

WONCA Working Party on the Environment



Justification and appropriateness in radiological diagnostics

Recognizing that the advances in imaging technology have contributed to improve patient care;

Acknowledging the significant increase in the use of radiation for diagnostic purposes worldwide;

Concerned about the need for preventing the risks of unnecessary exposure due to inappropriate or excessive investigations, particularly in children;

Recalling the International Basic Safety Standards (BSS, 2014) that require ensuring justification of medical exposures;

WONCA resolves to:

- raise awareness of the importance of appropriate referral for radiological examinations;
- cooperate with other stakeholders to define responsibilities and procedures to make the justification process clear and traceable;
- take part in interdisciplinary panels, to set or adapt Clinical Imaging Guidelines (CIG) at international and local level;
- promote an effective strategy for implementing the CIG in Clinical Decision Support (CDS) systems and including CDS in the databases used by family doctors;
- spread the radiation protection culture among family doctors and all healthcare professionals;
- ask to include information about the patient dose in every report of radiological examinations as well as in the discharge letters from hospitals.

WONCA is committed to working with the World Health Organization (WHO), International Atomic Energy Agency (IAEA) and other international organizations to enhance appropriateness of radiological examinations.

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On behalf of the WONCA Working Party on the Environment

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Appendix

The radiation exposure associated with radiological diagnostics may produce random (Stochastic) effects by genetic modification of cells. After a long latency period (several years to decades) this may cause disease, in particular, solid cancers and leukaemia¹. The cancer risk after radiation exposure increases with the rise in the dose, but the severity of the effects is independent of the absorbed dose. For this reason, it is important, both for the individual patient and the whole population, to avoid unnecessary exposure to radiation. The two pillars of radiation protection in medicine are the justification of procedures and the optimization of protection, to manage the radiation dose commensurate with the medical purpose. The principle of 'justification' has been reaffirmed in the new International Basic Safety Standards (BSS) adopted by eight international organizations, in 2014.

*"Medical exposures shall be justified by weighing the diagnostic or therapeutic benefits that they are expected to yield against the radiation detriment that they might cause, with account taken of the benefits and the risks of available alternative techniques that do not involve medical exposure"*².

As many as 20 million adult CT scans and more than one million paediatric CT scans are unnecessarily performed in the US every year³ and several studies suggest that from 20 to 50% of imaging examinations are considered inappropriate. Some studies carried out in different countries show that many doctors and health professionals are not effectively informed about the radiation dose of the most common diagnostic and interventional procedures and have a low awareness of radiation protection issues.

According to the BSS, referrers have as much responsibility to justify the process, as do radiological practitioners. Family doctors are in a strategic position regarding prevention of radiation risks⁴. They have an ongoing relationship with patients. As well as their well-documented role in prevention and curative care, they also play an advocacy role in protecting patients from the harm which may ensue from unnecessary screening, and they have a specific responsibility for the health of communities.

Family doctors can improve appropriate use of diagnostic imaging by:

- sharing local guidelines with specialists and health authorities (risk management)
- assessing the individual benefit / risk balance of each patient (risk assessment)
- informing patients on the general risk and their individual risk/benefit balance (risk communication)
- involving the patient in the decision-making process (risk sharing).

¹ Goodhead DT. Understanding and characterisation of the risks to human health from exposure to low levels of radiation. *Radiat Prot Dosimetry*. 2009;137:109-17.

² IAEA Safety Standards. Radiation Protection and Safety of Radiation Sources: International Basic Safety Standards. GSR Part 3; http://www-pub.iaea.org/MTCD/Publications/PDF/Pub1578_web-57265295.pdf

³ Brenner DJ, Hall EJ. Computed tomography: an increasing source of radiation exposure. *NEJM* 2007;357:2277-84

⁴ Mola E, Visentin G, Radiation risks and Family Medicine, *Eur J Gen Pract*. 2011 Sep;17(3):190-2