Effective engagement of the CT department personnel of a public hospital in the implementation of the optimization principle

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2nd IRPA workshop on reasonableness in the implementation of the ALARA principle, 23-24.10.2018, Paris, France
All doses for medical purposes except for radiotherapeutic procedures shall be kept as low as reasonably achievable consistent with obtaining the required diagnostic information, taking into account economic and social factors.
 Persons involved in radiological procedures must have knowledge on RP (theoretical and practical training);

- Verification of competence on RP;
- Provisions for QE—Recognition requirements;
- Certification of competency on RP;
- Recognition of syllabi on RP;
COUNCIL DIRECTIVE 2013/59/EURATOM

• Enhanced education, training and re-training requirements on radiation protection;

• Need for establishment of appropriate recognition and approval mechanisms;

• Increased requirements regarding the optimization of medical exposures;

• Active engagement of the personnel in the implementation of the optimization principle;

• Safety culture;
EXAMPLE – CT DEPARTMENT

KONSTANTOPOULIO HOSPITAL
Two multislice CT systems;

16,000 CT examinations annually

Many special examinations (CT coronography, pyelography, etc.);

Advanced capabilities for image processing (Virtual imaging, angiography, coronography, pyelography, liver volumetry, etc.);

Digital patient archive system: Data processing & statistical analysis software, PACS;
QUALITY MANAGEMENT SYSTEM

- Implementation of a QM system according to ISO 9001:2015 and ISO/IEC 17025:2017 standards;
- The department is accredited by the Hellenic Accreditation System (ESYD);
The hospital sets radiation protection as one of its top priorities!
PERSONNEL

- Active participation in the implementation of the QM system for a number of years;
- Interaction, cooperation, collaboration and continuous need for improvement;
- Every day work in line with higher standards of quality and safety;
- Management appreciates the combined work of the staff within the hospital.
**EDUCATION & TRAINING**

- Provision of E&T to:
  - physicians on radiology;
  - radiologists on CT procedures and on non interventional angio-radiology;
  - technologists.

- Hospital’s radiologists participate as lecturers to educational courses organized by the Hellenic Radiology Society, Athens University, etc..
A quality and safety 2 day workshop on interventional gastroenterology with the use of ionizing radiation organized by the hospital in April 2018.

The participants included:
- Radiologists;
- Gastroenterologists;
- Medical Physicists;
- Technologists;
- Surgeons;
- Nurses, etc.;
**RESEARCH ACTIVITIES**

- Significant scientific work on the development of research protocols in cooperation with other departments as well as with other hospitals;
- Virtual reality applications in CT imaging, interventional radiology, development of medical software.

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RESEARCH ACTIVITIES

- Numerous oral and poster presentations in national and international conferences.
- BEST ORAL AWARD during the National Hellenic Radiological Conference in 2015;
- Several publications to peer reviewed medical journals;

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RESEARCH ACTIVITIES

• Letter of appreciation from the MAXIMA Horizon2020 European Project (June 2016).

• A Horizon2020 project for increasing the research and innovation capacity of EU universities in the field of breast cancer modelling - Three dimensional breast cancer models for X-ray Imaging research.
2 staff members were chosen from the ESGE to participate in the development of RP guidelines.


• Chatzoglou V, Molfetas M, Tsapaki V, Nikolopoulos D, Chardali E, Giaka E, Kottou S. CT Examination Data Analysis as an Effective Method to Stimulate Patient Dose Reduction. OMICS J Radiol 2016, V 5: issue 6. DOI: 10.4172/2167-7964.1000237


Tsapaki V, Kottou S, Fotos N, Nikolopoulos D and Patsilinakos S. Interventional Cardiology-Eight Years of Practice: Do Increased Experience and Technological Evolution Lead to Undertaking More Difficult Cases and Higher Patient Doses? OMICS J Radiol, 2017; V 6; issue 1; 1000248. DOI: 10.4172/2167-7964.1000248
• EuroSafe Imaging Stars is an initiative designed to identify and recognize imaging facilities worldwide that embody best practice in radiation protection;

• One of the approximately 80 hospitals in Europe with 5 stars (max number of stars).
MEDICAL PHYSICIST

- Involved in several scientific platforms and fora;
- Creates communication channels among the personnel;
- Supports and triggers a safety culture;
- Supervises the implementation of the radiation protection programme and the QMS;
- Provides training on RP;
- Follows advances in medical applications of ionizing radiation technology and RP;
Radiologists & Technologists

- Aware of RP;
- Effectively contribute to the optimization of medical exposures;
- Continuous supervision of applied protocols;
- Continuous monitoring of patient doses;
- Questioning attitude;
- Openness, transparency;
- Commitment to dose reduction;
GREEK ATOMIC ENERGY COMMISSION (EEAE)

- Regulatory work
- Inspections and licensing of facilities
- Individual monitoring of occupationally exposed workers
- Monitoring of environmental radioactivity levels
- Response to radiation emergencies
- Combating of radioactive materials illicit trafficking
- Calibrations of ionizing radiation instruments
- **Education and training**
- Research and development
- International cooperation
- Public information

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- Public information

- website, social media
- organization of events
- information material
- media relations
- cooperation with stakeholders
- crisis management

transparency/public awareness/dissemination
INTEGRATED MANAGEMENT SYSTEM

ISO 9001

ISO 17025
- individual monitoring of occupationally exposed workers
- gamma spectrometry measurements
- radon measurements
- calibration of ionizing radiation instruments
- non-ionizing radiation measurements

ISO 17020
- inspections body of type A

ISO 29990
- design, development and provision of non-formal education and training in radiation protection and nuclear safety

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STRATEGY

1. Needs Assessment
   - Taking advantage of the information and the data included in the National Radiation Protection Database

2. Design of the national programme
   - Taking into account the existing national capabilities

3. Development and implementation
   - According to the QMS based on ISO 29990:2010 - part of the EEAE’s integrated MS

4. Evaluation
   - Evaluation of each course
   - Evaluation of the programme

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SUPPORTING ACTIONS

• Funded by the “CONCERT-European Joint Programme for the Integration of Radiation Protection Research” under the Horizon 2020;

• Improvement of the governance of radiological risks by strengthening and enhancing stakeholder engagement processes in relation to radiation protection policy and practice;

• Evaluation of the national RP system;

• Establishment and evaluation of indexes regarding RP;

• Education- provision of information for the sensitization of the public on RP issues.
Thank you!

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