OPTIMIZATION IN MEDICAL EXPOSURES

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National legislation

- Radiological and Nuclear Safety Act (2010)
- Article 1
  - This Act establishes measures for safety and protection against ionising radiation and measures for physical protection in performing nuclear activities and practices involving sources of ionising radiation, with the aim of ensuring adequate protection of individuals, society and the environment, in the present and in the future, from harmful effects of ionising radiation, and ensuring the safe performance of practices involving ionising radiation sources, nuclear activities, radioactive waste disposal and the physical protection of ionising radiation sources and nuclear facilities.
National legislation – cont.

• **Article 3**

• For the purposes of this Act, the following definitions apply:

• Medical irradiation is the exposure to ionising radiation of a patient during application of the ionising radiation source for diagnostic or therapeutic purposes.
National legislation – cont.

• Article 6
• (1) The State Office for Radiological and Nuclear Safety, as the state administration body competent for activities relating to protection against ionising radiation and nuclear safety, is hereby established.
• (2) For the purpose of implementing measures for nuclear safety and protection against ionising radiation, the State Office for Radiological and Nuclear Safety shall perform the following tasks:
  • keep records on the licences, approvals, decisions and certificates which it has issued within the scope of its authority, and maintain and supervise records on ionising radiation sources, licensees and licence holders, beneficiaries, exposed workers, level of irradiation of exposed workers as well as the level of irradiation of persons subject to medical exposure and of other persons;
  • provide dosimetric assessments of exposure to ionising radiation of exposed workers, of the population from medical exposure and from exposure to ionising radiation originating from environmental radionuclides;
National legislation – cont.

• **Article 20**
  Measures for protection against ionising radiation must ensure the implementation of the justification, **optimisation** and dose limitation principles.

• **Article 22**
  (1) The principle of optimisation of protection against ionising radiation with regard to practices involving ionising radiation sources or nuclear activities is realised through implementation of protection measures by which the exposure of workers and other persons to ionising radiation from all practices involving ionising radiation sources, nuclear activities and from all sources of ionising radiation is **reduced as much as reasonably possible** within the prescribed limits, taking into account technical, organisational, economic, health and social factors.
National legislation – cont.

• Article 27

• (1) Dose limits specified in this Act shall not apply to medical irradiation.

• (2) The conditions, method and measures for protection of persons exposed to medical irradiation shall be prescribed by an ordinance issued by the director of the State Office for Radiological and Nuclear Safety subject to the approval of the minister competent for health.
National legislation – cont.

• **Article 98**

• (1) A monetary fine in the amount of HRK 50,000.00 to 100,000.00 shall be imposed for a misdemeanour on the legal person who:

• does not undertake all necessary measures in carrying out practices in order to keep the irradiation level of the population in line with the principle of optimisation (Article 22);
National legislation – cont.

- Ordinance on the Conditions for Application of Ionising Radiation Sources in Medicine and Dentistry (2006)
- Article 1
- This Ordinance prescribes the conditions, manner and measures of protecting patients against ionising radiation during their exposure for diagnostic or therapy purposes in medicine and dentistry.
National legislation – cont.

• **Article 2**
• For the purposes of this Ordinance, the following terms shall have the following meanings:
  • *Quality assurance* comprises all planned and systematically conducted activities required to provide a high degree of reliability that the system, its components or the process meet the requirements prescribed by corresponding standards.
  • *Quality control* is an integral part of quality assurance. It is a set of procedures (programming, coordination, implementation) aiming at quality maintaining and improving. Quality control comprises testing, evaluation and maintenance of all verifiable and measurable properties of the system or devices at the prescribed level.
National legislation – cont.

• Article 8
• A medical doctor or dentist of appropriate specialisation, who approves a diagnostic or therapeutic procedure involving the use of ionising radiation sources, shall select the type of the ionising radiation source to be applied, as well as the type of the diagnostic or therapeutic procedure, in which process he/she shall determine:
• b) conditions of procedure implementation, so as to ensure the lowest reasonably achievable irradiation of the patient which will provide diagnostic data of optimal quality, or the intended effects of the treatment.
National legislation – cont.

• Article 13
• (1) A health-service institution, a company conducting health-service activities or a private practitioner applying ionising radiation sources for diagnostic or therapeutic purposes shall establish and maintain a quality assurance programme adapted to the type, diversity and range of procedures carried out there. The purpose of the quality assurance programme is to prevent, discover and correct potential errors in diagnostic or therapeutic procedures.
Past and ongoing projects

- RER/9/093 Strengthening Radiological Protection of Patients and Medical Exposure Control (IAEA TC 2009-2011)
- CRO/6/008 Upgrading the Quality Assurance and Quality Control Programmes in Radiotherapy (IAEA TC 2009-2011)
- Contract ENER/2010/NUCL/S12.581237: Dose Datamed 2
- CRO/6/010 Reinforcing and Further Developing a Quality Assurance/Quality Control Programme in Radiotherapy (IAEA TC 2012-2013)
- Health Protection in Relation to Medical Exposure (EU IPA 2008)
Thank you for your attention

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