Health Information and Quality Authority

An tÚdarás Um Fhaisnéis agus Cáilíocht Sláinte

IONISING RADIATION Incident report for 2024

Sharing lessons learned from significant events

WHAT happened?

HOW did it happen?

WHY did it happen?

Table of Contents

About the Health Information and Quality Authority

The Health Information and Quality Authority (HIQA) is an independent statutory body established to promote safety and quality in the provision of health and social care services for the benefit of the health and welfare of the public.

Reporting to the Minister for Health and engaging with relevant government Ministers and departments, HIQA has responsibility for the following:

- **Setting standards for health and social care services** — Developing person-centred standards and guidance, based on evidence and international best practice, for health and social care services in Ireland.

- **Regulating social care services** — The Chief Inspector of Social Services within HIQA is responsible for registering and inspecting residential services for older people and people with a disability, and children's special care units.

- **Regulating health services** — Regulating medical exposure to ionising radiation.

- **Monitoring services** — Monitoring the safety and quality of permanent international protection accommodation service centres, health services and children's social services against the national standards. Where necessary, HIQA investigates serious concerns about the health and welfare of people who use health services and children's social services.

- **Health technology assessment** — Evaluating the clinical and cost effectiveness of health programmes, policies, medicines, medical equipment, diagnostic and surgical techniques, health promotion and protection activities, and providing advice to enable the best use of resources and the best outcomes for people who use our health service.

- **Health information** — Advising on the efficient and secure collection and sharing of health information, setting standards, evaluating information resources and publishing information on the delivery and performance of Ireland's health and social care services.

- **National Care Experience Programme** — Carrying out national service-user experience surveys across a range of health and social care services, with the Department of Health and the HSE.

Visit www.hiqa.ie for more information.

Introduction

The Health Information and Quality Authority (HIQA) is the competent authority for the regulation of medical exposure to ionising radiation in Ireland since 6 January 2019. The European Union (Basic Safety Standards for Protection Against Dangers Arising from Medical Exposure to Ionising Radiation) Regulations 2018, (S.I. No. 256 of 2018) as amended (the "Regulations"), is the legal framework for regulating this area.

Under these regulations, HIQA shares the lessons learned from the analysis of information provided in the notifications and investigation reports through the publication of an annual report.

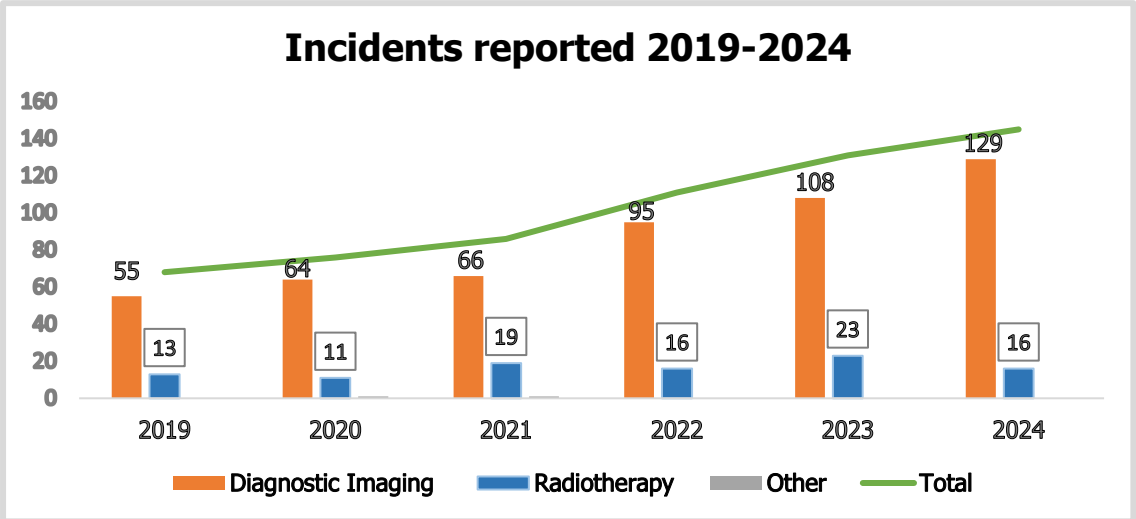
This annual report is HIQA's sixth since becoming the competent authority.

Notification numbers

In 2024, HIQA received 145 notifications of significant events that met reporting thresholds. These consisted of 129 notifications from diagnostic imaging (DI) services, and 16 from radiotherapy (RT) services. This represents an overall increase of 10.7% in the number of notifications received, in comparison to 2023.

While the number of RT notifications fell from 23 to 16 from 2023 to 2024, notifications relating to DI continued to increase from 108 to 129, between 2023 and 2024 (Figure 1).

Figure 1. Number of incidents reported to HIQA (Notifications) 2019-2024



Since 2019, the total number of notifications submitted to HIQA annually continues to increase. Similarly, the number of individual services reporting incidents to HIQA has also increased from 47 to 59, between 2023 and 2024. These increases in reporting levels represent a positive finding and, like previous years, indicate

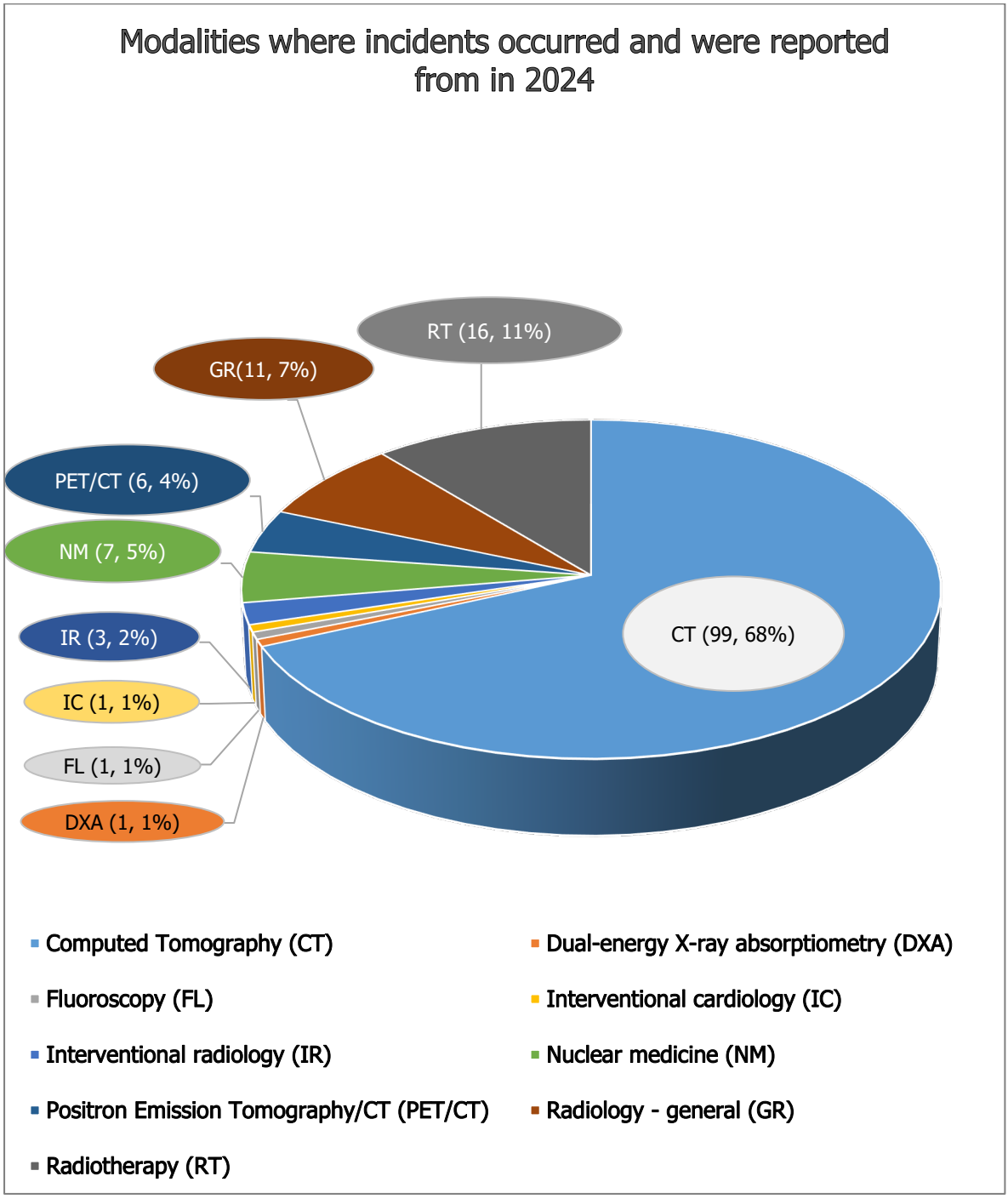
increased awareness among undertakings of the requirement to report significant events to HIQA.

Undertakings availed of the HIQA portal to submit 83% (n=120) of all notifications in 2024, with the remaining 17% (n=25) notifying HIQA by email. While the option to report incidents through email remains, undertakings are encouraged to avail of the HIQA portal system as a secure and easy-to-use method for the submission of notifications.

Notification modalities

Like all previous reports, the majority of notifications (68%, n=99) related to incidents involving computed tomography (CT) (Figure 2).

Figure 2. A breakdown of modalities where significant events occurred in 2024



Notification categorisation

As in previous years, the most common categories of significant events reported in 2024 were related to incorrect procedures, unintended dose or wrong service users, and errors involving incorrect anatomy. When considered separately (DI versus RT), there were differences in the most common categories of significant events reported. Incorrect procedures accounted for 29% of DI incidents (Figure 3), while 44% of RT incidents related to variations in dose or volume (Figure 4).

Figure 3. Categorisation of notifications in DI

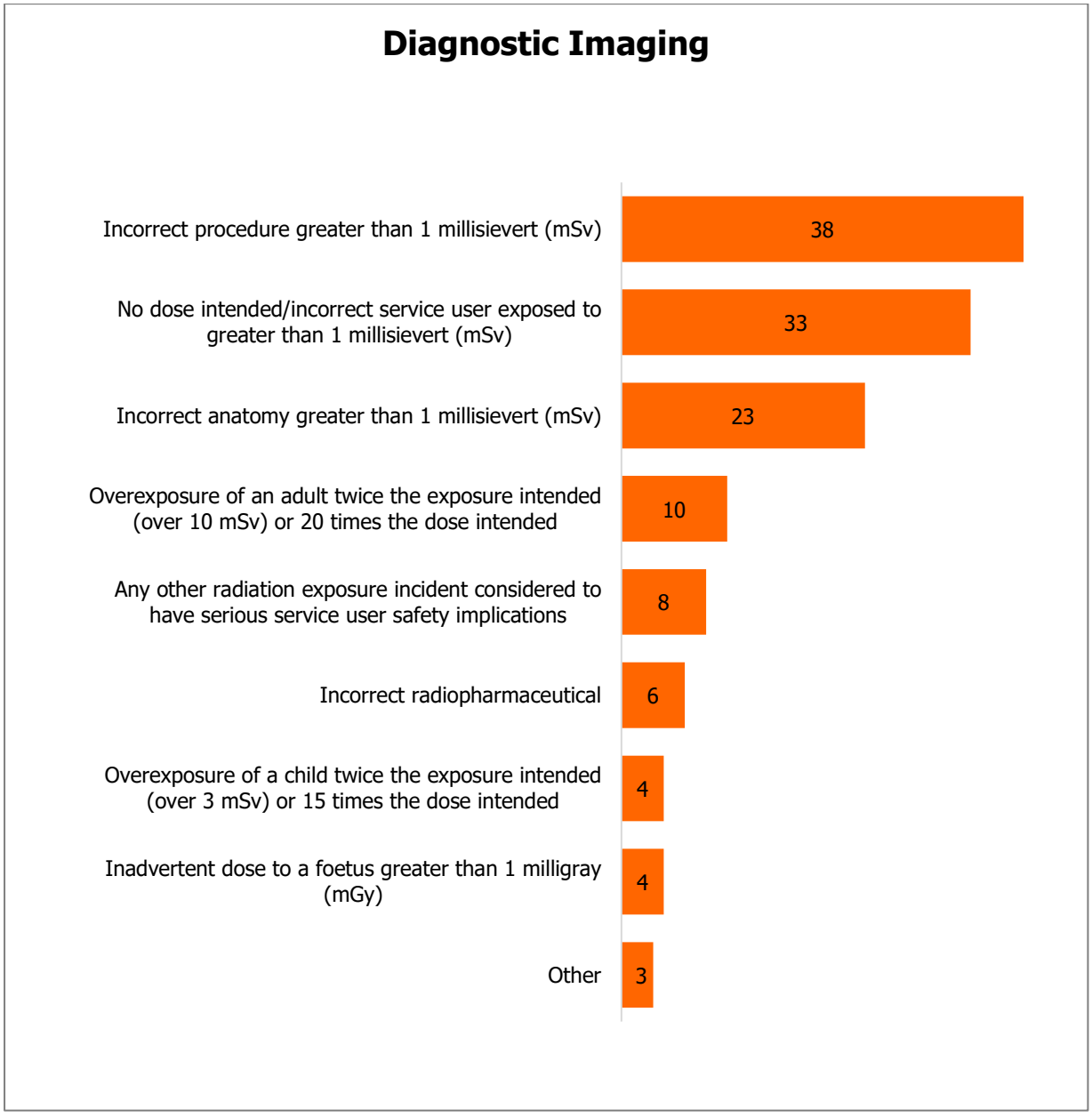
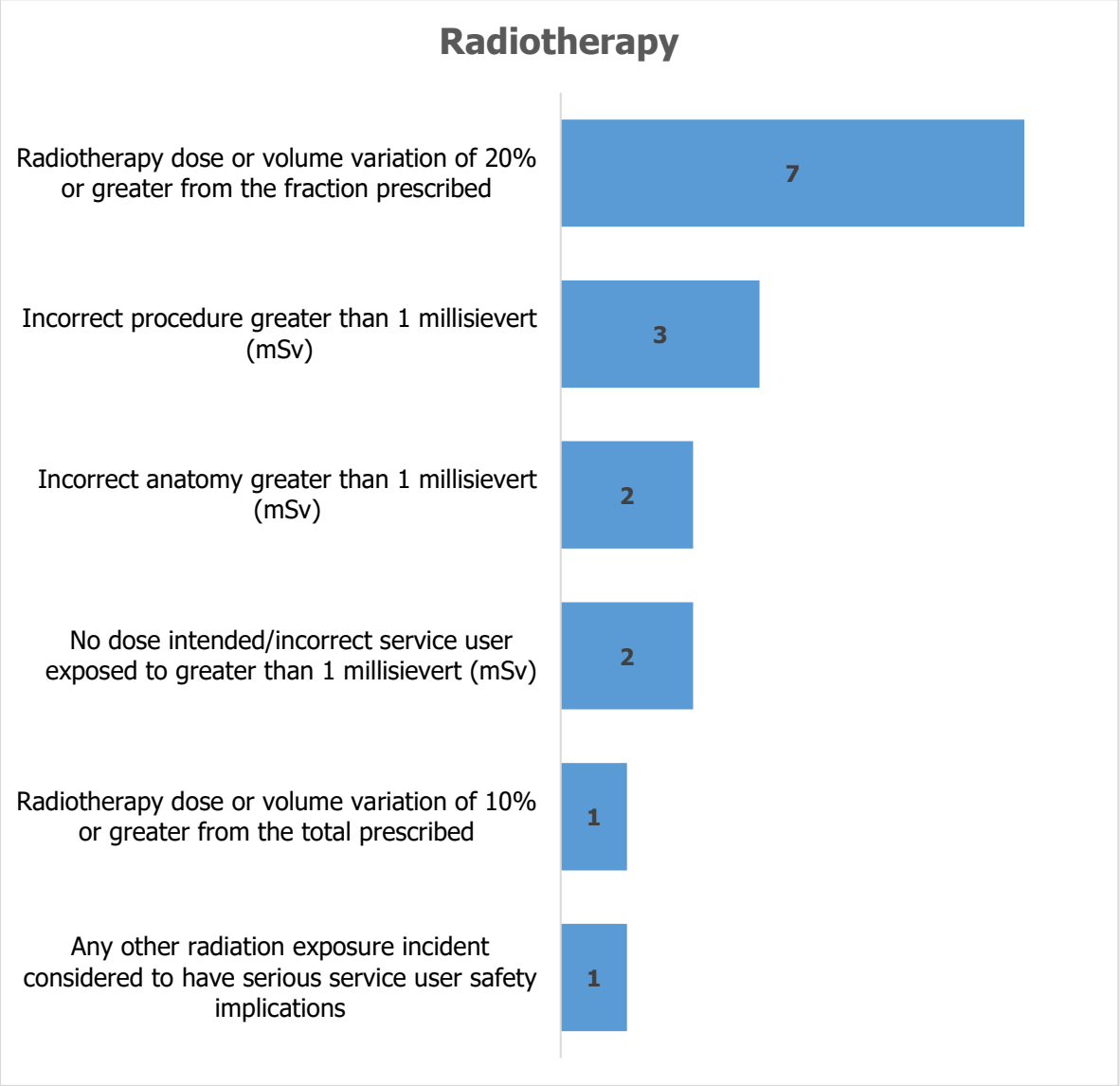


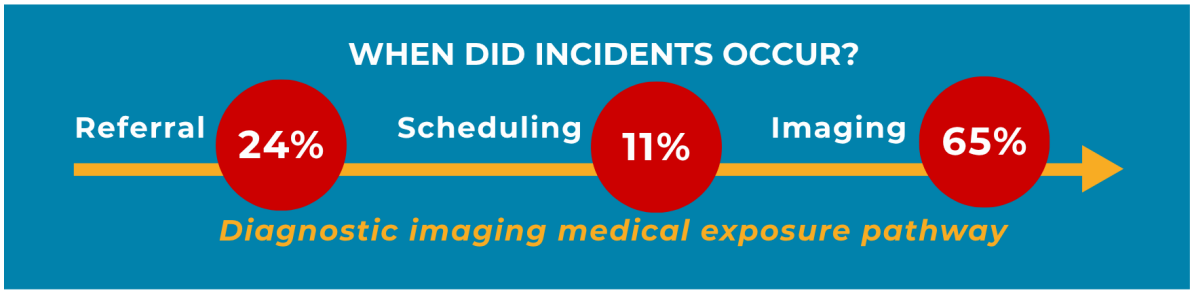
Figure 4. Categorisation of notifications in RT



Where incidents occurred along the medical exposure pathway

When DI incidents could be attributed to a particular point in the medical exposure pathway (n=101), it was noted that 65% of DI incidents occurred at the point of imaging (Figure 5). Many of these incidents were errors, where the correct patient presented with the correct referral information and the correct procedure was requested, but the practitioner mistakenly selected the incorrect protocol or body part and completed the procedure.

Figure 5. Points on the DI medical exposure pathway where incidents occurred in 2024



For RT incidents, no such pattern was identified at the referral or scheduling stages. However, the data showed that the majority of incidents were due to errors in relation to dose or volume during radiotherapy treatment.

The most frequent types of radiation incidents reported

A clear pattern is noted across all incidents reported in 2024, with the majority reported relating to incorrect procedures, incorrect service users and incorrect anatomy, many of which could be pinpointed as single mistakes made by staff at certain points along the exposure pathway. Many referral and scheduling errors could have been identified at the time of imaging if more attention had been given to fundamental checks. This would allow referrers, those who schedule the procedures, and practitioners sufficient time to properly verify each radiological procedure.

Some of these fundamental considerations, namely **the 5 rights** (Figure 6) are presented in poster format (Appendix 1). This poster was developed by HIQA as a resource for undertakings to remind staff to double check some basic information.

Figure 6. The 5 rights

Important points for staff to consider at different stages along the medical exposure pathway, to reduce accidental and unintended medical exposures to ionising

radiation are provided below.

Referral

The referrer:

- discusses the presenting symptoms with the patient
- checks the five rights to ensure
  - the right patient is being referred (checks more than the patient name e.g. check date of birth and hospital number also)
  - right modality (check with referral guidelines and or the practitioner if required)
  - right anatomy (including laterality)
  - right protocol (which aligns with presenting symptoms)
  - right timeframe
- checks for previous imaging (if the patient has been referred for any imaging procedure recently or has attended another imaging centre)
- enquires as to the pregnancy status (if relevant)
- provides relevant clinical information on the referral.

Scheduling

The practitioner:

- checks the five rights to ensure
  - the right patient is being referred (checks that all appropriate forms of identification are provided in the referral and ensure the correct patient is selected for imaging)
  - right modality (ensure procedure matching includes modality)
  - right anatomy (ensure procedure matching includes anatomy and laterality)
  - right protocol (ensure procedure matching includes protocol and aligns with clinical information given)
  - right timeframe (ensure this is not a referral for a delayed procedure not yet needed)
- checks if the requested procedure has been carried out recently (checks all available picture archiving resources and radiology information)
- justifies this procedure and records the justification.

Point of imaging

The practitioner:

- checks the five rights to ensure
  - the right patient is being referred (ask the patient to provide relevant information rather than asking them to confirm details)
  - right modality (ensure procedure matching includes modality)
  - right anatomy (ensure procedure matching includes anatomy and laterality)
  - right protocol (ensure procedure matching includes protocol and aligns with clinical information given)
  - right timeframe (ensure this is not a referral for a delayed procedure not yet needed)
- checks if the patient has had recent imaging and if there is a possibility that this examination has already been done, in this or another facility
- confirms that the procedure is justified and records justification in advance of carrying out the procedure, if not already completed at the time of scheduling.

Causes and corrective actions

Similar to findings from previous years, human error was predominantly indicated as the main cause of incidents notified to HIQA, comprising 68% of all significant events reported in 2024.

An analysis of the corrective actions revealed that reminders, staff education and information were relied upon by undertakings for 57% of the incidents reported, with reminders alone accounting for 31%. It must be noted, as in previous years, that these types of corrective actions are considered low-level strategies with potentially minimal impact, and hence are unlikely to prevent the same type of errors from reoccurring.

Therefore, undertakings should routinely consider 'what, why and how' incidents occurred to ensure all relevant contributory factors are included in addition to the main cause, as these contributory factors often play a significant role in an incident occurring. Undertakings can refer to HIQA's messaging in the poster that accompanied the Lessons Learned from receipt of statutory notifications of accidental and unintended medical exposures to ionising radiation annual report (2023) on points of focus for conducting investigations following a notifiable incident.

Emphasis on addressing contributing factors may prove more effective at mitigating reoccurrences than staff reminders. An example of a low-level strategy that was implemented is provided below and the other factors that should be considered are also included.

Example of a low-level strategy implemented following the occurrence of an incident

A radiographer scanned a patient's thorax, abdomen and pelvis when the referral requested that only the abdomen and pelvis were to be scanned.

Investigation report summary

- **Root cause:** identified as human error, the wrong protocol was selected by the radiographer at the point of imaging.
- **Corrective action implemented:** staff reminded to check that the right procedure or protocol is selected.
- **Impact of corrective actions:** It is important to discuss the circumstances surrounding specific incidents and associated learnings with staff involved in the incident. However, this action alone is ineffective at reducing reoccurrence and may, at best, reduce the possibility of that specific staff member making the same mistake, with the potential to negatively affect staff morale.

Points to consider to help reduce similar errors from occurring

Include corrective measures to address contributory factors such as:

- staff workload, resourcing and skill-mix
- patient flow during the 24 hour day and week
- reducing pressure and distractions for staff at busy times
- introducing additional process measures to ensure correct procedure matching.

Summary

Incidents that met the reporting thresholds increased from 131 in 2023 to 145 notifications received in 2024. The number of services reporting incidents to HIQA also increased in 2024. The trajectory remains on an upward trend, which is considered to be a positive indication of increasing awareness by undertakings to monitor for occurrence of radiation incidents and report as necessary.

Similar to the previous trends seen in incidents reported to HIQA since 2019, year-on-year analysis demonstrates consistencies in the most common modality where the incident occurred, which continues to be in CT services. Similarities were also seen in the main causes of incidents and corrective actions reported by the undertaking, which were largely the same as findings from previous years. Undertakings mainly relied on staff reminders to mitigate reoccurrences of the same type of incidents, with the contributing factors identified in the investigation reports not always appropriately considered or actioned. Reminding staff to follow well-established procedures is unlikely to reduce the risk of reoccurrence, without emphasising the consideration of environmental and contributing factors.

Analysis of notifications received in 2024 identified that 63% of all incidents occurred at the point of imaging, and in many cases, related to errors by a practitioner in identifying the correct patient, procedure or protocol.

However, all incidents associated with a single individual's error either at the point of referral, scheduling or imaging, could have been prevented by having the appropriate time to check the patient identification, reasons for imaging, previous imaging, the requested procedure and the requested timeframes. Undertakings who facilitate staff to take time to stop and check **the 5 Rights** may see a reduction in the typical incidents reported to HIQA.

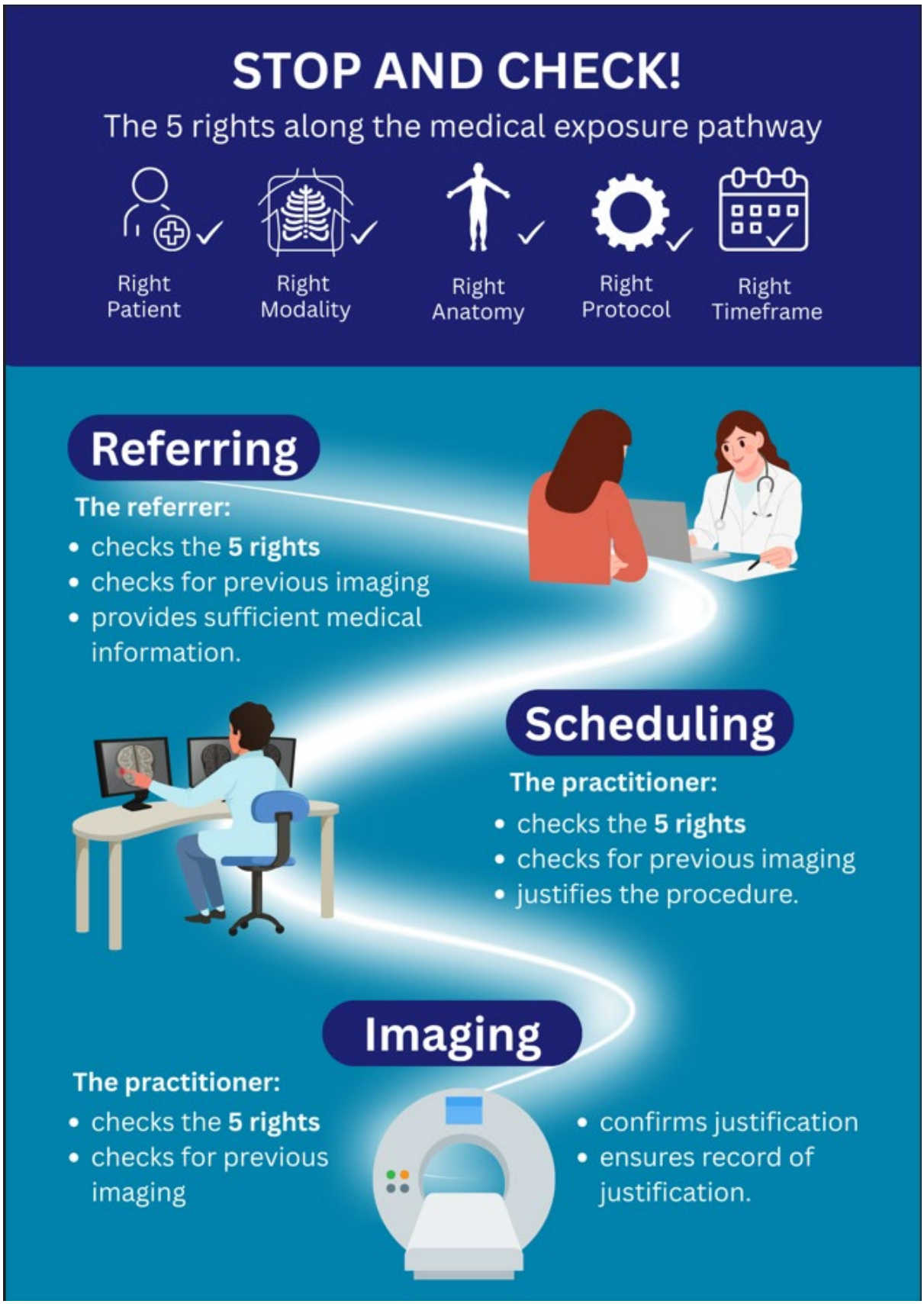
Next steps

As part of HIQA's current project to review the categorisation and thresholds for notifiable incidents, a survey was issued to stakeholders in 2024. This survey asked responders to rate the many methods used by HIQA to share lessons learned from reported incidents. Analysis of the responses from the survey showed that posters were considered to be the most beneficial way to share learnings, followed closely by infographics and a short annual report.

HIQA has taken this information on board, and similar to the approach taken to share learnings from incidents reported in 2023, has provided this report with a poster and infographic to communicate learnings from the analysis of notifications received in 2024. Undertakings are encouraged to use this poster to increase awareness among staff of the importance of checking **the 5 Rights** before imaging.

HIQA will continue to engage with stakeholders, developing thresholds for the benefit of staff reporting incidents.

Appendix 1. Stop and Check! Posters including English and Irish versions



STAD AGUS SEICEÁIL!

Na 5 cheart feadh na conaire nochta míochaine

An tOthar Ceart

An Mhódúlacht Cheart

An Anatamaíocht Cheart

An Prótacal Ceart

An tAchar Ama Ceart

Atreorú

Déanann an t-atreoraí:

- na **5 cheart** a sheiceáil
- íomháú roimhe sin a aimsiú
- eolas míochaine leordhóthanach a chur ar fáil.

Sceidealú

Déanann an cleachtóir:

- na **5 cheart** a sheiceáil
- íomháú roimhe sin a aimsiú
- údar a thabhairt leis an ngnáthamh.

Íomháú

Déanann an cleachtóir:

- na **5 cheart** a sheiceáil
- íomháú roimhe sin a aimsiú

- an t-údar a dheimhniú
- taifeadadh an údair a chinntiú.

Health Information and Quality Authority
An tÚdarás Um Fhaisnéis agus Cáilíocht Sláinte

Published by the Health Information and Quality Authority (HIQA).

Health Information and Quality Authority
George's Court
George's Lane
Smithfield
Dublin 7
D07 E98Y

+353 (0)1 814 7400
info@hiqa.ie
www.hiqa.ie