

## **Summary of the IAEA Technical Meeting on Advisory Services for Radiation Protection and Safety for Medical Exposures**

**4–6 September 2023**

The IAEA Technical meeting was held in a hybrid format from 4 to 6 September 2023 in Vienna. 129 participants from a wide spectrum of health disciplines and professions involved in the medical use of ionizing radiation, as well as the medical industry, regulatory bodies, educational and research institutions, and experts, representing 43 IAEA Member States as well as 7 international organizations, professional bodies, and safety alliances, participated at the meeting.

The meeting agenda with links to the presentations is provided in Annex 1, and the list of countries and organizations represented in the meeting is contained in Annex 2.

### **Meeting objectives and expected output**

#### **Objectives:**

1. To assess the needs for advisory services relating to radiation protection and safety in medical exposure in the Member States and their placement in the IAEA system of review missions and advisory services.
2. To provide advice on developing of mechanisms for the implementation of advisory services relating to radiation protection and safety for medical exposure, based on the existing experience from the pilot mission and other similar Agency services.

#### **Expected output:**

Conclusions that provide advice on the development of and approach for the implementation of advisory services relating to radiation protection and safety for medical uses of ionizing radiation.

The following report summarizes the findings and conclusions from the meeting.

### **Findings of the meeting**

#### **Current status of the implementation of the IAEA Safety Standards**

1. Recommendations and suggestions in the IRRS mission reports indicate the need to support the implementation of the requirements of GSR Part 3 for medical exposure.
2. Existing IAEA tools for assessment of the level of practical implementation of the GSR Part 3 requirements related to medical exposure provide insufficient information. Developing additional tools for obtaining this information, such as dedicated implementation questionnaires would be beneficial. However, establishing IAEA Advisory Services for Radiation Protection and Safety for Medical Exposures may provide the most comprehensive set of information.

3. In some countries, the regulatory requirements for medical exposures are not well established, or they do not adequately address the specific aspects of medical exposures.
4. Sometimes there is a lack of understanding of the specific requirements in GSR Part 3 related to medical exposure. For example, responses provided in RASIMS may focus on occupational radiation protection for staff in medical facilities rather than on radiation protection for patients.
5. Many countries, particularly from the European region, have well-established regulatory systems with legislative and administrative arrangements that give effect to the requirements in the IAEA Safety Standards relating to medical exposure. National governments and multi-national institutions (e.g., the European Union) have instigated a range of programs that also aid the implementation of the IAEA Safety Standards relating to medical exposures. However, there are often gaps in the implementation of the requirements in practice and additional actions are needed to fill the gaps.
6. Professional bodies and competent authorities (or instead of the CA Regulatory Bodies) For example- Professional bodies and Competent authorities have developed and continue to develop guidance and training materials to support the implementation and practical functioning of the principles and requirements outlined in the IAEA Safety Standards pertaining to medical exposure.
7. Requirements may be in place but the resources to carry them out in practice perchance lacking. In some cases, this may be due to a lack of trained and certified professionals, in other cases limitations exist in accessing relevant technologies (e.g., utilizing the capabilities of digital systems to monitor patient exposures), and in other situations there may be a lack of coordination between the various stakeholders (regulatory body, health authorities, professional groups).

## **Observations from the pilot mission conducted in Estonia**

1. The initial request to develop an Advisory mission related to medical exposure originated from the Member States participating in the Technical Cooperation programme for the European region, and the guidelines for the mission were prepared in 2020.
2. In 2022 a pilot advisory mission was conducted in Estonia with the aim to address the specific aspects related to medical exposure that are not comprehensively covered by the existing IAEA services.
3. Representatives from Estonia emphasized the vast extent of information collected during the pilot mission that provided a solid basis for the assessment of the radiation protection and safety of medical exposure at the national level.
4. Representatives from Estonia reported an overall positive experience and impact of the pilot mission. Clarity and good argumentation of the recommendations and suggestions provided by the pilot mission that serve as a basis for a long-term impact were emphasised. The expectations of the Host Country from the mission were reported to be met or exceeded.
5. The establishment of a follow-up process was suggested.
6. The importance of adequate communication between the IAEA/Mission Team and the Host Country as well as among interested parties within the Host Country and of sufficient time for preparation before an actual mission was emphasized.
7. Requests for access to the mission guidelines and information about the process for requesting an advisory mission were expressed by the online participants.

## Reasons for establishing a new IAEA service and ways forward

1. The IAEA offers several review mission and advisory services that have components related to medical uses of ionising radiation. However, none of them provides a comprehensive review of implementation of the General Safety Requirements related to medical exposure.
2. There is a need for assessment of national regulations and the level of their implementation against the General Safety Requirements GSR Part 3 related to Medical Exposure. This would be the focus of an Advisory Mission for medical exposures.
3. Existing review missions and advisory services provide good models to follow in developing a new Advisory Mission. An example of a good model to follow is the ORPAS service (including training).
4. A short questionnaire to collect the views of the participants of the meeting regarding the usefulness of this Advisory Mission and of the perceived reasons for and against hosting it in their country was conducted. The responses (see Annex 3) indicate strong support for provision of the Advisory Mission.
5. Reported findings from this Advisory Mission will be of value for further developing the safety standards and provide the IAEA with feedback on the implementation of the current safety standards.
6. The Mission Guidelines that were developed for pilot missions conducted within the regional project RER-9147 need to be adapted before they can be proposed as a regular IAEA advisory service.
7. Experience from the additional pilot missions would be most beneficial for refining the Mission Guidelines, including procedures and templates, as well as training of new team members.
8. Training activities to prepare experts to be mission team members should be developed.
9. A country self-assessment is needed for better preparation of the mission by the team. It would benefit both the host country and the team conducting the mission if the self-assessment is reviewed and agreed on by all interested parties in the host country prior to the mission.
10. A country self-assessment also benefits the Member State receiving the mission as the responses will determine the focus of the mission. This could take the form of responses to Thematic Safety Area 3 within the RASIMS, responses to the medical section of SARIS, or responses to an e-mailed questionnaire based on the questions in RASIMS TSA3. The aim should be to identify areas of particular interest and to reduce the burden on the Member State receiving the mission.
11. Preparatory activities for a specific mission should be developed, including familiarisation with the pre-mission materials, approaches for creating common understanding of how the mission will be conducted, and establishing effective communication between team members.
12. The IAEA should promote and raise awareness on the availability of the mission, once approved.

## Meeting conclusions and recommendations

Based on the discussions the meeting participants agreed upon the following conclusions and recommendations:

- An Advisory Mission is needed to support Member States from all regions to improve radiation protection and safety in medical uses of ionizing radiation, especially medical exposures.
- An Advisory Mission on Radiation Protection and Safety in Medical Exposures should be established within the suite of IAEA services.
- The feedback on the first pilot mission to Estonia under the TC Europe program was very positive and other Member States in this region were encouraged to participate under the same program.
- Member States from the TC Europe region are invited to apply now for the next pilot mission.
- Any Member State that has a governmental, legal, and regulatory infrastructure for radiation protection and safety with respect to medical uses of ionizing radiation in place can request the Advisory Mission once it has been established.
- The self-assessment required prior to the Advisory Mission can be an up-to-date response to RASIMS TSA3, or SARIS Medical, or a separate questionnaire based on the RASIMS TSA3 questions.
- A comprehensive guideline for the Advisory Mission on Radiation Protection and Safety in Medical Exposure should be developed and provided to Member States.
- Professional bodies are encouraged to co-operate with authorities and other interested parties at the national level to improve the implementation of safety standards, including advocating for the invitation of an Advisory Mission.

Additional pilot missions are strongly encouraged to continue to build experience in the provision of such services and to finalise the Guidelines for Advisory Missions on Radiation Protection and Safety in Medical Exposure before they are proposed to be made officially available to Member States.

Training activities to prepare experts to be mission team members should be developed.

Additional tools for obtaining information on the practical implementation of GSR Part 3 requirements related to medical exposure such as dedicated implementation questionnaires should be developed.

A follow-up process should be developed.

In all types of IAEA missions, medical practice was identified as one of the core review areas.

IAEA missions presentations provided good examples of tools that could be applied by Advisory Mission. Example: ORPAS Collaboration platform, DATABASE, Communication/Document sharing: MS teams, training for reviewers (five days programme), learning and Interactive exercise to be converted into e-learning material.

## ANNEX 1. Meeting agenda



# Technical Meeting on Advisory Services for Radiation Protection and Safety for Medical Exposures

4 - 6 September 2023

Virtual meeting via WebEx

Meeting link: <https://iaea.webex.com/iaea/j.php?MTID=m5ee76f2be8ee2e34ccf1010c46201db8>

(The indicated time is Vienna local time/CET)

Monday, 4 September 2023

13:00 – 13:15	Opening and welcome	M. Pinak (IAEA, NSRW)
<i>Session 1. IAEA safety standards for medical exposure and status on their implementation</i> <i>Rapporteur: P. Thomas</i>		
13:15 – 13:25	<i>Introduction to the meeting, including motivation, scope, and objectives of the meeting</i>	O. Holmberg, V. Gershan (IAEA, NSRW) R. Bly (chairperson)
13:25 – 13:40	The IAEA Safety Standards in Medical Exposure and RASIMS system	J. Vassileva (IAEA, NSRW)
13:40 – 14:10	Status on radiation protection in Medical Exposure at global level (Australia, Latin America, Asia, Africa and Europe)	P. Thomas (Australia) S. Kodlulovich (Brazil) N. Kwan Hoong (Malaysia) V. Gershan (IAEA, NSRW) D. Zontar (Slovenia)
14:10 – 14:45	A view on the role of the international organizations in supporting countries to implement safety standards (5 min each)	B. Brkljacic (ESR) G. Simeonov (EC) M. Coffey (ESTRO) E. Bezak (IOMP) E. Chan (ISRRT) E. Van Deventer (WHO)
14:45 – 15:00	Session highlights and discussion	R. Bly (chairperson) and all.

## Tuesday, 5 September 2023

<i>Session 2: Advisory Mission on Radiation Protection and Safety in Medical Exposure</i> <i>Experience from the IAEA TC Europe regional activities</i> <i>Rapporteur: D. Zontar</i>		
13:00 – 13:20	<i>Needs for advisory mission and mission concept</i>	J. Vassileva (IAEA, NSRW)
13:20 – 13:40	A pilot advisory mission on radiation protection and safety in medical exposure in Estonia – mission team perspective	R. Bly (Finland)
13:40 – 14:00	Feedback and outcome of the pilot advisory mission - regulatory perspective	J. Subina (Estonia)
14:00 – 14:20	Feedback and outcome of the pilot advisory mission - clinical perspective	S. Nazarenko (Estonia)
14:20 – 15:00	Session highlights and discussion	R. Bly (chairperson) and all

## Wednesday, 6 September 2023

<i>Session 3: Establishing a new IAEA service for radiation protection and safety for medical exposure</i> <i>Session rapporteurs: S. Kodlulovich and N. Kwan Hoong</i>		
13:00 – 13:45	<i>Existing IAEA missions related to medical exposure:</i> IRRS ORPAS QUAADRIL, QUANUM and QUATRO	V. Kamenopoulou (IAEA, NSRW) B. Okyar (IAEA, NSRW) O. Ciraj – Bjelac (IAEA, NAHU)
13:45 – 14:00	Specificities of the advisory mission for radiation protection and safety for medical exposure	J. Vassileva (IAEA, NSRW)
14:00 – 14:45	Expectations and impact of the advisory mission	P. Thomas (Australia) S. Kodlulovich (Brazil) N. Kwan Hoong (Malaysia) D. Zontar (Slovenia) R. Bly (Finland) J. Subina (Estonia) S. Nazarenko (Estonia) E. Vano (Spain)
14:45 – 14:50	Session highlights and discussion	R. Bly (chairperson) and all
14:50 – 15:00	Meeting conclusions and recommendations	R. Bly (chairperson)

**ANNEX 2. List of IAEA Member States and international organizations represented in the meeting.**

Representing Country:

Argentina, China, Croatia, Cuba, Egypt, Estonia, Eswatini, Finland, Georgia, Ghana, Greece, Hungary, India, Iran, Iraq, Ireland, Italy, Jordan, Lesotho, Libya, Lithuania, Malaysia, Mongolia, Morocco, Myanmar, Netherlands, Nicaragua, North Macedonia, Norway, Pakistan, Qatar, Romania, Russia, Slovenia, Sri Lanka, Syria, Tajikistan, Tanzania, Thailand, Uganda, United Kingdom, USA and Zambia.

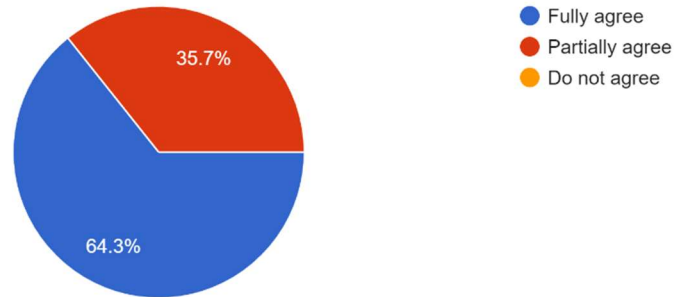
Organization:

IOMP, ISRRT, ESTRO, AAPM, WHO, EC and ESR.

### ANNEX 3. Online Survey on the IAEA Advisory Mission for Radiation Protection and Safety for Medical Exposure, 4 – 6 Sept 2023, online participants, 42 responses

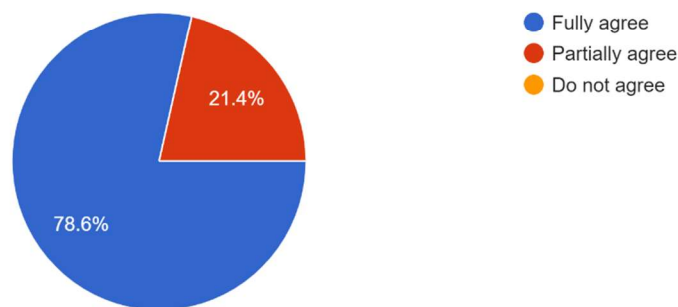
1) The Advisory Mission on Medical Exposure would be beneficial for my country.

42 responses



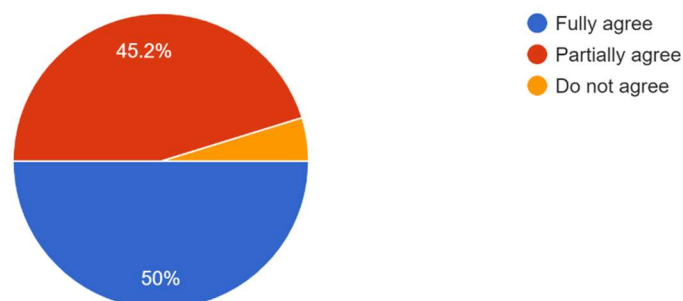
2) The IAEA should offer this Mission as a regular advisory service.

42 responses



3) Practical implementation of the GSR Part 3 requirements related to medical exposure in my country needs improvement.

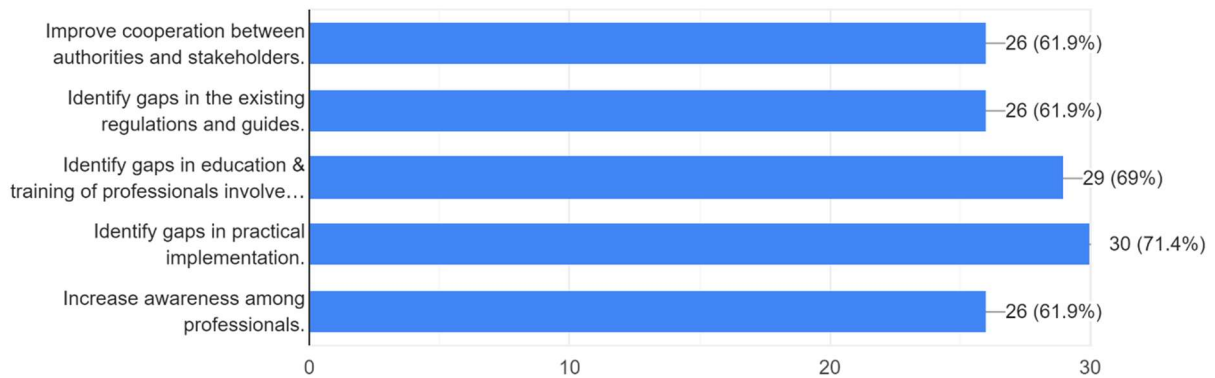
42 responses





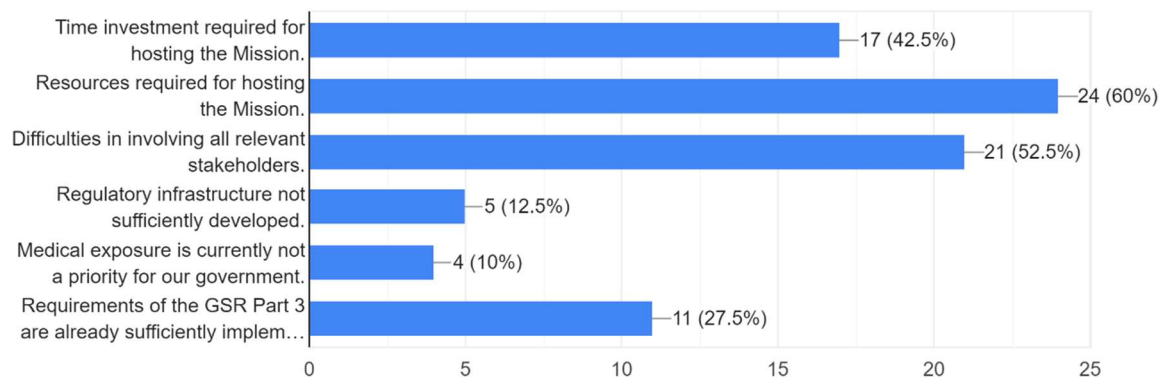
4) Reasons for inviting an Advisory Mission on Medical Exposure to my country include (multiple answers possible):

42 responses



5) Reasons for not inviting an Advisory Mission on Medical Exposure to my country include (multiple answers possible):

40 responses



6) My country is currently participating in IAEA Technical Cooperation programme.

42 responses

