



## **Radiation Oncology Safety and Quality Committee (ROSQC) Strategy for the next 3 years**

The ROSQC is a programme committee and, as a programme committee, reports to the Scientific Council and through this committee to the Board of ESTRO. The ROSQC serves in an advisory capacity to the Board and through the Board to the membership of ESTRO in matters concerning safety and quality in Radiation Oncology.

It has been established as a multidisciplinary committee to reflect the importance of the team approach in the preparation and delivery of radiotherapy.

It incorporates an international liaison group to ensure consistency with international practices in quality and safety and to create strong links with other professional groups working with quality and safety issues of radiation oncology practice.

### **Introduction**

Safety and quality are integral to the achievement of the ESTRO Vision and the ROSQC Committee was established in 2016 to address issues of safety and quality from an ESTRO perspective. The ROSQC composition is multidisciplinary reflecting the importance of involvement in safety and quality for all professionals and has an international component to reflect the importance of collaboration with other professional societies addressing similar issues. As a starting point, we have agreed definitions for safety and quality which will underpin the tasks of the working groups.

- ***Safety in Radiation Oncology***

- Safety in radiation oncology involves the prevention and management of potential risks associated with radiation therapy, including both immediate and long-term effects. It encompasses the measures and protocols put in place to safely and effectively use ionizing radiation to ensure that patients and staff are protected from the harmful effects of radiation exposure.
- This includes comprehensive quality assurance programs, strict adherence to established protocols and guidelines, regular equipment checks and maintenance, ongoing education and training for staff, and robust communication and collaboration amongst all members of the radiation oncology team. Ensuring that they are aware of any potential safety concerns and risks and giving access to the necessary tools and resources are essential to provide safe and effective care to patients undergoing radiation therapy.

- Furthermore, it involves protections and security measures against malicious or unintended data alteration or data breaches and general loss of functionality of the systems involved in radiation treatment.
  
- **Quality in Radiation Oncology**
  - Quality in radiation oncology refers to the degree to which radiation therapy is delivered in a safe, effective, efficient, patient-centred and overall consistent and reproducible manner by meeting or exceeding established standards.
  - This includes the accurate planning and delivery of radiation doses as well as the effective management of any side effects or complications. It also encompasses aspects such as the appropriate use of technology and equipment, adherence to established protocols and guidelines, and the provision of education and support to patients. Achieving high-quality radiation therapy involves the implementation of rigorous quality control processes, ongoing performance monitoring and evaluation, and continuous quality improvement initiatives.
  - Furthermore, achieving high quality in radiation oncology requires multidisciplinary approaches and consensus peer review between different radiation oncology team members. High quality is supported by adequate staffing levels.

The ROSQC acknowledges that they are not the only committee or working party within ESTRO working on safety and quality as this is ultimately the remit of every professional in radiotherapy. The discipline specific committees address issues of safety and quality from their individual professional focus and there is a range of ongoing projects active in this area. The ROSQC would like to work with the other committees and focus groups to provide the ESTRO Board with an overview of the totality of activities in order to achieve cohesion across the ESTRO community and to position ESTRO at the forefront of safety and quality in radiotherapy across Europe. The ROSQC, through the international liaison group, will establish collaboration with organisations/groups with a similar remit to compare activities and results and avoid duplication. Examples of the ongoing collaboration include working with ESMO, ESSO, HERCA, and COCIR on joint or endorsed publications and guidelines.

The ROSQC will consider how best to integrate the patient perspective into the range of activities identified for the working groups.

## **Aims**

The ROSQC activities are aimed at improving safety and quality in the preparation and delivery of radiotherapy and raising compliance of member states with the legal requirements defined in the European Directives in the area of radiation safety and quality.

The ROSQC will strive to support ESTRO in leading education, research, and development in the quality and safe delivery of radiotherapy and help to strengthen ESTRO position in defining and participating in EU research projects.

## **Goals**

The ROSQC has defined the following goals that it wishes to achieve in this period.

- To implement the ROSEIS (Radiation Oncology Safety Education and Information System) and actively encourage reporting at local, national, and international level.
- To establish a framework for ESTRO to influence the research strategy defined for future EU research projects related to the use of ionising radiation in medicine focussing on the issues pertinent to radiotherapy in the context of radiation protection, quality and safety.
- To develop guidelines for managing radiotherapy information in the event of local or national disasters.
- To review the lectures and videos on the platform and consider how they can be further developed and a format in which they could be used most effectively.

## **Actions**

The actions the ROSQC will take to achieve these aims will include:

- establishing collaborative links with all other committees and working groups to share information on ongoing work/projects to minimise or reduce duplication, to consider how the different projects relate to each other and to ensure totality of approach to the topics;
- supporting and promote this level of collaboration through regular contact between groups/committees to share the information and consider how best to proceed;
- focusing primarily on promoting existing guidelines and recommendations and provide information on how to approach defining issues in their own centres and to ensure that agreements already reached with ESTRO and other safety and quality initiatives internationally are disseminated to the membership. This will include identification of where the ROSQC can actually provide detailed information and where it acts as a disseminator of information:
- promoting increased awareness and competence in safety and quality of radiotherapy through knowledge translation of related principles as well as recent and ongoing consensus guidelines from (international organisations (e.g., CARO, AAPM, ASTRO, CPQR).

## **Working groups**

The ROSQC has set up working groups who will address the actions defined, establish timelines and furnish regular updates. The working groups will be led by members of the ROSQC with additional participants invited to join based on their interest/expertise in each area. Where the topics of the working group interlink regular updates will ensure that there is cross fertilization and minimise duplication. These working groups are:

- **Risk Management and the ROSEIS platform**
- **Cyberattack, preventative measures and emergency response**
- **Defining radiation protection in radiotherapy and how this can influence future EU projects and information sharing through the range of ESTRO and international channels**
- **Publications – the ESTRO newsletter ROSQC corner**
- **Education and educational material**
- **Implementing new/innovative technology or techniques**

## **Deliverables**

### ***1. Risk management and the ROSEIS platform tasks***

ROSEIS will enable centres without an existing reporting and learning system to use the ROSEIS platform and thereby comply with the EU Directive 2013/59/EURATOM which mandates centres to have a reporting and learning system in place. There is also the potential for centres to upload their data and share the information anonymously with the wider radiotherapy community. An effective reporting and learning system increases the safety profile of radiotherapy, raises safety awareness amongst the radiotherapy population and gives reassurance to patients and the public that radiotherapy works actively to improve the safety and quality of its practice.

1.1 To review the work carried out to date and ensure the accuracy of both the dataset and the website.

1.2 To review the website and ensure it is correct and current.

1.3 To review and update the dataset to ensure it is current and has included all new technology and techniques.

1.4 To test the functionality of the system and report back any difficulties encountered or suggestions for improvement.

1.5 To define who are the users of the system and how access can be provided and verified.

1.6 To define the stakeholders and how they can be kept informed.

1.7 To consider if the following have been completed/made possible:

- the integration of SEVRRRA
- the ability to upload a screenshot
- the possibility to download the platform to a local server

- report an incident of immediate interest to the community.
- request notification of specific types of incidents or near incidents.

1.8 To revise the literature and add publications relating to incidents, near incidents and reporting and learning.

1.9 In the longer term to explore how links with other reporting systems can be progressed and knowledge shared.

1.10 To compare the type of incidents and near incidents reported and prepare short publications to highlight these, what can be learned from them and how to prevent repetition in other centres.

1.11 To work with SEVRRRA to further progress the option of prospective risk assessment.

1.12 To consider TG288 (report attached) and also the Canadian work on Ontology and how or if this can be reflected/integrated into the ROSEIS.

1.13 To advise in the development of analyses/reports based on the functionality of the ROSEIS platform.

## **2. *Cyberattack, preventative measures, and emergency response***

The risk of cyberattacks is increasing and can create major problems for radiotherapy services. Experience from several countries has increased our understanding of the risk and methods that have been used to remediate and manage the impact of such attacks. The ultimate aim of this working group will be to develop guidelines specific to radiotherapy on how to ensure minimum impact to the treatment of patients in the event of a cyberattack. Several papers have already been identified and will be made available. The Irish Government has produced a detailed document on the cyberattack that disabled the entire public health service and how it was managed.

### **Tasks**

- Carry out a literature review.
- Analyse the findings and identify the key factors for consideration.
- Compare the core risks leading to the cyberattacks and the subsequent actions taken.
- Develop guidelines on prevention and mitigation in the event of a successful attack. Guidelines to include scenarios where a department could evaluate their own level of risk preparedness and how they could implement a risk plan specific for their own situation.

## **3. *Defining radiation protection in radiotherapy and how this can influence future EU projects and information sharing through the range of ESTRO and international channels.***

A review of EU projects related to the use of ionising radiation in medicine has been carried out. This has been presented to the Scientific Council and informs the extent to which the inclusion of oncology/radiotherapy as a topic has been considered:

MEDIRAD: effects of low dose radiation exposure and for radiotherapy the focus seems only to be dose related to normal tissue in breast cancer treatment.

CONCERT and CORDIS: closed – publications (78 +) Big data in radiobiology and epidemiology; an overview of the historical and contemporary landscape of data and biomaterial archives.  
MELODI: low dose radiation research including dose to normal tissue from radiotherapy.  
SAMIRA: Radiotherapy – dose from CT. Radiotherapy accidents and the BSS where the focus is on medical physics and dose reduction which does not address the full spectrum of radiation protection in radiotherapy and the role of the full team.  
MARLIN. Medical Applications of Radiation – Learning from incidents and near misses.

#### **4. Defining radiation protection in radiotherapy based on the patient pathway from diagnosis to follow up and using the concepts of Justification and Optimisation**

This is core to all the activities identified above. Under EU legislation and in all the EU projects to date, radiation protection in radiotherapy is linked directly to radiology and focusses almost exclusively on dose from imaging. Quality and safety are integral components.

##### **Tasks**

Relate to the delivery of a quality radiotherapy service in a safety aware environment

- Define what is understood by the terms safety and quality and what it incorporates.
- Map radiation protection in radiotherapy focussing on justification and optimization.
- Provide information on how to approach defining issues in their own centres and to ensure that agreements already reached with ESTRO and other quality and safety initiatives internationally are disseminated to the membership. This will include identification of where the ROSQC can actually provide detailed information and where it acts as a disseminator of information.
- Explore future opportunities and implications for clinical implementation and research of safety and quality initiatives in the diverse RT community and practice environments.
- Develop best practice guidelines to assist departments on how to ensure radiation protection from a radiotherapy perspective, integrating safety and quality as they relate to the inter-professional practice of radiation oncology.
- Highlight the key role played by radiotherapy in cancer management, the importance of ensuring quality and safety to a wider audience and the factors key to achieving it.

#### **5. ESTRO newsletter**

ESTRO publishes six newsletters annually and it is necessary to populate a ROSQC corner. This working group will be responsible for providing updates on the working groups activities and identify other potential topics of interest and potential authors.

## **6. Education and educational material**

The ROSQC has developed education material and has provided links to other international organisations involved in quality and safety in radiotherapy and in the wider health area and to publications in the area.

### **Tasks**

- Review the education material currently on the website
- Consider how to structure the existing material to maximise potential
- Identify any gaps in the material and identify possible presenters/presentations to address these
- Consider how the material can be used for education developments

## **7. Implementing new/innovative technology or techniques**

There have been rapid developments in technology and techniques over the past decades and practice has to change to reflect these. These changes have implications for and professional roles and responsibilities and supporting education requirements and are often implemented without consideration of the impact on the staff. The Canadian Partnership for Quality Radiotherapy (CPQR) statement below encompasses the main factors that should be considered.

“Before new equipment (hardware and/or software) or treatment techniques are introduced into clinical service, a complete safety analysis should be performed, quality control procedures defined, implemented and tested, and all personnel involved with the calibration, operation or maintenance of the device are educated and trained in the operation of the device, in the radiation safety issues associated with the device, and in the emergency procedures associated with a failure of the device or major accessory. For all locally programmed hardware such as linear accelerators, software such as treatment planning systems and treatment technique such as brachytherapy, a quality control procedure is implemented during installation and commissioning, and tested prior to clinical use”

### **Tasks**

- Literature search on the introduction of new techniques/technologies
- Scoping exercise to define the most recent innovations that have been introduced into radiotherapy centres
- Interviews? – how the introduction into the department was planned and implemented, any problems encountered and how they were addressed
- Draft guidelines/recommendations