

ISEMIR – IC

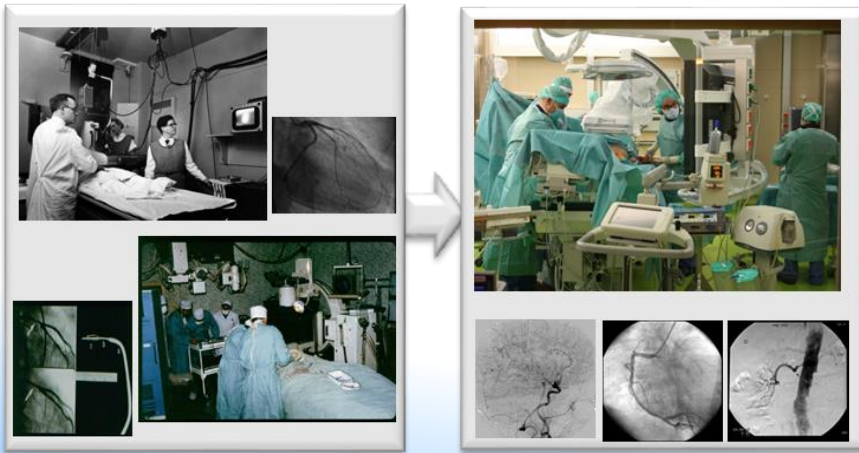
A tool for Interventional cardiology facilities

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Why focus on interventional cardiology?

- Intensive use of fluoroscopy image guided interventional procedures in cardiology due to the significant improvement of medical technology
- Complex and prolonged procedures; high image quality required
- Cardiology team works close to patient
- Documented higher doses to cardiologists
- Eye lens opacities detected among cardiology staff (e.g. through the IAEA [RELID study](#))



Unresolved issues:

- Irregular or no use of protective screens
- Irregular or no use of protective eye glasses
- Individual dose monitoring insufficient
- Radiation protection training insufficient

Worldwide survey of occupational radiation protection in IC (2010 – 2011)

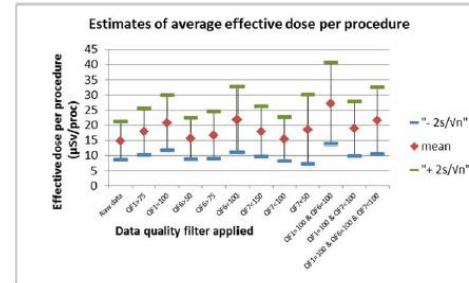
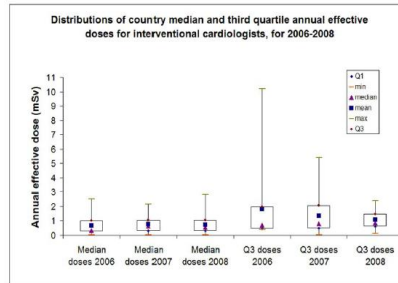
IAEA TECDOC SERIES

IAEA-TECDOC-1735

The Information System
on Occupational Exposure
in Medicine, Industry
and Research (ISEMIR):
Interventional Cardiology



- 26 responses from IC facilities from 16 countries
- Data for individual IC personnel from:
 - 347 interventional cardiologists, 49 electrophysiologists, and 18 ‘other’ physicians; 438 nurses and technicians



~ 8% of the cardiologists would have exceeded the new dose limit of 20 mSv for the eye lens

- Many of the data were of poor quality, with significant number of missing data or reported zero doses.
- Compliance with monitoring continues to be an issue

ISEMIR-IC

- An ISEMIR module for data collection and analysis of occupational doses in interventional cardiology (IC)
- **Objective:** Assists IC facilities in benchmarking their arrangements in radiation protection and safety, and hence in promoting of, implementation of optimization of occupational radiation protection.
- The system with full functionalities has been **launched in June 2017**



Objectives of ISEMIR-IC

- To facilitate the implementation of ALARA practices and effective exposure management
- To provide efficient collection, maintenance of data on occupational exposure and radiation practices
- To allow IC facilities to benchmark their own facility and individual operators' performances against global data
- To define follow-up actions to address identified gaps and disseminate lessons learnt



Who can participate?

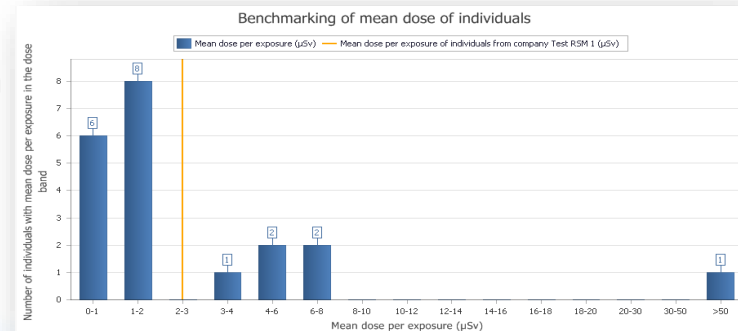
- Primary for end users from medical facilities carrying out interventional cardiology procedures
- Each IC facility needs a registered Facility Coordinator (FC) - typically their RPO, or medical physicist.



<https://nucleus.iaea.org/ISEMIR/IC>

Data entry

- Reporting is done **annually**
- Data is **confidential** and **anonymous**
- 2 datasets: **Facility and individual attributes**
 - Annual information about facility: annual number of procedures performed, number of catheterization laboratories, the X ray equipment used, typical patient doses for given procedures, X ray equipment performance data (dose rates), data on the personal dosimetry provider, and individual personnel working in the facility.
- Outcome of the data entry:
 - IC facility can review its assessment of the effectiveness of the optimization of radiation protection.
 - The metric is determined by occupational dose per procedure.
 - Three broad types of analyses:
 - Occupational doses per procedure as a function of personnel and facility attributes;
 - Benchmarking
 - Trends with time.



Future of ISEMIR-IC

- The success of the ISEMIR-IC international database depends strongly on the participation of sufficient numbers of IC facilities and hence all IC facilities around the world are encouraged to register and participate
- Possible linking ISEMIR-IC to SAFRAD (Safety in Radiological Procedures) database and their parallel development and promotion
- Help us promote ISEMIR-IC through your networks!

<http://nucleus.iaea.org/isemir>
ISEMIR-IC.Contact-Point@iaea.org

Thank you!