggregate) Where Retrospective Review Has Been Recorded, by Modality, 2020 vs 2021

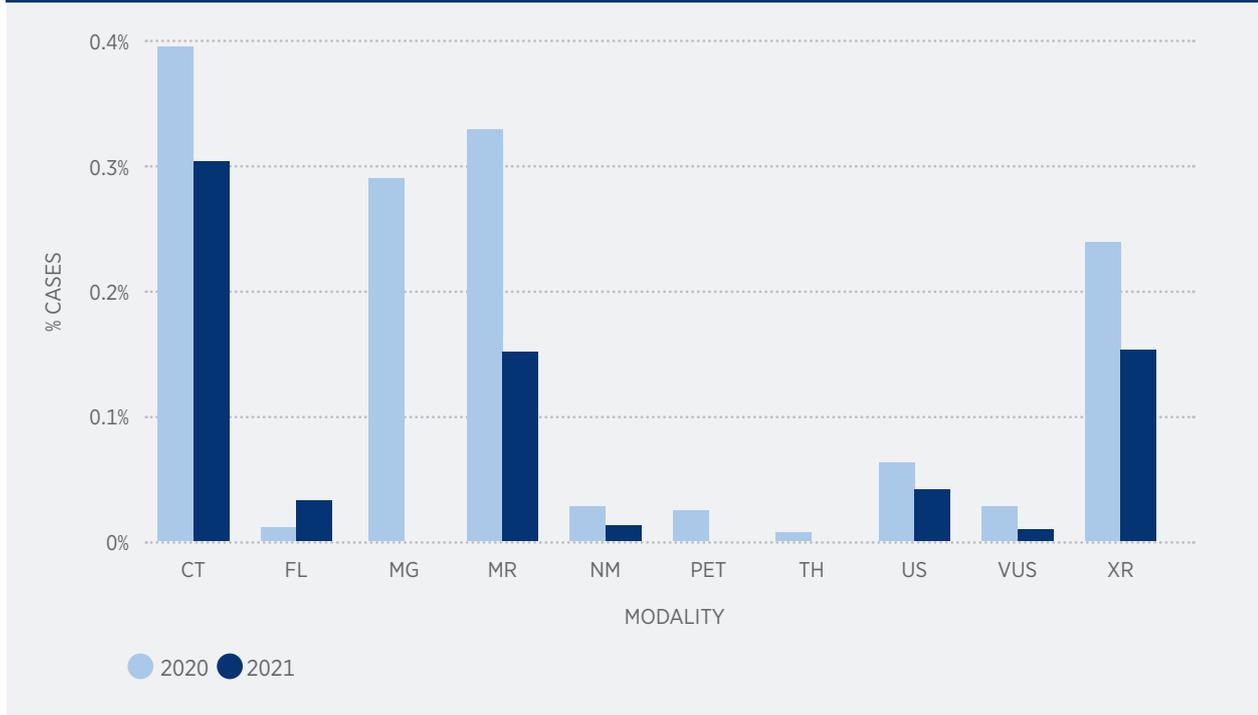
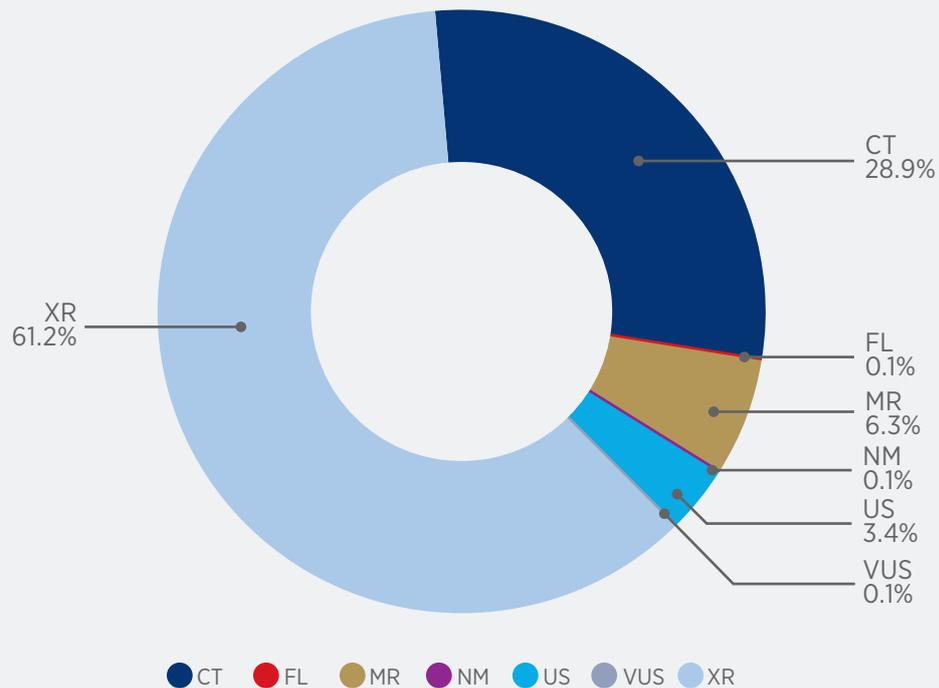


Figure 6.5 illustrates a comparison of the percentage of retrospective reviews recorded for cases completed in 2020 and 2021, broken down by modality. When compared to 2020, a visible decrease can be noted in almost all modalities for 2021. The largest change be seen in MG which has reported a decrease from 0.3% in 2020 to 0% in 2021. Other modalities that were represented in the 2020 data but not the 2021 data are PET and TH, which dropped to zero from 0.02% and 0.01% respectively.

One of the factors contributing to the decrease in numbers of recorded retrospective peer reviews across modalities might be the fact that for the period of time after the cyber-attack, old exams were temporarily inaccessible in most sites and therefore comparisons of newly acquired images with older ones was not possible.

FIGURE 6.6: All Retrospective Peer Reviews Recorded for Cases Completed, by Modality, 2021



The majority of all retrospective reviews recorded in 2021 were completed for XR reports, at 61.2% (Figure 6.6). This is consistent with the findings recorded in 2020 at 62.2%. CT cases were the second cases most often retrospectively reviewed, at 28.9%, followed by MR with 6.3% retrospective reviews recorded for this modality.

6.4 ASSIGNED PEER REVIEW

The purpose of an assigned peer review is to make contemporary cases, those not older than seven days, available to radiologists for review. Radiologists are assigned five cases to review on a weekly basis through the local system.

The cases assigned for this type of review cover a spectrum of cases representative of a radiologist’s usual practice including subspecialties. If the radiologist does not practice the subspecialty in the assigned case, they can choose to reject the case and not complete that peer review.

The dataset analysed for assigned peer review only includes the cases reviewed, not the total number made available

KEY QUALITY INDICATORS

Number of accession numbers reviewed as part of the assigned peer review process (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).

FIGURE 6.7: Percentage of Cases Reviewed as a Part of Assigned Reviews, by NQAIS Site, 2020 vs 2021

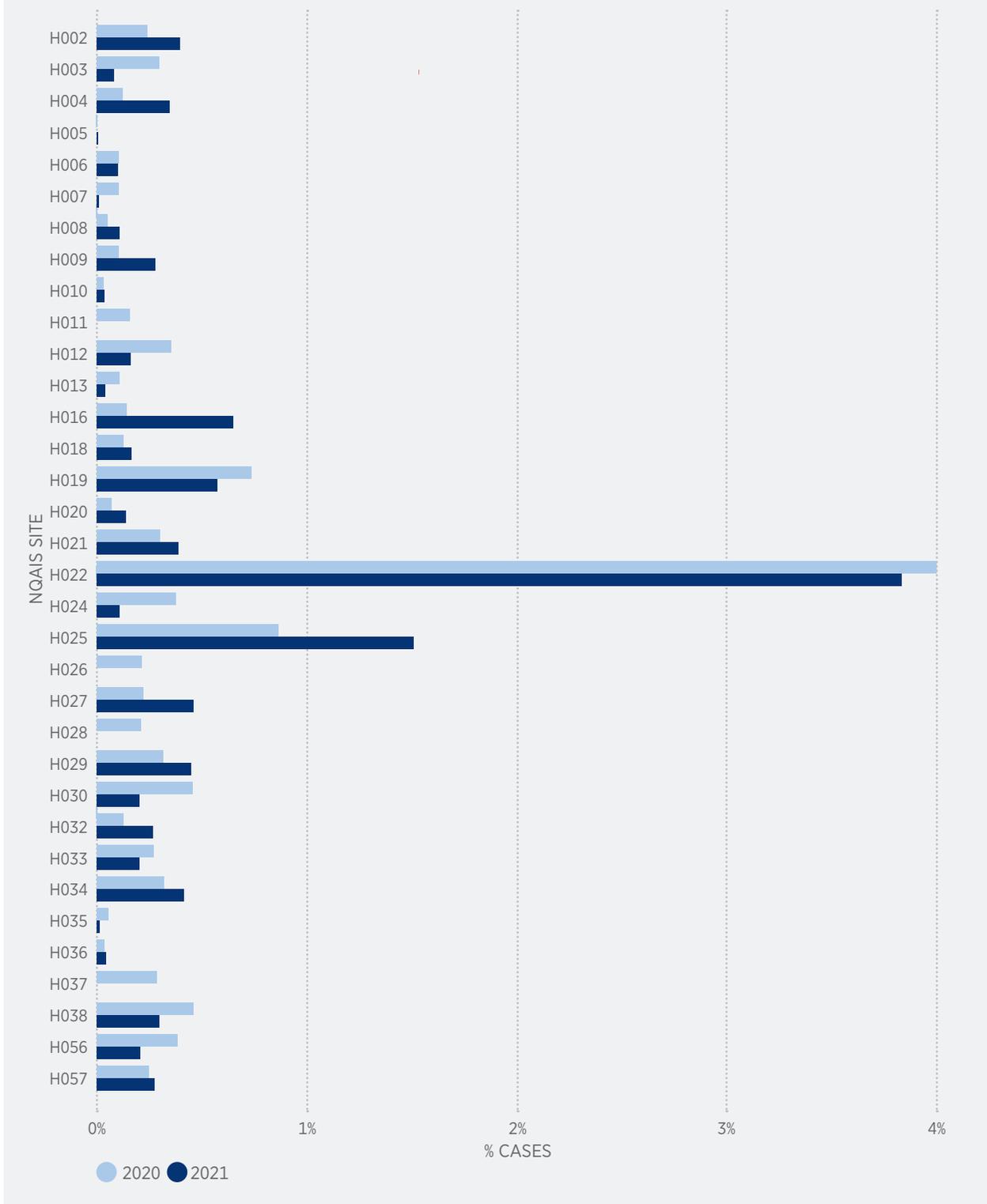


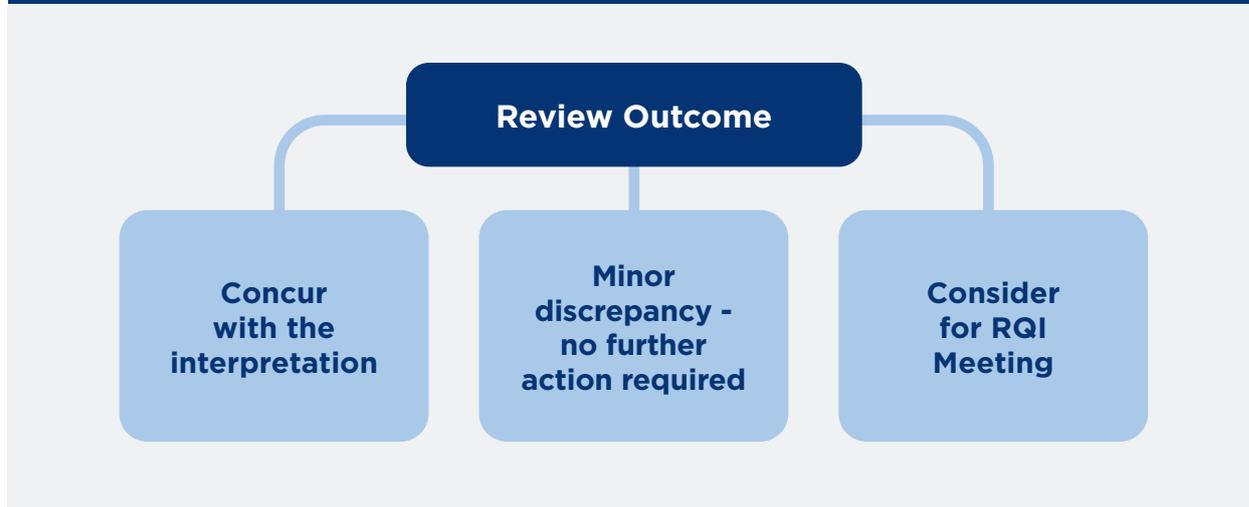
Figure 6.7 illustrates the percentage of cases reviewed in the assigned peer review process by NQAIS site. A wide variation of the year-on-year figures can be seen when 2021 and 2020 data are compared, with 12 sites reporting increases of up to 0.6% and 16 sites recording a decrease. Two sites recorded completed assigned peer reviews representing over 1% of their cases, while all other sites recorded the volume as below 1%.

Assigned peer review is an important part of the radiologist’s weekly activity and contributes to QI within the department, however their completion is heavily reliant on available resources. In a busy department, assigned peer review may be deemed less of a priority and so may be neglected in favour of clinical work and more urgent administrative activity.

6.5 PEER REVIEW - OUTCOMES

The reviewing radiologist should record the level of agreement with the original reporting radiologist's report, in the local system, upon completion of a retrospective or assigned peer review, as outlined in Figure 6.8.

FIGURE 6.8: Possible Peer Review Outcomes Available for Selection in the Local System



6.5.1 RETROSPECTIVE PEER REVIEW - OUTCOMES

FIGURE 6.9: Retrospective Reviews by Outcome, as a Percentage of All Retrospective Reviews Recorded for Cases Completed in 2020 v 2021

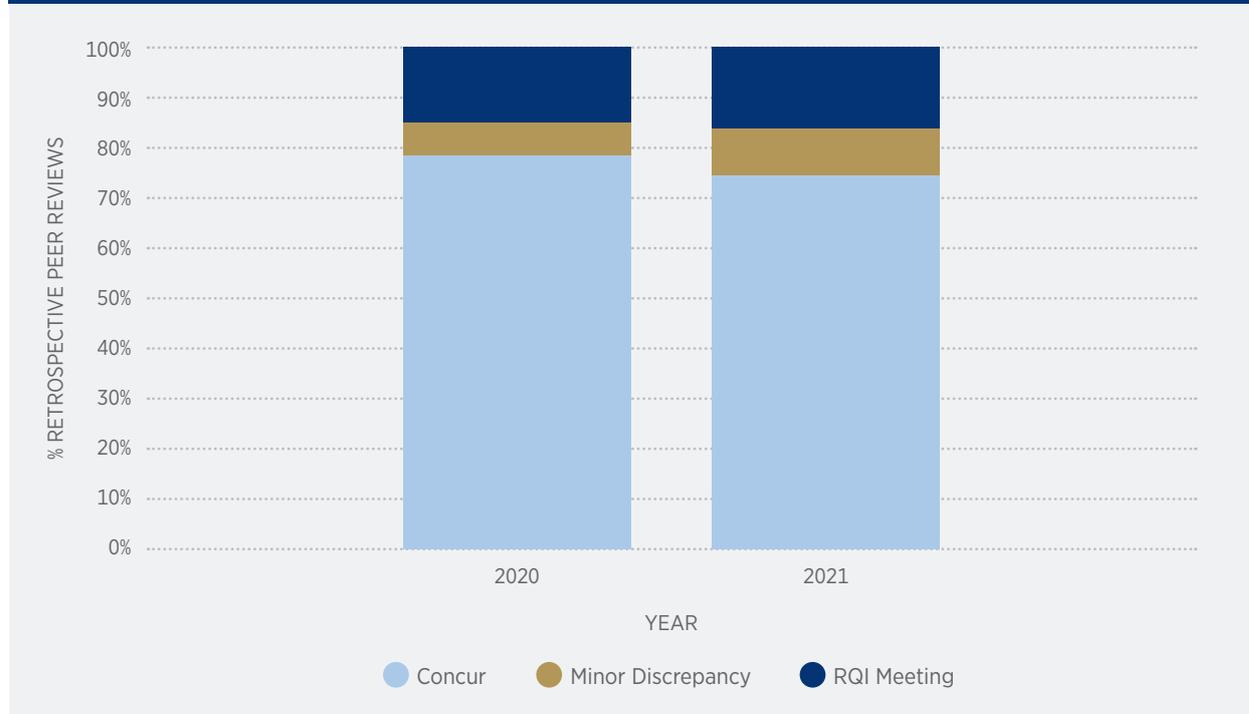


Figure 6.9 presents a comparison of the percentage breakdown of all retrospective reviews performed on cases completed in 2020 and 2021 by review outcome.

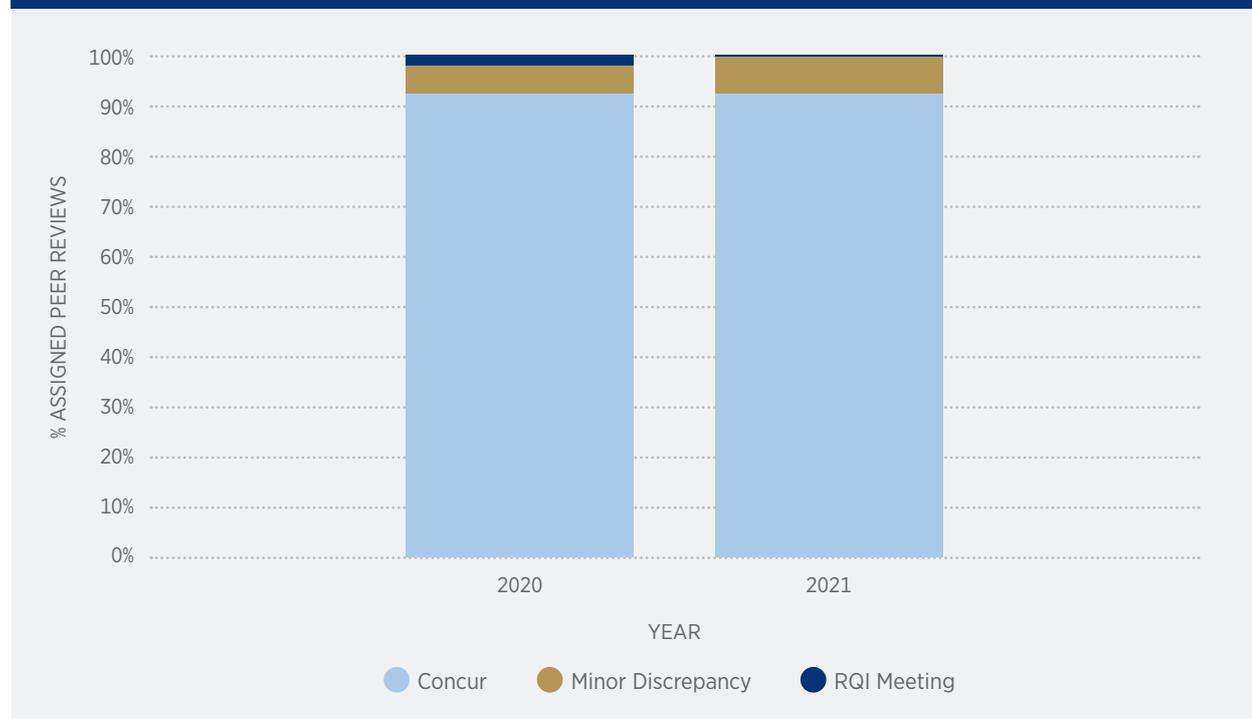
In 2021, 75% of all recorded retrospective reviews were in concurrence with the original report, 4% less than in 2020. A 3% increase was seen in the percentage of retrospective peer reviews with a minor discrepancy in 2021 when compared to 2020. In 2021, 16% of retrospective reviews were submitted to an RQI meeting in compared to 15% in 2020.

Studies are submitted to RQI meetings as shared learning exercises and identifying examples of both best practice and learning opportunities for improvement.

6.5.2 ASSIGNED PEER REVIEW - OUTCOMES

Any radiologist completing an assigned peer review should record the level of agreement with the original reporting radiologist's report using the scale shown in Figure 6.8.

FIGURE 6.10: Assigned Reviews by Outcome, as a Percentage of All Assigned Reviews Completed, 2020 v 2021



As shown in Figure 6.10, outcomes recorded for the assigned peer review process in 2021 were very similar to those recorded in 2020 with a 92.9% concurrence rate in 2021 and 93.0% in 2020. In 2021, a minor discrepancy was identified in 6.5% of assigned peer reviews, this is in comparison to 5.9% in 2020. Less than 1% of reports reviewed as part of the assigned review process were recommended for referral to the RQI Meeting in both 2020 and 2021.

Retrospective peer review usually occurs in conjunction with another process, such as routine review of a patient's record when a new case or previously unknown clinical information becomes available, or during preparation for MDM.

Assigned peer reviews are randomly allocated by the local system and always include contemporary cases, not older than seven days.

Recording a retrospective or prospective peer review requires the radiologist to tick the appropriate box in the local system on completion and select the review outcome, recording any comments, if required. This will then ensure the work is logged and contributes to both that hospitals local and the national QI dataset.

Radiologists are now notified by the local information system on a weekly basis regarding the need to document their completed assigned peer reviews. The findings documented in this report for 2021 assigned peer review do not reveal greater compliance with the documentation of these reviews, however radiologists have been faced with unprecedented working conditions since March 2020 which must be taken into account.

KEY RECOMMENDATIONS

The working group strongly recommend that all radiologists complete their assigned peer review cases each week.

CHAPTER 7

RADIOLOGY ALERTS



7.1 INTRODUCTION

The following chapter provides details on the three categories of radiology alerts, the acknowledgment of these alerts and the timeframes in which this should be completed.

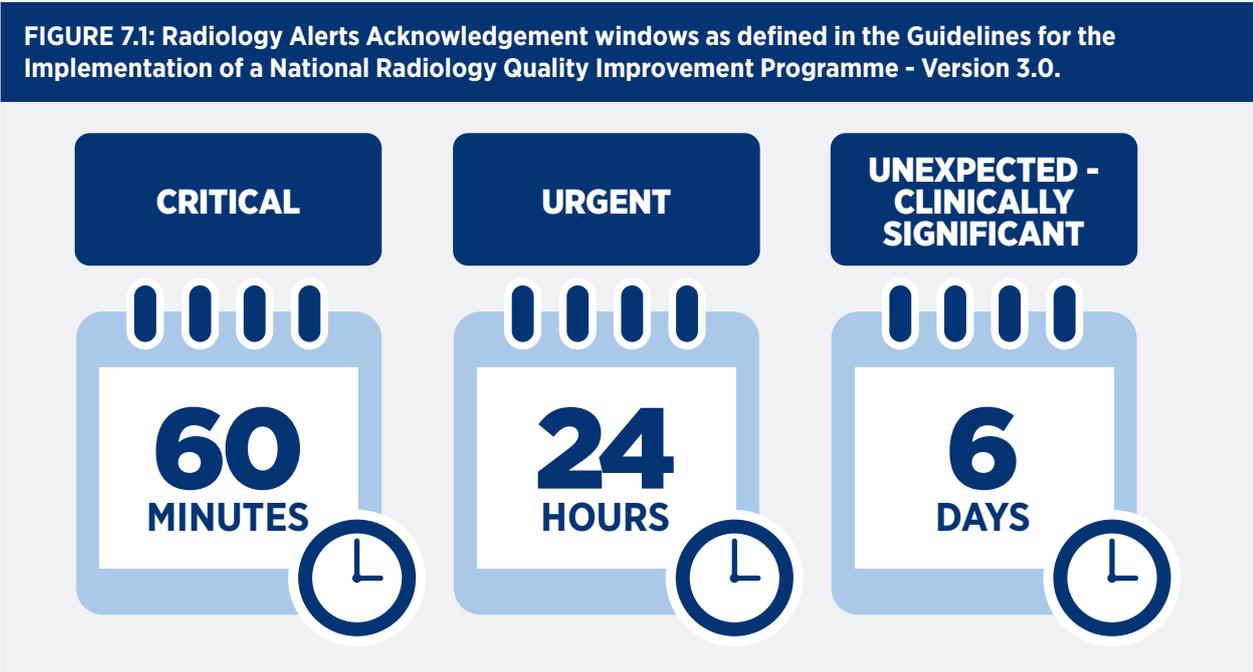
In a radiology department an alert is defined as the communication of a high priority finding or report from one healthcare professional to another.

KEY QUALITY INDICATOR

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

Figure 7.1 below outlines the three categories of findings and the defined acknowledgement timeline associated with each category of radiology alerts, critical, urgent and unexpected-clinically significant.

A radiology alert must receive acknowledgement from an appropriate individual, typically the referring physician or an appropriate member of their team. The acknowledgement window begins when a radiology alert is activated in the local system, its duration is calculated from the moment that the alert is activated until the moment that the alert is marked in the system as acknowledged.



Acknowledgement by the referring clinician is treated as a confirmation that the receiver is aware that the report contains high priority information, is aware of the urgency and will follow-up and act on the radiology alert as appropriate.

It is the responsibility of each hospital/radiology department, in conjunction with the referring clinicians and hospital management, to establish a local policy that clearly defines the processes for communication, and the responsibilities of the radiologists, the referring clinicians and hospital management within that process.

An escalation procedure regarding activated radiology alerts should involve the radiology department and specifically the radiology clinical director/consultant radiologist in administrative charge and be managed by a designated person within the department. The department should take appropriate actions to ensure adherence to the standards.

In the event where communication of a radiology alert has not been acknowledged, a locally agreed escalation procedure should be in place to manage this.

7.2 RADIOLOGY ALERTS OVERVIEW

Different local systems are in use in NQAIS sites to record radiology alerts, depending on the local system being used some alerts are captured in a manner different to what is described in this chapter. Therefore, as with other KQIs detailed in this report, the volumes of radiology alerts included here represent only a portion of all alerts activated in 2021.

The manual nature of the input of radiology alerts and the associated outcome also contribute to incomplete records.

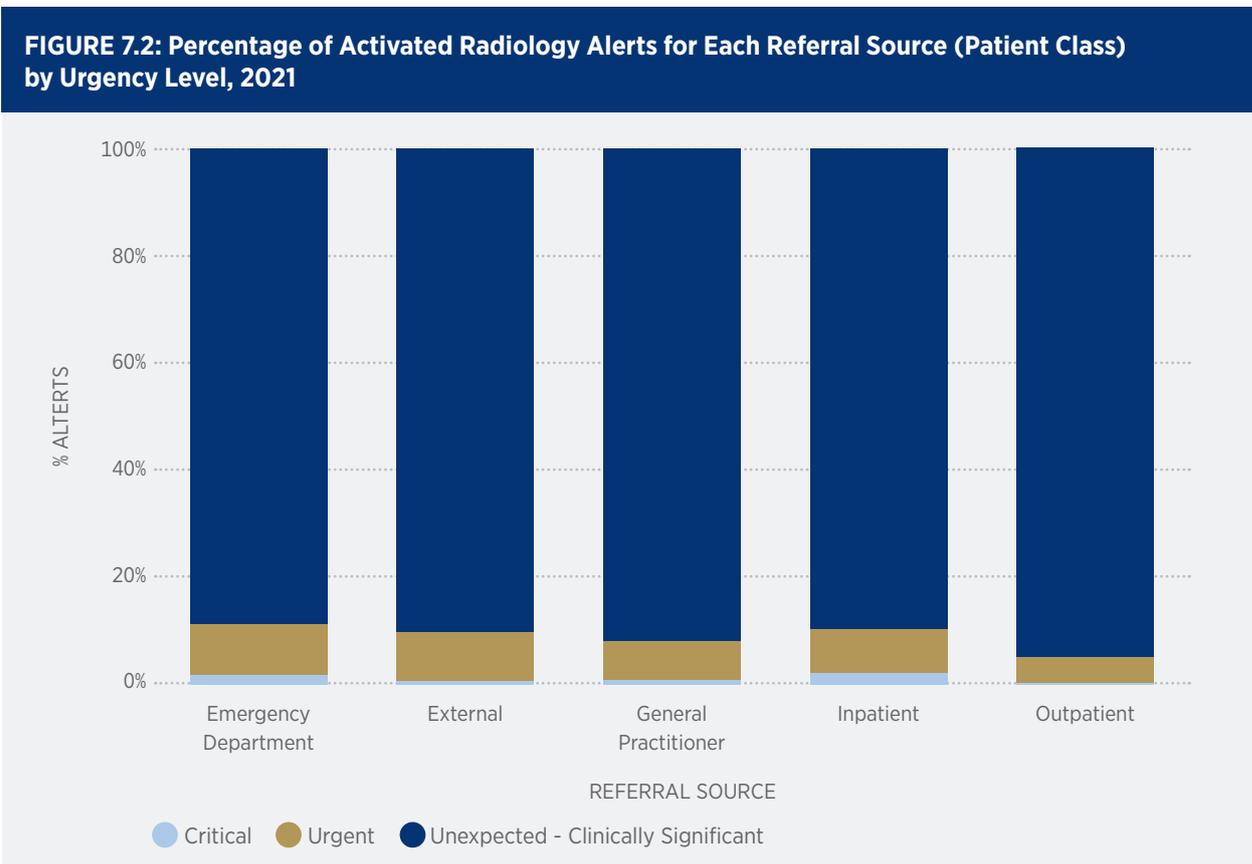


Figure 7.2 illustrates that in 2021, for each referral source the majority of radiology alerts activated in the local systems refer to unexpected-clinically significant (U-CS) with the highest seen for Outpatient (OP) referrals at 95.1% similar to 2020 findings. The referral sources associated with the highest percentages of urgent alerts in 2021 were ED and External at 9.2%, while both OP and ED had the highest percentage of critical alerts at 1.7%.

FIGURE 7.3: Number of All Radiology Alerts (National Aggregate) by Referral Source (Patient Class), 2020 v 2021

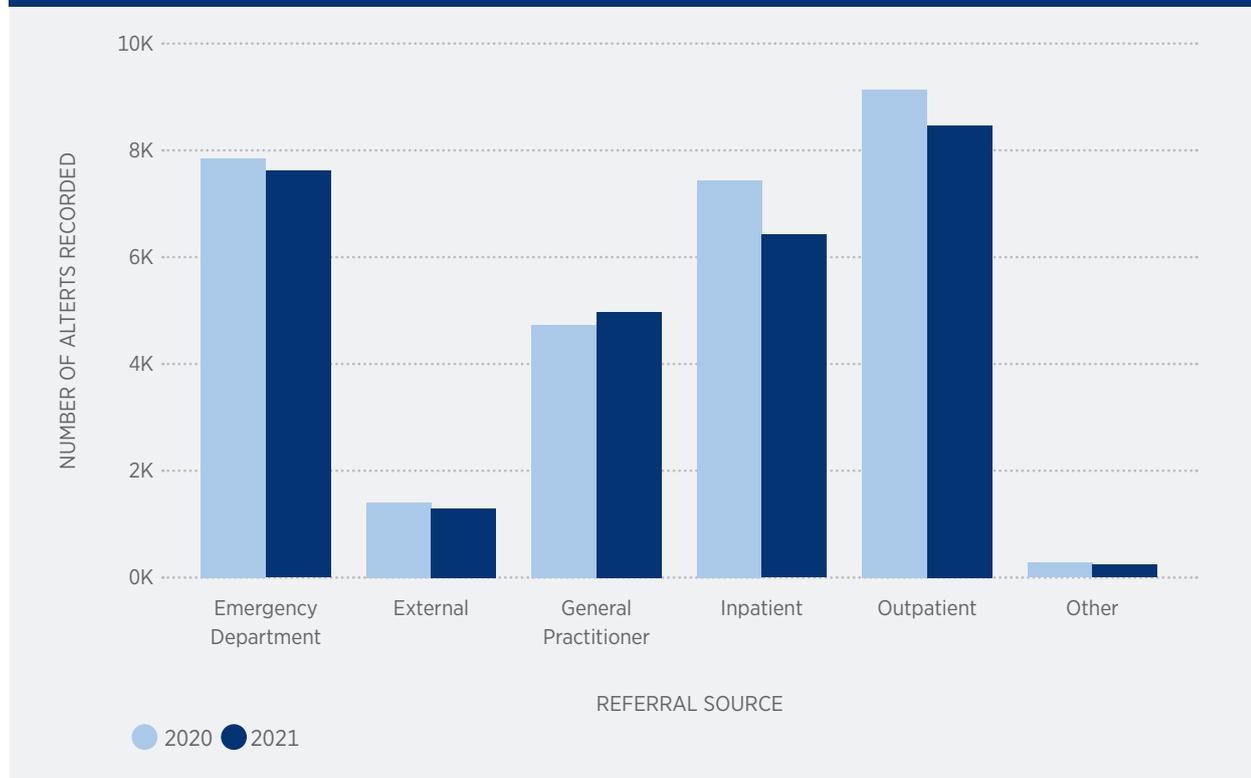


Figure 7.3 presents a comparison between the overall number of alerts activated in 2020 and 2021. The findings reveal that the overall number of alerts raised was highest in both 2020 and 2021 for OP referrals, even allowing for a significant drop in 2021.

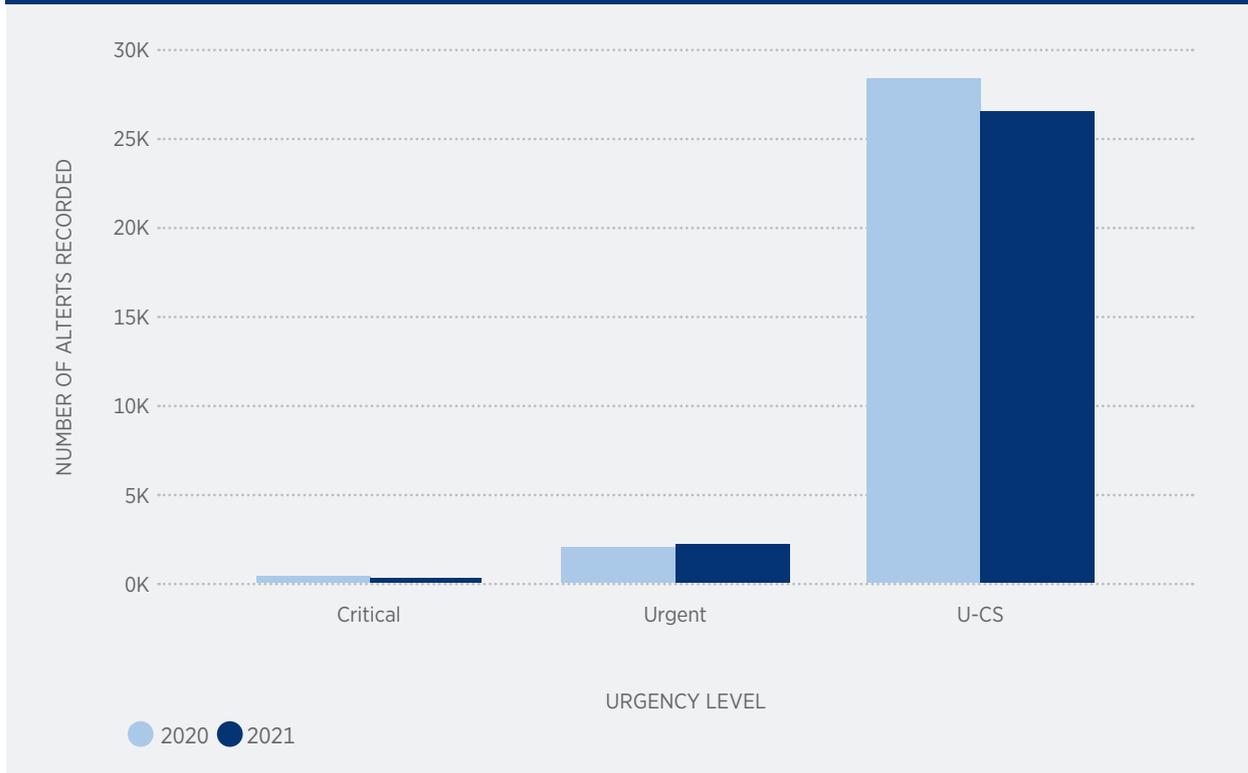
In 2020, the number of alerts raised was 30,725, while 2021 records show 28,925 alerts activated which represents 6% decrease.

A decrease in the overall number of alerts for ED, Ext, IP and OP referrals can be seen for 2021. Referrals sent from GPs saw an increase of 3,000 radiology alerts raised.

The most notable change observed can be seen in the decrease of alerts raised for IP referrals at 1,000 less than in 2020.

These results, and particularly differences in records between 2020 and 2021, should be reviewed in the broader context of the annual workload, the impact of the COVID-19 pandemic and the cyber-attack in May 2021. Due to the consequences of the cyber-attack, local systems were offline for a considerable time and it is likely that radiologists have reverted to other methods of communication, such as phone calls.

FIGURE 7.4: Number of All Radiology Alerts Recorded (National Aggregate) by Urgency Level, 2020 v 2021

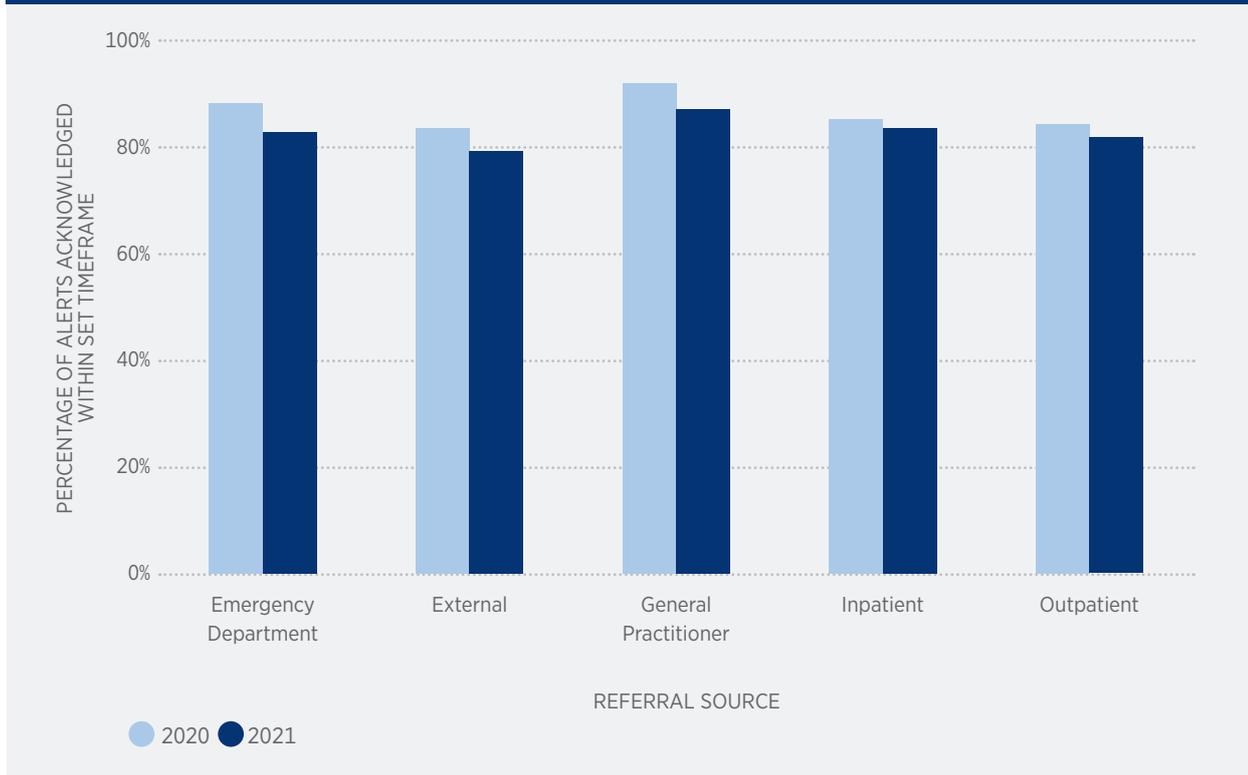


A similar pattern has emerged between 2020 and 2021 findings and those highlighted in previous reports. The volume of critical and urgent alerts remains low, while unexpected and clinically significant alerts account for the majority of radiology alerts raised.

Figure 7.4 demonstrates a slight decrease in critical alerts in 2021 compared to 2020 figures, while a minor increase was seen in the number of urgent alerts raised in 2021.

The number of unexpected and clinically significant alerts raised in 2021 decreased by 6.4% (1,800). The figures for U-CS alerts have been decreasing over the last number of years most likely impacted by the COVID-19 pandemic and most recently the cyber-attack.

FIGURE 7.5: Percentage of Radiology Alerts (National Aggregate) Acknowledged Within Set Timeframe out of All Recorded Radiology Alerts, by Referral Source, 2020 vs 2021



The percentage of radiology alerts acknowledged within the set timeframe in 2021 have decreased from 2020 figures for each referral source (Figure 7.5). The largest decrease can be seen for ED, Ext and GP, all of which decreased by 5% from 2020 figures.

7.3 UNEXPECTED – CLINICALLY SIGNIFICANT RADIOLOGY ALERTS

Unexpected – Clinically Significant (U-CS) are classified as any new or unexpected findings that suggest a patient’s condition could result in significant morbidity if not appropriately managed but are not immediately life-threatening.

Unexpected–Clinically Significant Alerts should be acknowledged within six days of alert activation.

The communication of an unexpected-clinically significant radiology alert should be from the reporting radiologist to either the referring clinician or appropriate member of their healthcare team, either via a direct conversation or via an alternative locally approved method of communication.

The clinical finding of concern should be clearly specified in the dictated report. As is the requirement for all alerts, a defined local escalation process must be in place.

FIGURE 7.6: Number of Cases with Unexpected-Clinically Significant Radiology Alerts, by NQAIS Site, 2020 vs 2021

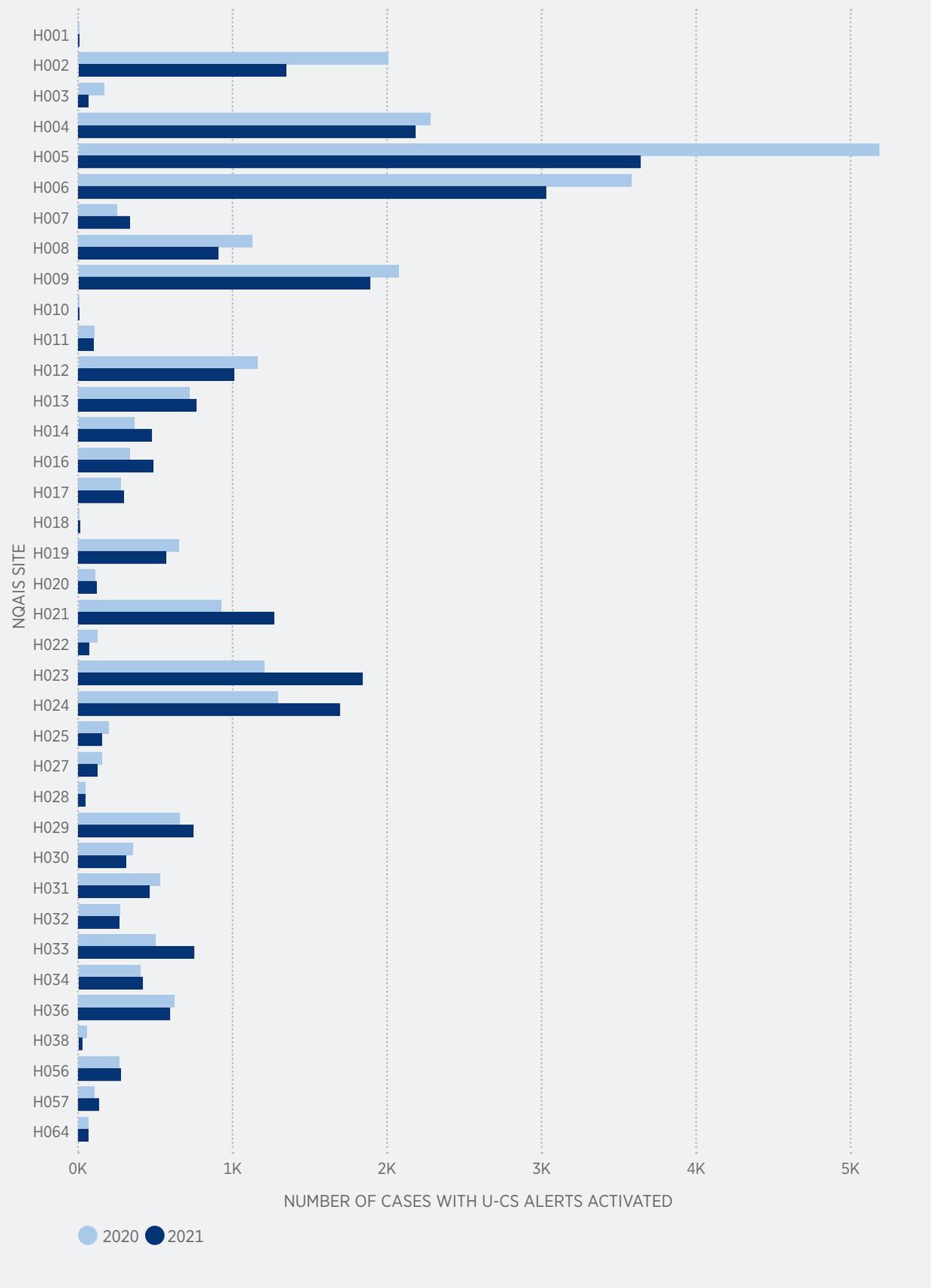
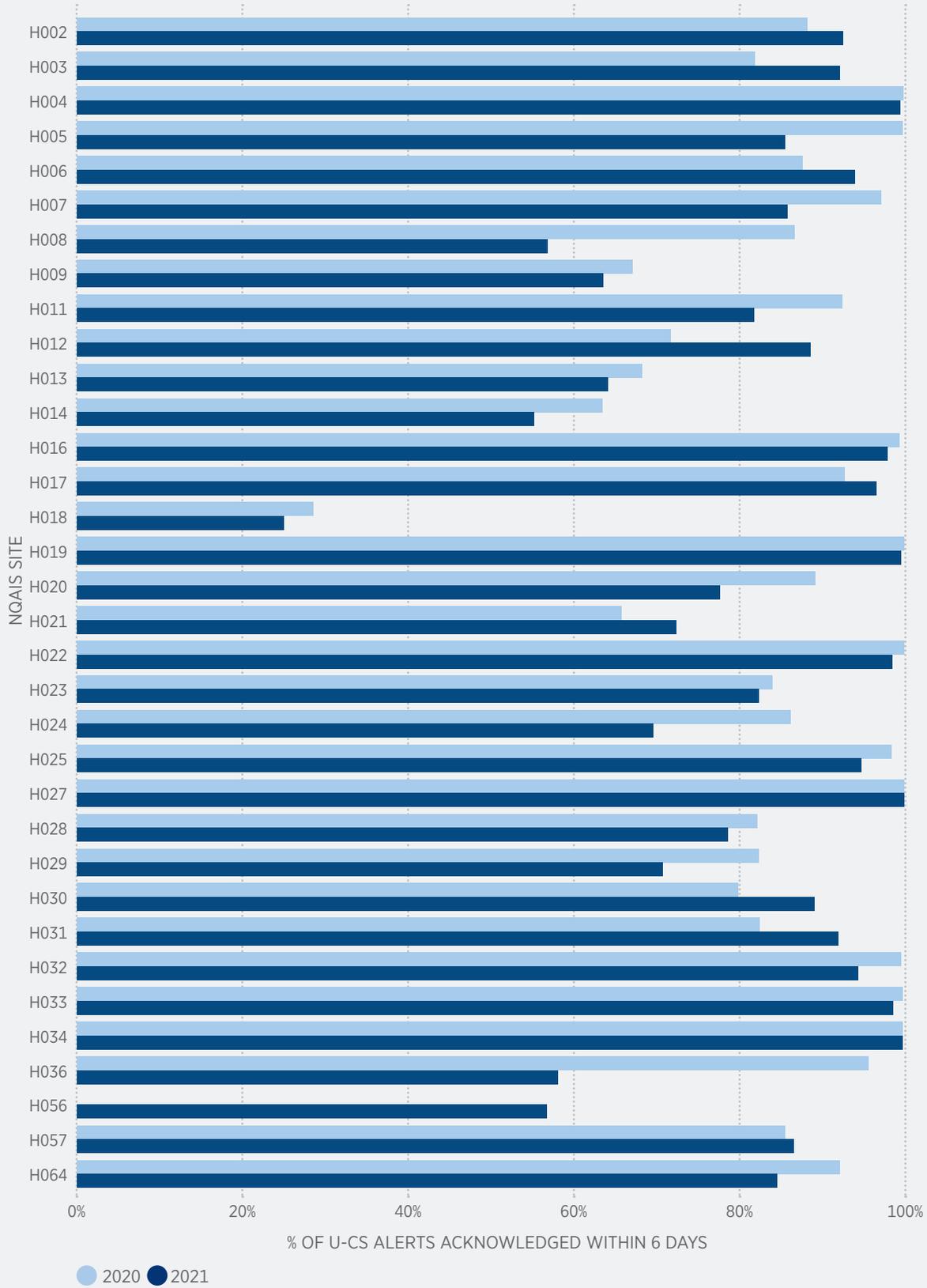


FIGURE 7.7: Percentage Unexpected-Clinically Significant Radiology Alerts Acknowledged Within 6 Days, per NQAIS site, 2020 vs 2021



[Please note that where a site has either not recorded an alert, is using a system incompatible with NQAIS or does not have data available, they do not appear on the above graphs.]

Figure 7.6 above illustrates the number of cases which had a U-CS radiology alert raised in 2021 by NQAIS site in comparison to 2020. Figure 7.7 reveals the percentage of those alerts that were acknowledged within six days by each NQAIS site. These graphs should be viewed in conjunction with one another as they provide necessary context in relation to the volume of UC-S alerts raised and the percentage of those acknowledged in the recommended timeframe.

In 2021, 34 out of 41 sites provided data for Unexpected – Clinically Significant Alerts acknowledged on time within 6 days, this is three sites less than in 2020 and two less than in 2019.

Figure 7.7 reveals that 13 out of those 34 sites recorded over 90% alerts acknowledged on time in 2021, three less than in 2020. A comparison between 2021 and 2020 findings shows that both the volume of U-CS alerts raised and the percentage acknowledged within the recommended timeframe decreased. In 2021, a decrease of 1,830 U-CS alerts were recorded.

There is no apparent correlation between the number of alerts activated within NQAIS sites and the percentage of alerts acknowledged from year to year, further highlighting that acknowledgement of an alert is an external event, outside the control of the radiologist.

Administrative staff in the radiology department play an important role in the executing and recording of acknowledgements of U-CS alerts by providing support to clinicians in monitoring this type of radiology alert. However, availability of such support varies between sites and may also contribute to the length of time before an acknowledgement is recorded in the ICT system.

7.4 URGENT RADIOLOGY ALERTS

An urgent alert should be activated for any new or unexpected findings in conditions that could result in mortality or significant morbidity if not addressed urgently.

The communication of an urgent alert should come from the reporting radiologist to either the responsible clinician or other healthcare team members who can initiate the appropriate clinical action for the patient.

Urgent Alerts should be acknowledged within 24 hours.

Where possible, urgent alerts are best communicated via a direct conversation with the responsible clinician or other licensed caregiver, otherwise, via an alternative method approved by the participating hospital, with a defined escalation process.

Radiology reports are a vital part of patient care and overall diagnostic decision making. Communicating information from these reports in a timely manner is crucial for ensuring the best possible patient outcomes.

Currently hospital ICT systems are not tailored to record and monitor critical and urgent alerts quickly or easily which contributes to issues some sites have in maintaining full records of these alerts.

Direct verbal communication remains the safest method for communicating these findings at present.

More communication is required with radiologists to ensure this occurs and to discuss possible improvements on how the system can capture this information.

7.5 CRITICAL RADIOLOGY ALERTS

A critical radiology alert is activated when a new or unexpected clinical finding is discovered that is potentially life-threatening or requires immediate clinical action in patient management.

The acknowledgement of a critical radiology should be recorded by the reporting radiologist within 60 minutes of initial alert activation.

A critical radiology alert must be communicated by the radiologist via a direct conversation with the referring clinician or a member of their team. As with the acknowledgement of other alerts, defined escalation process should be put in place by the participating hospital.

Critical results require immediate, interruptive communication with the referring clinician, covering clinician or other healthcare team member who can initiate the appropriate clinical action for the patient.

When a critical alert is raised patient care should be prioritised immediately, this can result in delays in recording these acknowledgements in the local recording system. It is, therefore, not unusual for the recording of a critical alert acknowledgement to take place long after the conversation with the referring clinicians has occurred and not within the recommended 60 minutes.

The NRQI Programme continues to collaborate with the Faculty of Radiologists and software suppliers to ensure the mechanisms for recording are continuously improved.

CHAPTER 8

RADIOLOGY QUALITY IMPROVEMENT MEETINGS

8

The role of radiology quality improvement (RQI) meetings is to facilitate collective learning and promote a safe environment to practice radiology.

RQI meetings provide opportunities for routine review and knowledge sharing during discussions on examples of best practice and are therefore considered a crucial element of the departmental educational process.

By supporting continuous quality improvement, RQI Meetings are key to improvements in patient care.

KEY QUALITY INDICATOR

Percentage of 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) or other.**

**Number of accession numbers reviewed at RQI meeting with assigned category
(expressed as a percentage of total workload).**

RQI meetings should take place five times a year at a minimum and attendance where possible should be mandatory for all departmental radiologists including radiologists in training.

Regular RQI meetings promote learning and awareness amongst participants. They afford the opportunity to highlight review areas and can allow identification of suboptimal practice in certain instances. A mutually beneficial and non-adversarial environment promotes learning for all attendees and result in service improvements that benefit patients.

Positive feedback and examples of good practice are equally as important in promoting excellence and self-reflection.

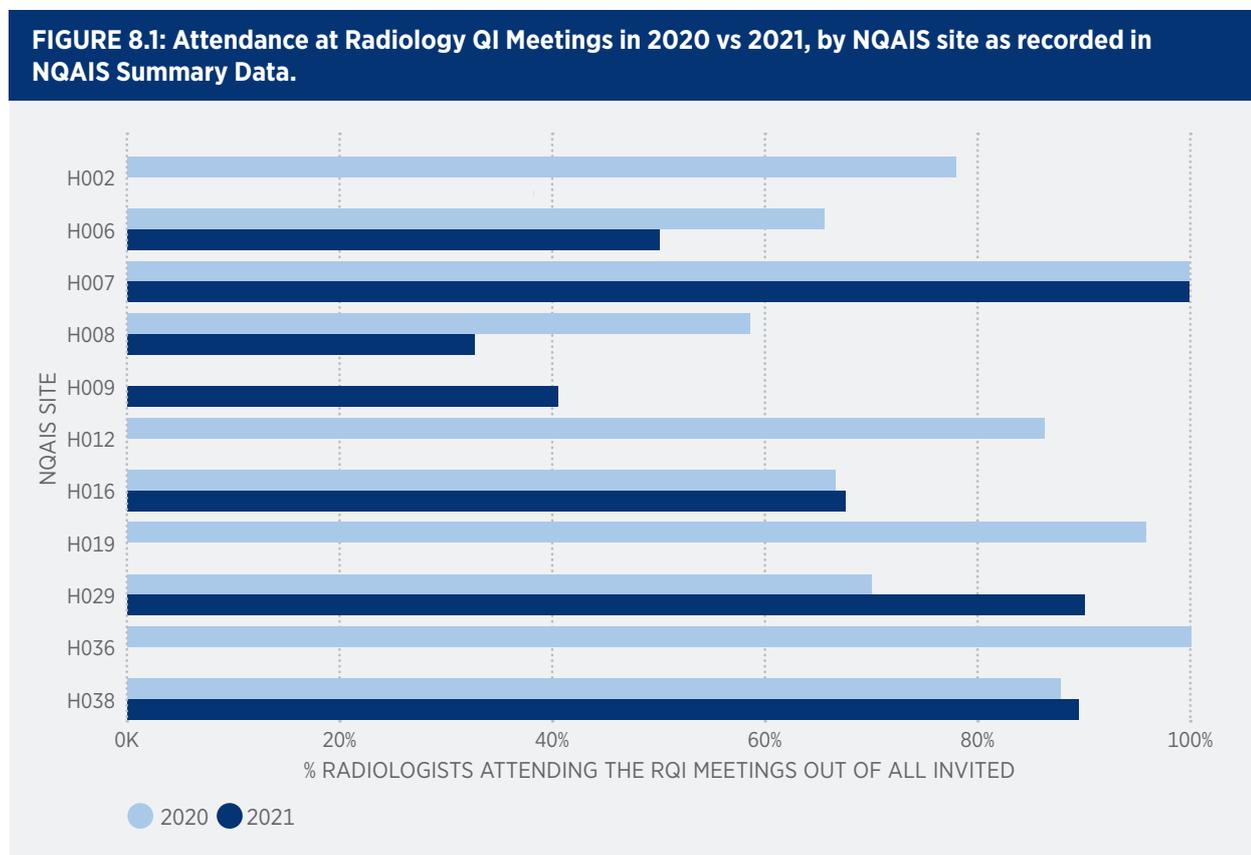
The meetings provide a forum for peer-to-peer education where a radiologist with subspecialty training or particular expertise in an area can provide educational feedback to colleagues without such training / expertise, usually in the realms of misinterpretation, educational feedback and report completeness.

Cases should only be listed for discussion at RQI meetings when appropriate alert systems and open disclosures have been initiated and ideally concluded. The RQI meeting process is a separate but parallel process to peer feedback and open disclosure processes.

In order to record attendance at RQI meetings in NQAIS-Radiology, data must be inputted manually under the summary data section, by each individual NQAIS site where such meetings take place.

The following details are required

- ✓ RQI meeting date
- ✓ Number of radiologists invited
- ✓ Number of radiologists in attendance



RQI meetings are routine activity in every radiology department and therefore it should be assumed that they are taking place in all sites. However, not all departments are recording attendance in NQAIS-Radiology. The majority of sites who do submit their data to the national data repository, do it sporadically and therefore accurate measurement and reporting on this quality indicator poses a challenge.

As presented in Figure 8.1, not every site provides data related to RQI meetings. In 2021 attendance at RQI meetings was recorded by seven sites, while in 2020 records were submitted by ten sites. Out of seven radiology departments that recorded RQI meetings data in NQAIS, three achieved more than 80% attendance and two sites recorded less than 50%.

Sites that did not provide data in either of those years are not represented on this graph, which highlights the absence of data recorded for this KQI.

KEY OBSERVATION

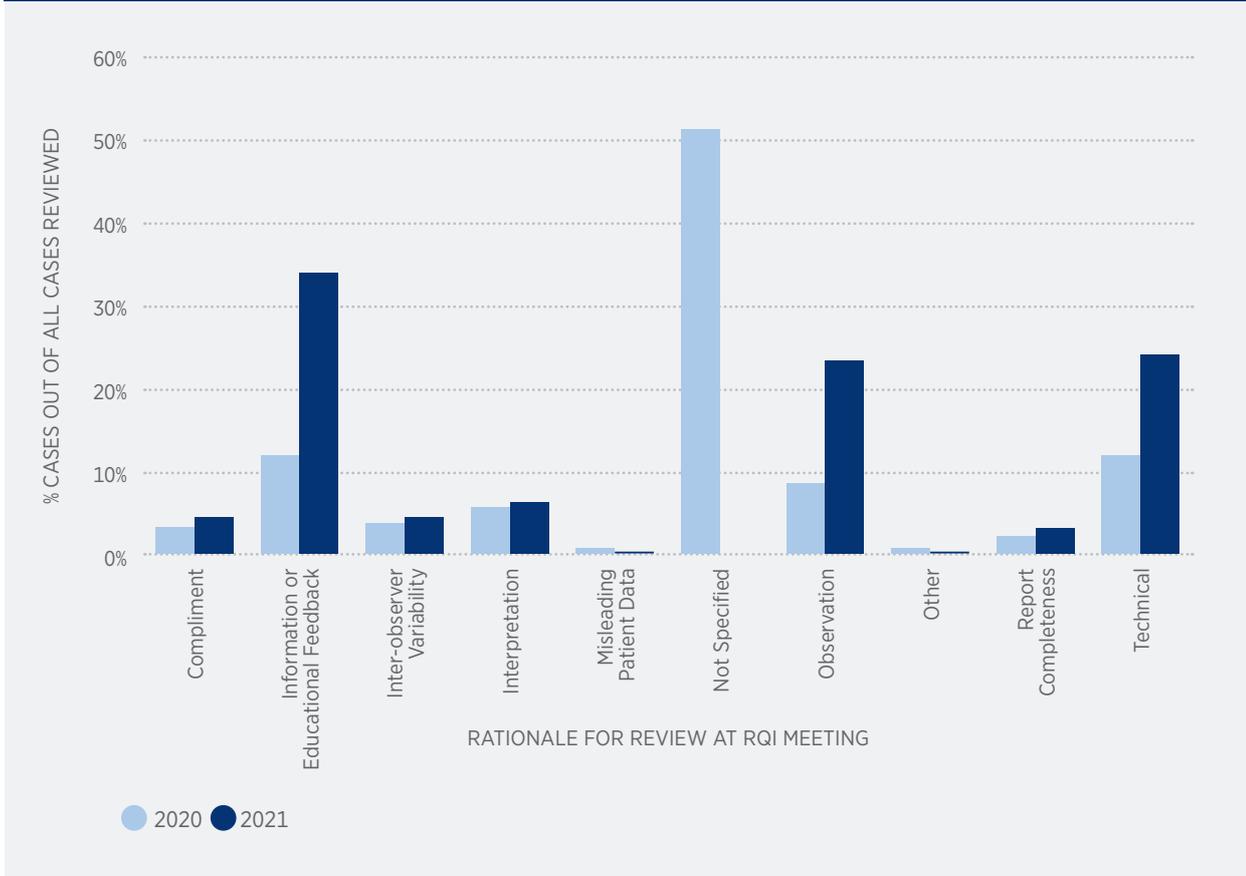
It is recognised by the NRQI working group, that access to external applications such as NQAIS and the ability to record summary data was disrupted by the cyber-attack in May 2021. Radiology departments across Ireland were recovering from this event at a varied pace. This could have had an impact on the completion level of summary data submitted in 2021.

Cases reviewed at RQI meetings are assigned to one of the below categories in local information system (adapted from *Guidelines for the Implementation of a National Radiology Quality Improvement Programme*).

TABLE 8.1: Categories Outlining Rationale for Review at RQI Meeting

Rationale	Description
Observation	The consensus is that the report failed to highlight a finding that may have had an impact on patient care.
Interpretation	The consensus is that the significance of an observed finding may have been overstated or understated.
Misleading Patient Data	The consensus is that there was inadequate or ambiguous patient data upon which the original report was based.
Report Completeness	The consensus is that the initial report was incomplete and the missing information may have been material to the patient’s episode of care.
Inter-observer Variability	The consensus is that of a persistent difference in interpretation and/or perception of clinical relevance of the same finding between radiologists.
Information and Educational Feedback	This refers to the provision of clinical and radiologic follow up to aid more informed judgments in the future.
Compliment	The consensus is that this case illustrates a high standard of performance by the reporting radiologist with resultant benefit of shared learning.
Technical	The consensus is that an opportunity to form an accurate diagnosis was impaired by the poor technical quality of the source data.
Other	The “Other” category can be used if the outcomes do not fall into one of the reasons above.

FIGURE 8.2: Percentage of Cases Reviewed at RQI Meetings Categorised by the Rationale Offered, 2020 vs 2021



The 2nd National Data Report, presenting comparison between 2019 and 2020 data highlighted an issue with the accuracy of recorded data related to categorisation of cases reviewed during RQI meetings by their rationale. As illustrated in Figure 8.2, in 2020 over 50% cases reviewed at the RQI meetings were not assigned any category. This significantly improved in 2021, as data reveal there were no cases without a category assigned. This was as a result of a suggested software change request to make the selection of rationale compulsory.

The biggest increase, from 12% in 2020 to 33.9% in 2021, can be noted for cases categorised as informational and educational feedback. This is followed by the observation category, where the percentage of cases increased from 8.5% in 2020 to 23.2% in 2021.

Technical rationale was assigned to nearly twice as many cases in 2021 when compared to 2020, noting an increase from 12% to 23.9%.

Each year, a small portion of cases is discussed at RQI meeting with rationale described under two categories: other and misleading patient data, which in 2021 recorded a significant decrease, both coming at 0.2%, while in previous year these were recorded for 0.6% and 0.9% cases respectively.

All remaining categories recorded a small increase in 2021 when compared to 2020 data.

RECOMMENDED QI PRACTICE

The working group recommend that RQI meetings are used to encourage a culture of mutual respectful learning with emphasis on positive learning and feedback with “good pick up” cases forming a central role.

CONCLUSION

The COVID-19 pandemic continued to have an impact on service delivery across the Irish health services throughout 2021. The ransomware cyber-attack on the HSE in May 2021 also had a marked and immediate negative impact on all services, particularly on those specialties which are heavily technology dependent, such as radiology. However, despite difficulties in processing radiology cases, the number of radiology reports completed returned to normal levels in the third and fourth quarters of 2021.

This report presents 2.7 million radiology cases recorded in 2021, from the 48 public and voluntary hospitals participating in the NRQI programme, representing a 6% workload increase in comparison to 2020 records.

Local clinical leadership, the support of senior hospital management and quality improvement processes are vital to improve patient care through timely, accurate and complete radiology diagnoses and reports.

Radiology departments must be resourced adequately and in line with European best standards to continue to provide the optimum level of service to patients, to ensure a reduced burden on staff and to deal with a backlog of patients requiring radiological examination as a consequence of the COVID-19 pandemic and the HSE cyber-attack.

As outlined in this report a survey conducted by the NRQI programme and the Faculty of Radiologists revealed that a high percentage of radiologists do not benefit from protected time for QI activity. Patient safety is at the centre of what the NRQI programme hopes to achieve and as such embedding protected hours in consultant radiologists workplans is essential.

The NRQI programme and the Faculty of Radiologists will continue their tireless efforts to promote a culture of QI and patient safety in Irish radiology services.



www.radiology.ie
www.rcpi.ie/quality-improvement-programmes/radiology/
SQIProgrammes@rcpi.ie