

# MEDRAPET



Medical Radiation Protection  
EDUCATION AND TRAINING

## Project ENER/D4/212-2010

Study on the Implementation of the Medical Exposure Directive's  
Requirements on Radiation Protection Training of Medical Professionals  
in the European Union

# MEDRAPET

## Workshop summary and conclusions

**July 31, 2012**

Start date of project: 23 December 2010

Duration: 27 months

Coordinator	European Society for Radiology, ESR
WP manager	European Society for Radiology, ESR
Authors	John Damilakis (ESR), Graciano Paulo (EFRS), Stelios Christofides (EFOMP), Wolfgang Eschner (EANM), Dimitrios Tsetis (CIRSE), Dag Rune Olsen (ESTRO), supported by Monika Hierath (ESR), Angelika Benkovszky (ESR)
Attention of	European Commission, Directorate General Energy, Remigiusz Baranczyk

**THE MEDRAPET WORKSHOP**  
**A EUROPEAN WORKSHOP ON EDUCATION AND TRAINING IN**  
**MEDICAL RADIATION PROTECTION**  
**April 21-23, 2012**  
**Athens, GREECE**

**SUMMARY AND CONCLUSIONS**

**1. Introduction**

A workshop on education and training in medical radiation protection was organised in Athens, Greece from 21 to 23 of April, 2012 as part of the MEDRAPET EC project. The professional organisations involved in MEDRAPET include the European Society of Radiology (ESR) as coordinator as well as the European Federation of Organizations for Medical Physics (EFOMP), the European Federation of Radiographer Societies (EFRS), the European Society for Therapeutic Radiology and Oncology (ESTRO), the European Association of Nuclear Medicine (EANM) and the Cardiovascular and Interventional Radiological Society of Europe (CIRSE). One hundred and eight participants from 29 different countries discussed the results of the EU MEDRAPET survey and examined opportunities, difficulties and future trends in medical radiation protection education and training.

The main aims of the workshop were to:

- 1) Discuss the results of the study performed in WP 1 (see section 3.1 of the current document for details)
- 2) Obtain input for the drafting of guidelines on education and training in radiation protection for medical exposures
- 3) Assess the level of implementation of the Medical Exposure Directive Provisions in EU member states
- 4) Identify the needs and persistent gaps in radiation protection education and training of health care professionals.
- 5) Share experiences, lessons learned and best practices in developing and implementing education and training activities on medical radiation protection before and after qualification
- 6) Facilitate the discussion on issues related to radiation protection education and training of medical professionals in the EU member states.

Guest speakers and members of the MEDRAPET project presented the current status and future opportunities in the field of education and training in radiation protection. A wide audience of professionals involved in medical radiation protection attended the workshop as well as representatives of international organisations, professional societies, regulatory bodies and university students.

## **2. Programme**

The workshop programme was divided into 5 round tables, each of them handling a specific subject within the area of education and training in medical radiation protection. Round table 1 outlined the MEDRAPET project, with invited speakers directly involved in the project. Round table 2 presented the current status in radiation protection education and training in Europe and results of the WP1 of the MEDRAPET project. Round table 3 focused on education and training in radiation protection for health professionals involved directly with the use of ionising radiation. Experts from radiology, radiotherapy, dentistry and vascular surgery presented their views on this subject. Round table 4 presented the role of international and national organisations in medical radiation protection education and training. The third day, representatives from 6 European scientific societies (ESR, ESTRO, EFOMP, CIRSE, EANM and EFRS) presented the view of their organisations on education and training in radiation protection (round table 5).

The programme also included 8 invited lectures, oral presentations, posters and a panel discussion. Topics of invited lectures included training in radiation protection for nuclear medicine, knowledge, skills and competences requirements in radiation protection of medical physicists, training in radiation protection for interventionalists, education and training in radiation protection for radiographers, training methods in radiation protection, issues related to accreditation and certification of the training in radiation protection, radiation protection education and training projects and activities in Europe and the current situation and perspectives of medical education and training in radiation protection in Greece. A part of the programme was devoted to oral presentations and posters. There were 9 oral presentations and 13 posters. During the 'oral presentations' session, the experience from several European countries on the education and training of health professionals using ionising radiation was presented and discussed. A digital version of the posters was shown in two loops during the four coffee breaks. The final day, a panel discussion was organised to discuss main issues related to medical radiation protection education and training. The panel consisted of a European Commission representative, 5 representatives of MEDRAPET partners and representatives of international and European organisations (World Health Organisation - WHO, International Atomic Energy Agency - IAEA and Heads of the European Radiological Protection Competent Authorities - HERCA). The book of abstracts and presentations are available for download from the MEDRAPET website (<http://www.medrapet.eu/>). The workshop programme overview is included in this report as an annex.

## **3. Summary of findings - key points**

### **3.1. The MEDRAPET project and survey results**

The project is divided into 4 Work Packages (WPs); each work package covers specific tasks contributing to achieve the common objective of improving

implementation of the Medical Exposure Directive (Council Directive 97/43 EURATOM) provisions related to radiation protection education and training of medical professionals in the EU Member States.

WP0 chaired by the coordinator of the project is responsible for the management and general coordination of the project. The coordinator acts as contact person between the Consortium and the European Commission.

WP1 is in charge of developing the methodological approach for the study on radiation protection education and training of medical professionals in the EU Member States, to carry out the study as well as to develop a structured evaluation/summary document of the study as a basis for the European Workshop under WP2. The work package is chaired by EFRS.

WP2 is responsible for organising the MEDRAPET workshop on radiation protection education and training of medical professionals in the EU Member States. WP2 is chaired by the Coordinator.

WP3 will develop the European Guidance document on radiation protection education and training of medical professionals, which will be the core task of the project. This work package is chaired by EFOMP.

To study radiation protection education and training of health professionals in the EU Member States, a web-based survey was implemented. A questionnaire was developed to obtain information from a) national radiation protection authorities, b) professional and scientific societies and organisations whose members are working with ionising radiation on a daily basis and c) educational institutions related to graduate and post graduate education of health professionals. Considering the 3 groups targeted through the survey, the response rate was 57.1% for radiation protection authorities, 25.3% for professional/scientific societies and 19.8% for educational institutions.

The survey showed that of the radiation protection authorities who responded, fewer than half believe that legislation in their country adequately addresses the needs of education and training in radiation protection for students/residents. A substantial proportion (36%) said regulations in their country do not include requirements for continuing education and training in radiation protection for radiologists, radiation oncologists, nuclear medicine physicians, interventional radiologists and interventional cardiologists. The corresponding proportion for vascular surgeons, gastroenterologists and other clinicians exceeds 60%. A high number of respondents state that there is no mechanism in their country to ensure that continuous education and training in radiation protection is provided for health professionals (61% - 86% depending on the profession). Relatively few authorities (24%) provide educational material on their websites focused on radiation protection for health professionals. Respondents believe that lack of interest/action by health authorities, lack of financial resources and lack of interest/action by professional/scientific societies constitute major barriers to continuing education in radiation protection for health professionals in their country.

A section of the questionnaire was sent to 509 European professional and scientific societies. The total number of answers received was 129 with an overall response

rate of 25.3%. The response of interventional societies such as the interventional radiology and vascular surgery societies was relatively low (26.1% for interventional radiologists and 18.2% for vascular surgeons). About 55% of radiology, radiography, nuclear medicine and radiation oncology societies stated that they organize courses focused on radiation protection for their members. The corresponding percentage for medical physics societies was 63%. A limited number of interventional radiology societies (33%) provide such courses for their members. For interventional radiologists, 65% of the basic training in radiation protection is covered during radiology residency, while other interventionalists did not report such training. Most of the educational activities are carried out during residency. The majority of societies (> 60% of radiology, radiography, nuclear medicine, radiation oncology, medical physics societies) said that current national legislation adequately addresses the needs of their members in radiation protection education and training. A high percentage of dental societies (70%), however, stated that legislation in their country does not adequately address their needs of education in radiation protection.

A section of the questionnaire was sent to 465 educational institutions. The total number of answers received was 92 with an overall response rate of 19.8%. Although the EU directives regarding education and training in radiation protection date from 1997, along with major publications from international organisations such as IAEA and ICRP, 20% of medical educational institutions said that they are not aware of the recommendations of these directives. More than 70% of higher education institutions stated that the curricula of their programme include lessons on radiation protection.

The main conclusion of the survey is that radiation protection education and training is far from being harmonized and in some instances not even implemented in EU countries despite the Medical Exposure Directive's requirements.

### **3.2. Education and training in radiation protection for health professionals involved directly with the use of ionising radiation**

Education and training in radiation protection is of crucial importance for justification and effective dose optimization in Radiology, Nuclear Medicine and Radiotherapy. New modalities such as state-of-the-art MDCT and PET-CT have increased the necessity for a greater awareness of radiation protection in medical imaging.

Training interventional radiologists in the present era is a very complex process. The required knowledge for providing high quality care is increasing continuously. Certainly, knowledge on medical radiation protection is necessary to ensure the highest-quality training of interventional radiologists and other interventionalists and healthcare staff. The number of interventional therapeutic procedures using ionising radiation and resulting in higher patient and staff doses is steadily rising. Unfortunately many non-radiological interventionalists might not be aware of the potential for injury from these procedures and the simple methods for decreasing their incidence.

The extensive use of fluoroscopy outside the radiology departments has created newer audience of medical specialists that includes interventional cardiologists, electro physiologists, vascular surgeons, urologists, orthopaedic surgeons, gastroenterologists, gynaecologists and anaesthetists involved in pain management.

The usage of radiation by these specialists is, in some cases, equivalent to that of interventional radiologists. Unfortunately, in most countries there is no systematic training of these specialists. The best approach for their training has to be based on dealing mainly with practical aspects of radiation protection. The IAEA has been conducting training programmes in large parts of the world for such specialists and has developed standardized training material that is available for free download from the IAEA website.

Dentists must be competent at implementing the ionising radiation regulations. They must also be competent at taking radiographs of relevance to clinical practice, interpreting the images, including managing and avoiding the hazards of ionising radiation. New modalities such as cone-beam CT have increased the necessity for a greater awareness of radiation protection in dental imaging.

Medical physicists are responsible for dosimetry, including physical measurements for evaluation of the patient dose and contribute significantly to a) optimization of the radiation protection of patients, b) the quality assurance of the radiological equipment, c) preparation of technical specifications and d) the training of practitioners and other staff in radiation protection. Because of the relatively high level of responsibility of medical physicists with respect to radiation protection, the education and training requirements should include a high level of knowledge, skills and competence in radiation protection.

Radiographers operate all types of radiological, nuclear medicine and radiotherapy equipment and must be fully educated and trained on aspects of radiation protection associated with their profession, once they are the interface between patient and technology. Permanent CPD courses on radiation protection for radiographers are essential due to the fast technology development.

### **3.3. Accreditation and Certification**

External assessment of the quality of radiation protection education and training is needed. The establishment of a European body is an important step to promote education and training in medical radiation protection, evaluate and accredit training programmes and organisations that meet high standards and encourage and support networking of educational institutions. Certification is also an issue in radiation protection education and training. Health professionals certified in radiation protection bring important benefits to their patients and themselves. Because of their special education and training, certified medical personnel demonstrate knowledge and confidence in the field of medical radiation protection, enabling them to justify medical procedures and to optimise radiation protection to provide better patient care.

### **3.4. The view of European professional societies on radiation protection education and training**

#### **Education and Training in Medical Radiation Protection: The view of the ESR**

Training of Radiology practitioners and of newly formed medical professionals is essential to bring the knowledge and skills into daily practice. The European Training Charter for Clinical Radiology defines the training curriculum of radiologists. The

“Education Committee“ and the “Radiation Protection Subcommittee“ are the bodies of the ESR responsible for education and training in radiation protection.

- ESR, as a European specialists’ society centred around imaging, is well aware of the importance of education and training in radiation protection.
- ESR has built a spectrum of teaching and learning tools/suggestions available to EU practitioners.
- ESR recognises the need for practical on-site training in institutes and hospitals.
- Radiation protection education and training is a life-long activity.
- ESR is ready to cooperate with its Radiation Protection Partners; in this context it refers to the European Board of Radiology founded in Spain that might serve as a nucleus for a European body for accreditation in medical radiation protection.

### **Education and Training in Radiation protection for medical Professionals – The view of the EFRS**

- In several European projects high-quality reference standards and good practice for education and training in radiation protection already have been developed. The difference with the MEDRAPET project is that the standard sets of competences for minimum RP training at various levels and the required CPD will be based on the results from a broad survey among stakeholders and will be tailored to the various different groups of medical staff working with ionising radiation.
- The European Qualification Framework is used for the harmonisation and a better understanding of levels, definitions and descriptors.
- To improve radiation protection in general there should not only be a good EU education guidelines but other factors should also be considered, like staffing levels and possibilities of the stakeholders to invest money and manpower to improve the professional competences and herewith the safety of patients and staff.
- Clinical audit, conducted in a correct and professional way is a powerful tool to improve patient safety and patient care. High priority should be given to the implementation of clinical audit throughout Europe as an instrument for professional quality improvement. It will serve to safeguard and control the minimum standards of education, training and the use of the European Guidelines regarding radiation protection.

### **Education and Training in Radiation Protection for Medical Professionals. The View of Cardiovascular and Interventional Radiological Society of Europe (CIRSE)**

Training interventional radiologists in the present era is a very complex process. The required knowledge for providing high quality care is increasing continuously. Knowledge on medical radiation protection is necessary to ensure the highest quality training of IRs and other interventionalists and healthcare staff. CIRSE could implement a specific level of training in radiation protection, when new x-ray systems or techniques are implemented in an interventional radiology centre. Continued collaboration between CIRSE and other societies focused on interventional procedures is critical to the mission of training competent interventional

specialists on radiation protection issues. An important challenge for CIRSE is to train Interventional Radiologists and other interventionalists to counsel patients undergoing difficult procedures on the radiation risks, and to clinically follow patients in whom the associated radiation doses may lead to injury either deterministic or stochastic. In addition the patient's personal physician should be informed by the interventionalist when there is a possibility of radiation effects. CIRSE has increased responsibility for the education and training of Interventional Radiology medical and non-medical staff in radiation protection, as this need is now even more compelling than in the past.



## **ESTRO perspective on education and training in radiation protection**

ESTRO is a scientific and educational society that aims at developing and promoting standards in clinical radiation therapy of cancer as well as in education and training of radiation oncologists, medical physicists and radiation therapy technologists in Europe. With respect to the radiation protection of the patient the intention is to reduce the dose to the healthy tissue and therefore an important aspect is radiobiology. ESTRO has developed educational guidelines to ensure sufficient knowledge and skill accommodating the requirements also with respect to radiation protection. A new core curriculum was published recently that focuses on the competences rather than a traditional academic curriculum and has been developed by a group representing broad radiation oncology communities in Europe and has been adopted by national societies and the UEMS-Radiation oncology board.

### **Education and Training in Radiation Protection for Medical Professionals – The View of EANM**

The goal of the EANM is to provide a suitable medium for the dissemination and discussion of the latest results in the field of nuclear medicine and related subjects, among them radiation protection is included. While radiation protection issues have always been an integral part of EANM courses, there is not yet a dedicated education or training in radiation protection through the European School of Nuclear Medicine (ESNM). Likely reasons for this are a) the lack of a common European syllabus or curriculum due to the differing regulatory and organisational frameworks of radiation protection in the countries involved, and b) the necessity of a controlled area environment for any practical training involving unsealed radioactive substances. Radiation protection issues within EANM are the mandate of its Physics, Dosimetry and Technologist Committees. The Guidance Document being developed as work package 3 of the MEDRAPET project is expected to be used as the basis for curricula of radiation protection courses organised under the ESNM umbrella.

### **Education and Training in Radiation Protection for Medical Professionals – The View of EFOMP**

Within EFOMP's Education and Training Committee there are two Special Interest Groups (SIGs), one researches curriculum development for Medical Physicists and Medical Physics Experts, whilst the other researches curriculum development in Biomedical Physics for the medical, dental and healthcare professions. EFOMP also collaborates with other European and International organisations for the organisation of conferences, courses, seminars and workshops on various aspects of Medical Physics where radiation protection of the patient and the staff associated with the use of ionising radiation is always a key element. Together with the European Scientific Institute and CERN, EFOMP runs an annual European School of Medical Physics aimed primarily at the younger medical physicists. The school consists of 6 weeks of lectures of which EFOMP has recently introduced a week on radiation protection, underlying its commitment to this area.

Radiation protection has always been part of the remit of medical physicists and the EFOMP's view is that one of its main tasks with respect to the education and training of medical and healthcare professionals is in the area of the effective use of medical devices and protection from associated physical agents, ionising radiation being the

physical agent of greatest importance. EFOMP together with ESTRO, ESR and EANM have developed curricula for the Medical Physicist working in Radiotherapy, Radiology and Nuclear Medicine with radiation protection being a core element in all three of them.

### **3.5. The role of national and international organisations in radiation protection education and training**

The WHO Global Initiative on radiation safety in health care settings (GI) advocates the inclusion of radiation protection contents in the education of health professionals. The BSS developed by the IAEA in cooperation with and sponsorship by a number of international organisations and endorsed by its Member States includes specific requirements on training. The IAEA conducts large number of training courses and the training material is available for free download from <http://rpop.iaea.org>. The International Commission on Radiological Protection (ICRP) publishes recommendations and reports on important medical radiation protection topics, including publication 113 on 'Education and training in radiological protection for diagnostic and interventional procedures'. The HERCA engages in stakeholder involvement on training for radiation protection issues with professional organisations by a) enhancing the exchange of information on best available radiation protection practices and scientific knowledge and b) co-ordinating national and international efforts under the umbrella of HERCA to maximize impact in stakeholder involvement.

National organisations may play an important role in radiation protection education and training. Thus, at national level and in the particular field of medical exposures, the Greek Atomic Energy Commission (GAEC) is a participant and an important contributor to the Inter-University Post-Graduate Programme on Medical Radiation Physics. Recently, GAEC organised and accomplished a nation-wide education and training project, dealing with three days courses on radiation protection in medicine, addressed to medical radiological technologists, which was implemented in collaboration with academic institutions and locally with the Medical Physics Departments of Universities and major General Hospitals. Since 2003, GAEC is the IAEA's Regional Training Centre for the European Region in the English language, and through IAEA TC Programmes, organizes and hosts in Athens the 22 weeks Postgraduate Educational Course on "Radiation Protection and the Safety of Radiation Sources", based on the relevant IAEA's Standard Syllabus.

### **3.6. Radiation protection education and training projects and activities in Europe**

The European Commission has launched a number of projects focused on radiation protection education and training. Besides MEDRAPET, the

- EUTERP Foundation (European Training and Education in Radiation Protection),
- Medical Physics Experts Project,
- EMAN (Medical ALARA Network),

are all intended to support implementation of the BSS requirements on RP education and training. In addition, there are a number of FP7 research projects in the area of RP education and training are ENETRAP II, ENEN III, PETRUS II, TRASNUSAFE some of them also related to medical radiation protection.

Several tools have been developed within the ORAMED project (Optimization of RAdiation protection for MEDical staff) for training purposes. A dose estimation tool has been developed to estimate the expected doses and their distribution across the hands. Furthermore, a radiation protection training course has been conceived for Nuclear Medicine trainees to teach the bases of radiation protection. A video, showing the good practices during manipulations has also been created. Several comments were made from the workshop audience, most of them stressing the great importance of the CPD programmes in radiation protection to maintain and harmonise professional awareness and behaviour.

#### **4. Workshop Conclusions and Recommendations**

4.1. Education and training in medical radiation protection is of crucial importance for all health professions working with ionising radiation. High-standard training courses harmonized at EU level are a key prerequisite to ensure excellence in radiation safety and to implement strategies for dose optimization in medicine.

4.2. Interventional radiologists receive basic-level training in their basic radiology training and acquire the advanced level during the remainder of their specialist training in interventional radiology. Interventional cardiologists, vascular surgeons and other non-radiological interventionalists lack curricula and dedicated training in radiation protection for fluoroscopically-guided endovascular interventions. These physicians require both basic and advanced-level training. Continuous professional development courses should be provided for all health professions working with ionising radiation, especially for those involved in fluoroscopically-guided procedures.

4.3. The extensive use of fluoroscopy outside the radiology departments has created newer audience of medical specialists that includes interventional cardiologists, electro physiologists, vascular surgeons, urologists, orthopaedic surgeons, gastroenterologists, gynaecologists and anaesthetists involved in pain management. For these professionals, the conventional training approach, which puts an emphasis on theoretical aspects of radiation protection, such as atomic structure and interaction of radiation with matter may not be suitable. For this 'new audience', practical aspects of radiation protection should have a priority and training programmes should focus on the achievement of skills.

4.4. Education and training in radiation protection is of crucial importance for justification and effective dose optimization in radiology, nuclear medicine and radiotherapy. New modalities such as state-of-the-art MDCT and PET-CT have increased the necessity for a greater awareness of radiation protection in medical imaging. Dentists perform a wide range of X-ray based imaging examinations and for this reason, they must be well-educated and adequately trained in radiation protection. Education and training requirements for medical physicists should include a high level of knowledge, skills and competence in radiation protection because of the relatively high level of responsibility of medical physicists with respect to radiation protection. Permanent CPD courses on radiation protection for radiographers are essential due to fast technology development.

4.5. There is a need for implementation of the medical exposure directive's requirements on radiation protection education and training of health professionals in many EU states.

4.6. Universities, training institutions, radiation protection authorities, health authorities, scientific and professional societies, hospitals, educational authorities, international organisations and equipment manufacturers, all have an important role in the promotion, organisation, certification, accreditation, support of the training activities in radiation protection for medical exposures. Cooperation between educational institutions and health authorities is needed to include radiation protection in the curricula of health professional schools. Cooperation among educational institutions, scientific societies and hospitals is needed to promote and organize education and training activities. Cooperation between radiation protection authorities and health authorities is needed to enforce radiation protection training and certification. International Organisations have also an important role in this field. They develop education and training material, provide recommendations on the content of training and also have an important role in networking. Equipment manufacturers can provide training material and training. Their role is important because they can provide specialized knowledge on application of dose-reduction technology, for example CT manufacturers can provide training material and training on the proper use of automatic exposure control systems. There is an urgent need to build a bridge between these institutions, authorities and organisations in order to achieve the goals of EU directives concerning medical exposure.

4.7. Professional societies recognise the need for education in radiation protection and the importance of practical on-site training in institutes and hospitals. All professional societies have some kind of radiation protection education and training programme. However, the majority of educational activities are carried out at undergraduate level or during residency. An effort should be made to increase/implement CPD courses in radiation protection education and training for all health professions using ionising radiation.

4.8. A European body for accreditation in medical radiation protection is needed to promote radiation protection by evaluating and accrediting graduate, residency and CPD courses focused on medical radiation protection.

4.9 The professional organisations represented in the MEDRAPET consortium recognise the need for sustained collaboration in the field of radiation protection education and training of health professions. The consortium intends to continue exchange and collaboration in the education and training field also after project end in the form of a multidisciplinary working party.

## 5. References

1. MEDRAPET. European Workshop on Education and Training in Medical Radiation Protection, Athens, Greece 21-23, 2012. Book of abstracts and meeting guide, 2012.
2. Christofides S. European Workshop on Education and Training in Medical Radiation Protection, Athens, Greece 21-23, 2012. 'Summary of Presentations' report, 2012.
3. Damilakis J. European Workshop on Education and Training in Medical Radiation Protection, Athens, Greece 21-23, 2012. 'Summary of Presentations' report, 2012.
4. Eschner W. European Workshop on Education and Training in Medical Radiation Protection, Athens, Greece 21-23, 2012. 'Summary of Presentations' report, 2012.
5. Hierath M. European Workshop on Education and Training in Medical Radiation Protection, Athens, Greece 21-23, 2012. Report on 'Panel discussion'
6. Paulo G. European Workshop on Education and Training in Medical Radiation Protection, Athens, Greece 21-23, 2012. 'Summary of Presentations' report, 2012.
7. Tsetis D. European Workshop on Education and Training in Medical Radiation Protection, Athens, Greece 21-23, 2012. 'Summary of Presentations' report, 2012.

## 6. Annex 1

### WORKSHOP PROGRAMME

#### **ROUND TABLE 1: MEDRAPET Project Presentation**

Moderators: *M. Rehani, M. Perez*

- 13:00-13:20** Welcome - Overview of the MEDRAPET Project  
*John Damilakis*
- 13:20-13:40** Is a European Guidance on Radiation Protection Education and Training of medical professionals important for EU member states?  
*Remigiusz Baranczyk*
- 13:40-14:00** WP1: EU Study on Radiation Protection Education and Training  
*Graciano Paulo*
- 14:00-14:20** WP3: European Guidance on Radiation Protection Education and Training  
*Stelios Christofides*
- 14:20-14:30** Discussion

#### **ROUND TABLE 2: Current Status in Radiation Protection Education and Training of Medical Professionals in Europe. Results of MEDRAPET Project**

Moderators: *Dag Rune Olsen, Dimitrios Tsetis*

- 14:30-15:00** The EU-wide survey: Methodology and Results  
*Graciano Paulo*
- 15:00-15:30** European Guidelines on Education and Training in Radiation Protection for Medical Exposures: Do they Need an Update?  
*Stelios Christofides*
- 15:30-16:00** Discussion
- 16:00-16:30** *Coffee Break*
- 16:30-17:00** Training in Radiation Protection for Nuclear Medicine: The Experience from the ORAMED project  
Moderator: *Wolfgang Eschner*, Speaker: *Marta Sans Merce*
- 17:00-17:30** Training Methods for Newer Audience of Medical Practitioners  
Moderator: *John Damilakis*, Speaker: *Madan Rehani*
- 17:30-18:00** Radiographers and Radiation Protection: Education, Training and CPD  
Moderator: *Michalis Mazonakis*, Speaker: *Luis Lanca*

**DAY 2 Sunday, APRIL 22**

**ROUND TABLE 3: Education and Training in Radiation Protection for Professionals Involved Directly with the Use of Radiation. The view of experts**

Moderators: *Rita Bly, Peter Sharp*

- 09:00-09:20** Radiology  
*Erich Sorantin*
- 09:20-09:40** Radiation Oncology  
*Edwin Arid*
- 09:40-10:00** Dentistry  
*Konstantinos Tsiklakis*
- 10:00-10:20** Vascular Surgery  
*Christos Liapis*
- 10:20-10:45** Discussion
- 10:45-11:15** Accreditation and Certification of the Training in Radiation Protection: Needs, Opportunities and Difficulties  
Moderator: *Peter Vock, Speaker: John Damilakis*
- 11:15-11:45** *Coffee Break*

**ROUND TABLE 4: The role of International and National Organizations in Medical Radiation Protection Education and Training**

Moderators: *Carmel Caruana, Sija Geers*

- 11:45-12:05** WHO  
*Maria Perez*
- 12:05-12:25** IAEA  
*Madan Rehani*
- 12:25-12:45** HERCA  
*Rita Bly*
- 12:45-13:05** GAEC  
*Titika Kamenopoulou*
- 13:05-13:30** Discussion
- 13:30-14:30** *Lunch*
- 14:30-14:45** Radiation Protection Education and Training Projects and activities in Europe

Moderator: *S. Efstathopoulos*, Speaker: *Annemarie Schmitt-Hannig*

**14:45-16:00** Oral Presentations

Moderators: *John Damilakis*, *Erich Sorantin*

**16:00-16:30** Training in Radiation Protection for Interventionalists

Moderator: *Kostas Perisinakis*, Speaker: *Jost Philipp Schaefer*

**16:30-17:00** *Coffee Break*

**17:00-17:30** Competence Requirements in Radiation Protection of Medical Physicists

Moderator: *Panayiotis Dimitriou*, Speaker: *Carmel Caruana*

**17:30-18:00** Medical Education and Training in Radiation Protection in Greece: Current Situation and Perspectives

Moderator: *Thomas Maris*, Speaker: *Panayiotis Dimitriou*

### **DAY 3 Monday, APRIL 23**

#### **ROUND TABLE 5: Education and Training in Radiation Protection for Medical Professionals. The View of European Societies**

Moderators : *Stelios Christofides*, *Graciano Paulo*

**09:00-09:20** ESR

*Peter Vock*

**09:20-09:40** EFRS

*Sija Geers*

**09:40-10:00** CIRSE

*Dimitrios Tsetis*

**10:00-10:20** ESTRO

*Dag Rune Olsen*

**10:20-10:40** EANM

*Wolfgang Eschner*

**10:40-11:00** EFOMP

*Peter Sharp*

**11:00-11:30** *Coffee Break*

**11:30-12:30** **Panel Discussion**

*John Damilakis (coordinator)*

*Remigiusz Baranczyk, Rita Bly, Stelios Christofides, Wolfgang Eschner, Dag Rune Olsen, Graciano Paulo, Maria Perez, Madan Rehani, Dimitrios Tsetis*



**Annex 2 – Photo documentation**



John Damilakis (ESR), Scientific Coordinator and WP 2 leader



Graciano Paulo (EFRS), WP 1 leader



Stelios Christofides (EFOMP), WP 3 leader



MEDRAPET Panel discussion



MEDRAPET Steering Committee Meeting: (f.l.t.r)  
Dimitrios Tsetis (CIRSE), Wolfgang Eschner (EANM), Annemarie Schmitt-Hannig (BfS), John Damilakis (ESR), Graciano Paulo (EFRS), Madan Rehani (IAEA), Stelios Christofides (EFOMP)