Feidhmeannacht na Seirbhíse Sláinte
Health Service Executive

NATIONAL RADIATION PROTECTION COMMITTEE

END OF YEAR REPORT

2020

NATIONAL RADIATION PROTECTION OFFICE
HEALTH SERVICE EXECUTIVE
MAY 2021

National Radiation Protection Committee

End of Year Report 2020

Introduction

This report details the work undertaken by the National Radiation Protection Committee (NRPC) and the National Radiation Protection Office (NRPO) in 2020.

Emergency pandemic measures taken in 2020 had an impact on diagnostic and therapeutic services nationally however, regulatory compliance and radiation safety remained priorities for the Health Service Executive (HSE).

National Radiation Protection Committee

The NRPC was established by the HSE to provide advice and guidance in relation to radiation protection and to promote a standardised approach to practice, where possible, across all radiological services. The committee is co-chaired by a representative from the Acute Hospital Services and Community Services respectively. Membership consists of experts in the field of radiation protection and representatives from relevant HSE support services. Four meetings were convened in 2020 and progress was made across a number of issues detailed herein.

The NRPC membership is presented in the appendix.

The NRPO provided secretariat support to the NRPC throughout the year.

National Radiation Protection Office

The NRPO works under the remit of the National Director, Acute Operations and its primary role is communication. This function necessitates engaging with the acute hospital and community services to promote best practice in radiation protection; acting as a central point of communication between the regulators and the HSE; acting as a conduit for sharing radiation safety information nationally; and liaising with various other HSE departments and external agencies to answer queries, respond to parliamentary questions and share expertise.

The NRPO engaged with the Health Information and Quality Authority (HIQA) throughout 2020 to share information and support the HIQA inspection programme. This work included maintaining up to date information on the HIQA portal pertaining to HSE locations; supporting the completion of HIQA self assessment questionnaires by individual locations and ensuring that the information was returned within the designated timeframe; and ensuring that any issues which arose through inspections were managed locally and escalated as appropriate to the next level of governance within the HSE.

The NRPO also offered background support to frontline staff, providing information as required, highlighting radiation protection issues nationally that were notified to the office and answering queries.

The NRPO established a radiation protection webpage on the Acute Hospital Services website to allow for the publication of pertinent reports and dissemination of radiation safety information. The link to the webpage is listed hereunder:

https://www.hse.ie/eng/about/who/acute-hospitals-division/radiation-protection

The principle initiatives undertaken in 2020 were as follows:

- Engagement with HIQA
- Analysis of radiation incidents reported on the National Incident Management System
- *National survey to ascertain incident management procedures in radiotherapy centres 2020*
- *National review of radiation equipment in operation across all public hospitals, community diagnostic installations, dental and orthodontic services and the National Breastcheck Screening Service 2020*
- National radiation protection training programme
- Workplace Health and Wellbeing national guidance on the assessment and management of Category A workers

Engagement with HIQA

Collaboration with HIQA throughout the year supported implementation of the new inspection regime. With all inspections, HIQA endeavoured to highlight the good work undertaken by frontline staff to promote radiation safety and took the opportunity to share best practice nationally. In some instances where elements of non-compliance with statutory requirements were identified, or suggestions for improvement in practice were made, actions were taken locally and nationally where necessary, to address the issues raised.

The following information is presented herein:

A) Themes identified from inspections of the Acute Hospital Services
B) National plan to address non-compliance with Statutory Instrument (SI) 256 (2018)(8) and(13)(2)
C) Preparation for the inspection of HSE dental and orthodontic services in 2021

A) Themes identified from inspections of the Acute Hospital Services

1. Governance of radiation protection

All hospitals must have in place a governance framework that clearly describes responsibilities, delegated levels of authority, reporting relationships and accountability within the location.

The majority of HIQA inspections demonstrated that governance of radiation protection was clearly understood by frontline staff and documented in local policies and guidelines. Local Radiation Safety Committees were in operation, with appropriate representation from relevant technical experts and executive management, and had a reporting relationship to the local Quality and Safety Committee, or equivalent. However, in some cases, relevant practitioners working with radiation outside of the

radiology department, such as cardiologists, were not represented on the Radiation Safety Committee.

Typically, there was good communication across each hospital network however there was a lack of understanding pertaining to the role and responsibilities of the HSE Corporate as the undertaking for HSE managed locations.

HIQA found evidence of poor oversight in situations where the technical support for the radiological service was provided by one hospital and the operational responsibility for the installation fell under the remit of another.

2. Medical Physics Expert service

Provision of the Medical Physics Expert (MPE) service was usually shared across sites within each hospital network either on an ad hoc basis or through the enactment of service level agreements. It was evident from inspections that resources were inadequate nationally with many locations having a MPE on site only one day a week. The service provided typically focussed on quality assurance of radiation equipment with limited input into the provision of training and development of policies and guidelines. In some instances, HIQA identified the limited resources as a risk to patient safety.

3. Justification process

The inspections confirmed that good referral processes were in operation across all sites with only recognised practitioners performing imaging procedures. In addition, all procedures were undertaken in the presence of either a radiographer or a radiologist and there was evidence that the Royal College of Radiologists *iRefer Guidelines* were used in the justification process.

There was documentary evidence that high dose procedures were justified in advance but this evidence was not always apparent for routine low dose procedures.

A national plan to address this issue of non-compliance is presented herein.

4. Recording the dose on the medical report

Information related to the level of radiation exposure was not typically recorded on the examination report. The aforementioned national plan will address this issue.

5. Clinical audit

Clinical audit activity was found to be resource dependent and typically undertaken sporadically, with the annual schedule of audits often being curtailed.

6. Status of radiation equipment

HIQA observed that in the main, a strict quality assurance programme for the maintenance of radiation equipment was in operation across all sites. However, the units were often reported as being very old and operating beyond their nominal replacement date. The equipment was approved for use by the relevant expert and typically risks were recorded on the local risk register and escalated as appropriate.

These observations support the findings of a national review of equipment undertaken by the NRPO which is discussed herein.

B) National plan to address non-compliance with SI 256 (2018)(8) and (13)(2)

As previously noted, HIQA inspections highlighted two issues of non-compliance with SI 256, listed hereunder, that were apparent across all hospitals and a national resolution was sought.

- Article 8 – Justification of medical exposures
  Justification in advance was not consistently recorded for all procedures.

- Article 13 (2) - Procedures
  Information related to dose exposure did not inform the examination report.

The plan was developed by the NRPC in collaboration with the HSE NIMIS[1] Programme Team and involved changes to the RIS/PACS system[2] across all locations. Introducing a '*Justified in advance'* step via a tick-box addition to the system in order to acknowledge that a procedure had been appropriately justified by a named individual prior to exposure was straight forward however the requirement to record the radiation dose on the examination report proved to be more complicated.

It was acknowledged that a dose monitoring process which automatically recorded the radiation dose on the examination report was the preferred resolution however this would take time to introduce nationally. Therefore, in the interim and to meet the immediate statutory requirement, a risk stratification approach which incorporated international dose values for standard procedures was proposed. The RIS/PACS system will be reconfigured to facilitate an auto-text workflow that allows clinicians to choose from a drop down menu, the appropriate dose range most applicable to the imaging procedure that was performed. This information will automatically transfer to the medical report. Any examination which exceeds typical values as outlined must be explained and recorded manually by the reporting practitioner on medical report.

The proposal is considered a short term, pragmatic approach to address the issue of non-compliance until such time as a permanent resolution involving an automated dose monitoring process can be implemented across all modalities.

The NIMIS Programme Team will introduce the technical changes on a phased basis in 2021 and will engage with the relevant experts in each location to facilitate the process. Each change will be accompanied by supporting guidance from the NRPC.

C) Preparation for the inspection of HSE dental and orthodontic services in 2021

Dental and orthodontic facilities which provide a medical ionising radiation service under the auspices of the HSE were registered with HIQA in preparation for the inspection programme due to commence in 2021.

[1] The National Integrated Medical Imaging System (NIMIS) facilitates the requesting of medical imaging procedures and the storage and viewing of the associated images and reports. It also allows the secure electronic sharing of data between specialists to promote a speedier diagnosis.
[2] The local radiology information platform that supports NIMIS.

The NRPO collaborated with the HSE National Oral Health Office (NOHO) to raise awareness of the new inspection regime which included circulating supportive information and hosting a number of webinars to provide updates on progress and answer queries raised by practitioners.

Some community based radiation safety committees had produced excellent local guidance to support practitioners in meeting statutory requirements. The NRPC is currently reviewing these guides with the aim of producing a national policy to standardise and support radiation protection practices across all dental and orthodontic locations.

The collaborative approach taken by the NRPC and NOHO to engage and inform practitioners nationally had a positive impact and will continue in 2021.

Analysis of radiation incidents reported on the National Incident Management System

Radiation safety incidents must be reported on the National Incident Management System (NIMS) and managed in accordance with the National Incident Management Framework. In addition, it is a statutory requirement to notify HIQA of radiation incidents which involve patients and the Environmental Protection Agency (EPA) of incidents which pertain to staff or members of the public. Incidents involving equipment failure should also be reported to the Health Products Regulatory Authority.

Analysis of the incidents reported on the NIMS throughout 2020 allowed the NRPO to identify emerging trends and take action to mitigate risks. Reporting incidents, no matter how insignificant, is fundamental to promoting safe practice. Also, it is the ethos of the HSE to support both staff and patients when an adverse event occurs, thereby promoting an open, transparent, non-punitive approach to reporting and managing failures in care. The high number of incidents reported which were categorised as near miss events or having a negligible impact is testament to this culture.

This section of the report details the radiation safety incidents reported by hospitals on the NIMS from January to December 2020. The figures presented in the following tables do not include incidents related to ultrasound procedures, magnetic resonance imaging or issues with peripheral vascular catheters.

Table 1: Category of radiation safety incident

Category of incident	Radiology	Radiotherapy
Actual incidents	592	37
Near miss events	230	421
Total number of reports	**822**	**458**

Of these, the incidents which met notifiable criteria set by the regulators were reported to the EPA and HIQA respectively.

Table 2: Category of person affected by the radiation safety incident

Category of person	Radiology	Radiotherapy
Adult patient / service user	722	458
Paediatric / adolescent patient	23	
Neonates	2	
Staff exposure to radiation	71	
Member of the public inadvertently exposed to radiation	1	

The majority of incidents occurred in the adult service which was unsurprising as the majority of exposures performed in 2020 involved adult patients.

In 2019, staff exposures accounted for 3 percent of the total number of radiation incidents reported on the NIMS however in 2020, this figure had increased to 9 percent. The risk to staff from an individual exposure is typically low nevertheless the cumulative effect of multiple inadvertent exposures over the course of employment may have serious consequences.

The incidents pertaining to staff exposures were managed locally and reported to the EPA, as required. Those who work with medical radiation are required to carry dosimetry recorders to monitor personal exposure. Dosimetry data is monitored by the hospital physics team and maintained within the dose constraint parameters set by the legislation.

The regulations regarding staff exposure, in particular the requirements for identifying and managing Category A workers and the statutory limits to eye exposure were changed in 2019. The HSE is currently developing national guidance to meet the new requirements as discussed herein.

Table 3: Details of the process involved in radiology incidents.

Radiology incidents reported on the NIMS in 2020						
Process	**Severity Rating**					**Total**
	Extreme	**Major**	**Moderate**	**Minor**	**Negligible**	
Checking patient identification					65	**65**
Clinical details on referral					220	**220**
Documentation / records	1		1	1	96	**99**
Communication / consent issues					32	**32**
Equipment failure				2	95	**97**
Performing procedure		1	6	7	188	**202**
Pregnancy status					8	**8**
Not applicable / unknown			2	3	93	**98**

Identifying an incorrect patient for an imaging procedure was a factor in many incidents in 2020. Indeed, this issue has been a recurring theme in radiation protection over several years, perhaps because there is no standardised approach to managing the patient identification process. The

incidents occurred at many stages in the patient journey, including at the point of referral, when an inpatient was collected from a ward, at registration in the imaging department and at the point of performing the procedure.

Issues involving clinical details on a referral were the main cause of diagnostic incidents in 2020. These included, for example, referrals for an unjustified procedure, omitting important medical information from the referral and failing to check if the patient had undergone a similar imaging procedure in the recent past. The HSE recommends the use of the Royal College of Radiologists *iRefer Guidelines* when making diagnostic referrals and has ensured that this tool is available to all referrers online in hospitals and via the *Healthlink* portal.

Pregnancy related incidents typically occurred where a patient presented for a diagnostic procedure and reported that they were pregnant or they underwent a procedure having confirmed to staff that they were not pregnant, only later to return and inform staff that they were.

The failure of equipment represents an ongoing risk to both staff and patients and the risk associated with operating aged equipment is acknowledged locally and on the HSE corporate risk register. A national review of radiation equipment was undertaken by the NRPO in 2020 and is presented in this report.

The reports categorised as *not applicable / unknown* refer mainly to inadvertent staff exposures, for example, practitioners declining to wearing personal protective equipment, staff inappropriately entering a room during a procedure or spillage of a radioactive material for injection. In addition, there were failures in the administrative process, failures to follow local protocols and incidents that, from the description provided, did not appear to fit a single category on the NIMS menu.

Table 4: Details of the process involved in radiotherapy incidents

Radiotherapy incidents reported on the NIMS in 2020						
Process	**Severity Rating**					**Total**
	Extreme	**Major**	**Moderate**	**Minor**	**Negligible**	
Checking patient identification					4	**4**
Clinical details on referral					3	**3**
Communication / consent issue					23	**23**
Equipment					14	**14**
Documentation / records					138	**138**
Performing procedure					276	**276**

In radiotherapy, the intention is to deliver as much radiation as necessary to kill the tumour whilst minimising the damage sustained by surrounding tissue. Treatment regimes are individually tailored to the patient, site specific and typically delivered in fractions over a prescribed period of time.

The total radiation dose delivered to a patient over the course of treatment can be high, thus the speciality is considered high risk to both patients and staff. A failure in process could potentially have severe consequences for the patient and for that reason, reporting and monitoring incidents is critical. It is accepted that there is a strong safety culture in radiotherapy however, analysis of radiotherapy

reports in 2019 suggested that there was inconsistent reporting of incidents on the NIMS across all centres. To establish why, the NRPO undertook a survey and the outcomes of this are presented herein.

The pandemic measures adopted in 2020 led to some cross-site collaboration of radiotherapy services which ensured that patients continued to receive treatment. Whilst overall, this approach was considered successful at maintaining continuity of care, there were some process failures.

These cross-site failures included, for example, incomplete referral documentation or medical records, delayed receipt of referrals, communication failures within the multidisciplinary team, inappropriate appointment times being allocated to patients and issues with obtaining consent for procedures. There were also incidents where the HIQA guidelines on treatment timeframes were not met.

Early identification of trends and timely interventions to address emergent risks will promote best practice in radiation protection. It will also provide reasonable assurance to the regulators, healthcare staff and patients that diagnostic and therapeutic services are delivered in an optimised and safe manner.

National survey to ascertain incident management procedures in radiotherapy centres 2020

Analysis of the radiotherapy incidents reported on the NIMS in 2019 indicated that not all hospitals were compliant with the HSE dictate to report incidents on the NIMS. Seven hospitals provide a radiotherapy service to public patients and it was noted that some locations consistently reported incidents on the NIMS whereas others did not.

The survey was conducted to identify practice in radiotherapy centres in relation to the identification, reporting and management of incidents and to determine if and how any learning was shared.

All centres confirmed that there were appropriate governance structures and incident management processes in place and that notifiable incidents were reported to the regulator, as required. In most cases there was a multidisciplinary approach taken to mitigating risk and sharing the learning from adverse events locally.

It was confirmed by two locations that there was a service level agreement in place between the hospital and a local private facility for the provision of radiotherapy services, thus any radiation incident would not have been captured on the NIMS.

The findings suggested that the categories in the NIMS menu for describing radiotherapy incidents were not fit for purpose and differed from descriptors set be the regulator. Respondents noted that the inability to access the NIMS directly to generate trending reports was inconvenient and often delayed the identification of emergent risks.

The survey found that there were inconsistencies across all sites in regards the interpretation of a failure in process and if this should be reported as an incident. Respondents suggested that including guidance specific to radiotherapy in the National Incident Management Framework would be

beneficial. All locations made efforts to share the learning from incidents locally but there was no indication that this learning was shared nationally.

The following recommendations were made in the report:

1. Conduct a review of the NIMS menu for detailing a radiotherapy incident and amend, as required.

2. Include guidance specific to radiotherapy in the HSE Incident Management Framework to support locations in identifying and reporting radiation safety incidents on the NIMS.

3. Develop and initiate a communication plan to share learning from incident reviews and quality improvement initiatives across all radiotherapy services.

The plan to address these recommendations is ongoing and will continue in 2021.

National Review of Radiation Equipment in Operation across all Public Hospitals, Community Diagnostic Installations, Dental and Orthodontic Services and the National Breastcheck Screening Service 2020

This report will be published on the NRPO webpage in early 2021.

The review presented collated information pertaining to the age profile, scheduled replacement date, quality assurance activity and dose tracking capability for each item of equipment. The implications of the findings were discussed, limitations to the study were identified and recommendations were made to improve diagnostic services nationally.

The review was undertaken due to a trend in equipment failure incidents identified on the NIMS, findings from HIQA inspections and because of new statutory responsibilities imposed on the HSE.

The focus of the review was on equipment used to irradiate patients.

A) Acute Hospital Services

The review identified that the oldest units in operation were typically low dose x-ray and C-arm machines however there was an exception. A considerable number of units operated in radiotherapy which is considered a high dose modality and high risk to both patients and staff, were very old.

A summary of the findings is presented hereunder.

Table 5: Findings from the Acute Hospital Services

Age profile	Nominal replacement date	Quality assurance	Dose monitoring
29% of units were operating for previous 3 years. 26% were operating 4-8 years. 9% were operating 9-11 years. 35% were in operation over 11 years. No data was supplied for 1% of units. The oldest unit was commissioned in 1988 which indicated that it was operating for 32 years.	55% of units had an active nominal replacement date. 24% had an expired replacement date. 21% did not have an assigned replacement date.	79% of units had undergone a quality assurance check in the previous 12 months. 12% were tested in the previous 12-24 months. 1% was tested over 24 months ago. The information was not provided for 8% of units.	80% of units were capable of recording dose. 10% of units were not capable of performing this function. The information was not provided for 8% of units and deemed not applicable in 2%. Typically, dose tracking software was utilised in high dose procedures.

B) National *Breastcheck* Screening Service

A summary of the findings is presented below.

Table 6: Findings from the National *Breastcheck* Screening Service

Age profile	Nominal replacement date	Quality assurance	Dose monitoring
All units were considered new or established, having been commissioned within the previous 8 years.	All units had an active nominal replacement date.	All units had undergone a quality assurance check within the previous 6 months of the review.	All units were capable of supporting dose tracking software. Implementation of a dose monitoring system across all sites was in progress at the time of the review.

C) Community Services

It was noted by respondents from several installations that the practice of redeploying decommissioned equipment from one service to another had occurred. In addition, issues were highlighted in relation to the governance of community diagnostic centres where often, the

installation fell under the operational responsibility of the community service but the technological resources were provided by and managed through the local hospital network.

The findings from the community services are summarised in the two tables below.

Table 7: Findings from the community diagnostic installations

Age profile	Nominal replacement date	Quality assurance	Dose monitoring
4 units were commissioned within the last three years. 3 units were commissioned over 11 years ago.	1 unit had an active nominal replacement date. 2 units had an expired replacement date. 4 units did not have a replacement date.	All 7 units had undergone quality assurance testing within the previous 12 months.	All 7 units had the capability to record patient dose but it had to be performed manually by the operator.

Table 8: Findings from community dental and orthodontic services

Age profile	Nominal replacement date	Quality assurance	Dose monitoring
44% units were operating for previous three years. 21% were operating 4-8 years. 7% were operating 9-11 years. 18% were operating over 11 years. The information was not provided for 10% of units.	69% of units had an active nominal replacement date. 8% had an expired replacement date. 23% did not have an assigned replacement date.	85% of units had undergone a quality assurance check in the previous 24 months. 9% were tested over 24 months ago. The information was not provided for 6% of units.	34% of units were capable of recording dose. 66% of units were not capable of performing this function.

The following recommendations were proposed in the report:

1. Review resources in relation to the provision of radiation protection services nationally to ensure that there is sufficient capacity to meet the demands of the *Slaintecare* programme.
2. Ensure that a strategic replacement plan which considers nominal replacement dates for all units is maintained locally and that this information informs national objectives.

3. Ensure that an expert in radiation protection is consulted on all procurement decisions pertaining to radiation equipment.
4. Review the practice of redeploying radiation equipment which has been decommissioned in one installation for it to be re-activated in another.
5. Consider the implementation of a national, automated dose monitoring process across hospital and community diagnostic installations which is compatible with the existing local radiology information system.

National radiation protection training programme

The HSE has a statutory duty to ensure that all staff working with medical ionising radiation are appropriately trained in the principles of radiation protection and competent to perform their duties. International guidance is available to support the development of radiation protection training initiatives and many hospitals have availed of these resources to develop local training programmes. Typically, these initiatives are dependent on local resources, do not contain a standardised syllabus and are non-transferable to other locations.

The HSE proposes to adopt a national approach to radiation protection training which incorporates an agreed training syllabus that will promote best practice and include a competency assessment framework. The programme must meet all statutory requirements and ensure that staff training records are maintained locally and available for inspection, when required.

It is anticipated that the training will have cross-site validity for a specific period of time, thereby reducing the burden on local teaching resources. The intention is to develop a national, online training programme which can be adapted to the specific needs of professional groups. The HSE intends to make this training available to all healthcare staff via the HSELand platform.

Work on this project is ongoing and will be a priority for 2021.

Workplace Health and Wellbeing guidance for the assessment and management of Category A workers

Radiation protection legislation identifies a cohort of workers, termed Category A workers, for whom the level of occupational exposure to radiation presents a high risk and mandates that appropriate medical surveillance is undertaken to ensure the safety of these workers. Category A workers are defined as those exposed to an effective dose greater than 6 millisieverts (mSv) or radiation per year or an equivalent dose greater than 15mSv to the lens of the eye or an equivalent dose greater than 150mSv to the skin or extremities.

Occupational health surveillance is established for Category A workers employed in other jurisdictions in non healthcare environments such as nuclear power plants. However, in the Irish healthcare setting, the designation of Category A status to a practitioner is new and as a result, there is currently a lack of guidance for the medical surveillance of these workers. To address this, the NRPC is collaborating

with the HSE Workplace Health and Wellbeing Unit to develop national guidance on the appointment and medical surveillance of Category A workers.

It is anticipated that this policy will include advice for occupational health physicians on the following:

- Pre-placement assessment to establish if an employee is to be designated a Category A worker.
- A programme for periodic medical surveillance and what this should entail.
- Specific medical surveillance of individuals who have exceeded the relevant dose limit.
- A programme for continued surveillance after the Category A worker has ceased working in the high risk area, if necessary.

Consideration will also be given to the provision of appropriate education and training for occupational health physicians in relation to the stochastic and deterministic effects of radiation exposure, advice for female workers regarding pregnancy and breastfeeding and the provision of counselling support, where necessary.

Development of the national guidance is ongoing and will be a priority in 2021.

Priorities for the NRPC in 2021

The NRPC role in promoting robust governance across medical radiation services will continue in 2021, together with analysis of the incidents reported on the NIMS and sharing the learning from failures in care. Responding to queries, providing background support to frontline services and communicating important information pertaining to radiation protection remain priorities.

Collaboration with both HIQA and the EPA to share information and promote regulatory compliance and quality improvement will continue in 2021, particularly in relation to the HIQA dental inspection programme.

Development of a national training programme for radiation protection will be prioritised and so too will the generation of national guidance for occupational health clinicians in relation to the management of Category A workers.

Conclusion

The HSE endeavours to provide an effective, efficient and evidence based radiological service to patients and the initiatives presented herein highlight the achievements in this regard in 2020.

Considerable progress was made in promoting safe practice throughout the year however the risks to staff and patients associated with radiation exposure prevail and there is no excuse for complacency. Safe practice and regulatory compliance will continue as priorities for the HSE going forward into 2021.

The NRPC and NRPO would like to thank frontline radiation protection staff and management across all hospital and community locations for their positive engagement and continued support throughout the year.

Appendix: Membership of the National Radiation Safety Committee 2020

MEMBERSHIP OF THE NATIONAL RADIATION PROTECTION COMMITTEE 2020	
CO-CHAIRS	
Dr. Ciaran Browne	Acute Hospital Operations, HSE
Mr. Jonathon Paul Nolan	Community Operations, HSE
MEMBERS	
Dr. Andrew Bolas	Principal Dental Surgeon, HSE
Mr. Dean Harper	Irish Institute of Radiographers and Radiation Therapists
Ms. Deirdre Groarke	Corporate Estates, HSE
Ms. Deirdre O'Keeffe	Hospital Groups Chief Executive Officers
Dr. Lena Murphy	National Office, Workplace Health and Wellbeing Unit, HSE
Ms. Louise Fahy	Radiotherapy Medical Physics Expert
Ms. Mandy Lewis	Voluntary Hospitals Association Risk Management Forum
Dr. Mary T. O'Mahony	Consultant Public Health Medicine, HSE
Ms. Michele Monahan	Senior Radiography Services Manager, HSE
Dr. Naomi Lavan	Consultant Radiation Oncologist, St. Luke's Hospital Network
Mr. Niall Phelan	Chief Physicist, National Screening Service, HSE
Dr. Niall Sheehy	Faculty of Radiology, Royal College of Physicians in Ireland
Dr. Peter Kavanagh	National Clinical Programme for Radiology, HSE
Mr. Thomas Heary	Diagnostic Medical Physics Expert