EURADOS Working Group 7
Internal Dosimetry

Motivation
The Internal Dosimetry community dealing with occupational exposures is currently focused on:

- The harmonization of methods and tools to obtain the “best estimate” of the intake and dose due to the incorporation of radionuclides into the body (ICRP, IDEAS Guidelines);
- Networking and coordination of research to promote collaboration of internal dosimetry experts, laboratories and services;
- Normalization for the establishment of Standards for appropriate quality assurance programs that guarantee reliability of the results of monitoring and dose E(50) and permit accreditation of internal dosimetry laboratories and
- Dissemination of knowledge, education and training.

Aims
Working Group 7 (WG7) within EURADOS acts as a network of scientists, services, regulators and laboratories collaborating for the coordination of research and the dissemination of knowledge for the assessment of doses due to intakes of radionuclides. EURADOS WG7 “Internal Dosimetry” program of work (2018-2020) is presented as follows:

- Harmonization on internal dose assessments, intercomparison exercises with case studies
- Implementation & quality assurance of reference biokinetic models
- Application of Monte Carlo (MC) methods and voxel phantoms to in-vivo monitoring (collaboration with WG6 “Computational Dosimetry”).
- Individual monitoring of internal exposures for Emergency scenarios
- Uncertainties on internal dose assessments, Accuracy Requirements
- Education and training on internal dosimetry
- Internal Microdosimetry (collaboration with WG6 “Computational Dosimetry”).
- Study of biological dosimetry vs. internal dosimetry in cases of accidental internal exposures (collaboration with WG10 “Retrospective Dosimetry”).

Actions
Completed
- ICIDOSE 2017: Intercomparison on internal dose assessment (2017-2018) (Task 7.1)
EURADOS Survey of individual monitoring data and dose assessments of foreigners exposed in Japan due to the Fukushima Daiichi NPP accident (Task 7.4).

EURADOS Intercomparison on Lifetime Dose Assessment (Task 7.5)

EURADOS Training Course on the Application of Voxel Models for dosimetry of ionizing radiation (Collaboration with WG6) – March 2018 at KIT, Karlsruhe (Task 7.6)

Study of biological dosimetry vs. internal dosimetry in cases of accidental internal exposures (collaboration with WG10 “Retrospective Dosimetry”, Task 7.8).

Review on Internal Microdosimetry of Alpha-Emitting Radionuclides (Task 7.7)

Ongoing and planned

- Update of IDEAS Database of Cases, Organisation of Intercomparison in internal Dose assessment (Task 7.1)
- Guidance for the application of ICRP/OIR biokinetic models. EURADOS Report (Task 7.2)
- Towards a DTPA Therapy model (Task 7.2/Task 7.3)
- Monte Carlo (MC) applications to in-vivo measurements of radionuclides (Task 7.4+WG6)
- In-vivo monitoring and calibration phantom intercomparisons (Task 7.4)
- Uncertainty Studies on Internal Dose Assessments (Task 7.5).
- Training Course on Technical Recommendations for Monitoring Individuals for Occupational Intakes of Radionuclides. (Task 7.6).
- Internal Microdosimetry (Task 7.7).
- Biodosimetry vs. Internal Dosimetry in case of accidental internal exposures (Task 7.8 + WG10).

Contact

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Publications - Dissemination of knowledge


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Special Issue on "Internal Dosimetry for Radiation Protection and Medicine" - 10thEURADOS Winter School “Internal dosimetry for radiation protection and medicine” 2ndMarch 2017- EURADOS Annual Meeting AM2017. TullaHörsaal KIT Campus Süd.(Karslruhe, Germany). Radiation Measurements Journal Volume 115, 2018


Microdosimetry and nanodosimetry for internal emitters. Li, W., Hofmann, W., Friedland, W. Pages 29-42.

Internal dose assessments – Concepts, models and uncertainties. Breustedt, B., Giussani, A., Noßke, D. Pages 49-54

Recommendations and standards for monitoring individuals for occupational intakes of radionuclides. Bingham, D., Etherington, G. Pages 69-76


Counting Am-241 in the BfS skull phantom on contact – evaluation in the Human Monitoring Laboratory. Chunsheng Li, Barry Hauck, Kevin Capello, Pedro Nogueira, Maria Lopez, Gary Kramer. Health Physics 2015


**Additional information**

WG07_Progress_Report