EFOMP presentation to the HERCA multi-stakeholder meeting.

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on behalf of

the EFOMP President, Professor John (Ioannis) Damilakis

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European Federation of Organisations for Medical Physics

Mission

• to harmonize and advance medical physics throughout Europe,

• to strengthen the activities of the National Member Organisations (NMO)
  – bringing about and maintaining systematic exchange of professional and scientific information,
  – the formulation of common policies, and
  – promoting education and training programmes.
Objectives

- coordination activities with NMOs
- collaborating with other international organisations, particularly the IOMP
- disseminating information through publications and meetings
- **encouraging scholarship and the exchange of Medical Physicists between countries**
- **guidelines for education, training and accreditation programmes**
- recommendations on the appropriate responsibilities, organisational relationships and roles of workers in Medical Physics
- encouraging the formation of Organisations for Medical Physics where such organisations do not exist.

Treatment planning audit; comparison of calculated and measured doses
Membership (NMOs)

Austria (AT): Belgium (BE): Bulgaria (BG):
Croatia (HR): Cyprus (CY):
Republic Czech (CZ): Denmark (DK):
Estonia (EE): Finland (FI): France (FR):
Germany (DE): Greece (EL): Hungary (HU):
Ireland (IE): Italy (IT): Latvia (LV):
Lithuania (LT): Macedonia (MK):
Malta (MT): Moldova (MD):
The Netherlands (NL): Norway (NO):
Poland (PL): Portugal (PT): Romania (RO):
Russian Federation (RU): Serbia (RS):
Slovakia (SK): Slovenia (SI): Spain (ES):
Sweden (SE): Switzerland (CH):
Turkey (TR): Ukraine (UA):
United Kingdom (UK)

Company Members
PTW Freiburg
Standard Imaging
IBA Dosimetry
Varian Medical Systems
Elekta

> 7000 physicists and engineers working in European medical physics
Feedback on HERCA position paper

The process of CT dose optimisation through education and training and role of CT Manufacturers

October 2014
Positive response 1

**Stakeholders**

CT Manufacturers
Radiologists and other imaging specialists
CT Technologists
Medical Physicists
Medical administration
Legislators

**Multi-disciplinary team**
Comment 1

Legislative improvements

Assuring the implementation of the COUNCIL DIRECTIVE 2013/59/EURATOM

• incorporating E&T requirements for all disciplines
• requiring medical administrators to provide support for this – time and finance

Multi-disciplinary team
Positive response 2

The CT manufacturers

• implementation of dose reduction measures in CT
• implementation of dose management and reporting tools
• provision of specific training curricula
Comment 2

The CT manufacturers
“standardised benchmarking of CT systems” - characterising the dose efficiency related to image quality
? progress and retrospective application
The clinical team

The radiologists and other imaging specialists need to work together as a team in the process of optimisation with the medical physicists and the CT technologists as they need to define the diagnostic quality of the CT images that they require, in order to carry out their diagnosis.
Comment 3

The clinical team

Regular review of protocols by the team and the audit process

- raising awareness
- constant improvement
- patient dose reduction
Team approach

Medical Physicists together with the CT technologists are responsible for the:

• Quality assurance of the CT scanners
• Dose optimisation of the CT protocols
• Patient dose measurements
• Establishment of Diagnostic Reference Levels (DRLs)
• Investigation of events where a patient receives a dose which is higher than a defined level
Team approach
Radiation Safety Culture
Investigation of “events”

- Recording/analysis
  - Blame-free situation
  - Open discussion
  - National databases
  - OTHEA/RELIR

http://relir.cepn.asso.fr
Previous actions of the EFOMP

2012

Presentation to MEPs included highlighting responsibilities in radiology safety
Previous actions of the EFOMP

2013 -
EFOMP CT working group set up in December 2013

Unification of quality controls in CBCT and CT

- to develop a practical, unifying protocol for image quality control (and dose) of both CBCT and conventional CT
- using contrast: noise ratio and Fourier measures

Progress

8th draft protocol for CBCT - in discussion

- Image quality factors
- Phantoms
- Software
- Dosimetry
Previous actions of the EFOMP

2014 -

• Support for ESR’s EuroSafe Imaging (ESI) campaign

• President of EFOMP on the Steering Committee
Previous actions of the EFOMP

2014

• Poster on ‘current safety practices in paediatric CT and radiation protection initiatives’ (John Damilakis) under ESI during ECR 2014
Previous actions of the EFOMP

2010 to 2014

Partner in the MEDRAPET Project

- Medical Radiation Protection Education and Training
  A study on the implementation of the Medical Exposure Directive’s requirements within the European Union

- Publication of RADIATION PROTECTION NO 175 (2014)

GUIDELINES ON RADIATION PROTECTION EDUCATION AND TRAINING OF MEDICAL PROFESSIONALS IN THE EUROPEAN UNION
Previous actions of the EFOMP

2010 to 2014
Partner in the MPE Project

- Medical Physics Expert Education and Training
- Guidelines on the appointment of the MPE within the European Union
- Publication of RADIATION PROTECTION NO 174 (2014)

MPE guidelines
- requirements in terms of radiation protection knowledge, skills and competences
- for the medical physicist working with ionizing radiation

EUROPEAN GUIDELINES ON MEDICAL PHYSICS EXPERT
Previous actions of the EFOMP

2015

• Poster on ‘how to measure CT dose’ (John Damilakis) for ESI during ECR 2015
Previous actions of the EFOMP

Annual seminars & conferences

• On-line availability of invited lectures

• European schools for MPE training programmes

• e.g. in Diagnostic and Interventional Radiology

EFOMP School for Medical Physics Experts (2013)
Clinical Medical Device Management: Specification, acceptance testing, commissioning, QC and advanced applications in whole-body PET/CT
Current actions of the EFOMP

Partners in other European Projects - 1

‘European Diagnostic Reference Levels for Paediatric Imaging’

• to provide European DRLs for children
• to promote the use of these DRLs to advance optimization of radiation protection of paediatric patients
• **focus on CT**, interventional procedures using fluoroscopy and digital radiographic imaging.

PiDRL - ESR is the coordinator

• The duration of the project is 27 months and the kick off meeting January 2014.
• Prof. John Damilakis took over as the Scientific coordinator in March 2014
Current actions of the EFOMP

Partners in other European Projects - 2

‘European Training and Education for Medical Physics Experts in Radiology’
• network of excellent teaching centres
• the best possible training opportunities for European medical physicists to become MPEs working in diagnostic and interventional radiology
• twelve modules have been selected, each addressing one specific theme
• Module 1: 33 whole-time participants from 24 countries

EUTEMPE-RX www.eutempe-rx.eu (2013)
• EFOMP is the main contributor
Current actions of the EFOMP

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- EFOMP is the main contributor
- Module 08: Role of the medical physicist in CT imaging and patient dose optimization: CT imaging and patient dose optimized with objective means
- March 2016 in Italy – Professor Francis Verdun (Switzerland)
  - (Lectures), demonstrations, exercises, discussions, hands-on workshops, practical sessions, etc.
  - Evaluation
  - Review of the course
  - ≈ 40 hours of active participation over 5 days on location
Continuing actions of the EFOMP

The European Medical ALARA Network (2010-2012) – to continue

- EMAN focused on justification and optimization of pediatric examinations
- Practical approaches to pediatric CT are discussed in the ‘WG 1: Optimisation of Patient Exposure in CT Procedures – Synthesis Document’ on the EMAN website
- To maintain the network, the societies involved signed a letter of intent to continue collaboration after 2012
Continuing actions of the EFOMP

MEDRAPET – to continue

MEDRAPET outcome (2012)

• basis for the revision of the EC Radiation Protection 116 Guidelines

• learning objectives specified in the MEDRAPET guidelines include the necessary KSC for pediatric examinations

• a permanent multi-disciplinary working party created to maintain these European guidelines on education and training in RP for medical exposures
Continuing actions of the EFOMP

With other European Societies

Memoranda of Agreement with subject specific societies

• ESTRO
• EANM
• ESR

to work together in a spirit of mutual cooperation
Future actions of the EFOMP

EFOMP could

• provide a course on ‘CT dose optimization’ through the ‘EFOMP School for Medical Physics Experts’
• consider the continuation of EUTEMPE.RX through self-funding to expand the number of trained MPEs for radiology in Europe
Future actions of the EFOMP

**EFOMP could**

- consider developing an e-learning platform to provide on-line material that meets different levels of professional knowledge and interests, with flexibility to join discussion fora
- CT dose optimization should be part of the educational material

Example of an e-learning platform:
Future actions of the EFOMP

EFOMP could

- enrich the content and expand the EFOMP website
- provide a public-only section with material for patients
- create a leaflet for patients and their relatives on ‘doses and risks from CT’
- create a leaflet on the role of MPs on CT dose optimization to raise awareness of professional involvement
Future actions of the EFOMP

In summary EFOMP will

• ensure that NMOs are made aware of the existence of the tools for CT dose reduction, management and reporting
• ensure that training for medical physicists on the use of these tools is available
• encourage use of these tools in daily practice