



Joint IAEA–Argonne National Laboratory International Workshop on Radiation Protection Optimization in Fluoroscopy Guided Interventional Procedures

Hosted by the

Government of the United States of America

through the

Argonne National Laboratory

Lemont, IL, United States of America

2 - 6 June 2025

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Information Sheet

Introduction

Fluoroscopically guided interventional (FGI) procedures provide an excellent alternative to many surgical interventions. While traditionally performed by interventional radiologists and cardiologists, these procedures are increasingly being carried out by physicians from a range of other medical and surgical specialties, such as neurosurgeons, vascular surgeons, orthopedic surgeons, urologists, and gastroenterologists. Additionally, other healthcare staff, including nurses and anesthesiologists, participate in these procedures. However, many of these professionals may have limited or no training in radiation technology and radiation protection and safety. The expanding variety, frequency and complexity of these procedures, combined with the involvement of personnel lacking specialized training, pose numerous challenges for radiation protection and safety of both patients and medical staff.

Key concerns include the risk of tissue reactions, primarily skin injuries and eye lens opacities, for both patients and staff. The International Basic Safety Standards (IAEA GSR Part 3) set requirements for ensuring safe use of radiation sources, as well as radiation protection and safety for patients and staff during interventional procedures. These requirements are further detailed in the IAEA's implementation Safety Guide SSG-46 and related technical documents.

Objectives

The overall objective of the workshop is to enhance participants' knowledge of safety standards and best practices regarding radiation protection and safety of patients and staff in FGI procedures, and to support the improvement of their practical skills and competence in this field.

Participants will acquire the necessary knowledge and skills to effectively manage patient and staff radiation exposures and optimize image quality in FGI procedures. They will learn about the essential components needed to optimize procedures, including selecting design features of fluoroscopy systems that suit the intended clinical use; properly configuring and optimizing exposure settings during system commissioning, tailored to specific clinical tasks and required image quality; setting a comprehensive quality assurance programme and patient/staff radiation dose monitoring programme; and effectively utilizing the available equipment features and settings to minimize radiation exposure for both patients and staff. Additionally, the workshop will address strategies for the prevention and management of radiation-induced tissue reactions, and the implementation of a follow-up programme to monitor potential adverse effects.

Target Audience

The workshop seeks to target experienced clinical medical physicists from departments that perform FGI procedures, who also serve as qualified experts in radiation protection or radiation protection officers. Preference will be given to candidates actively involved in providing radiation protection training to interventionalists. Participants are expected to share the knowledge and skills gained from the workshop to their colleagues in their workplaces and countries, contributing to a broader dissemination of best practices in radiation protection and safety.

Member States and Entities are invited to designate up to two qualified candidates for participation.

Working Language(s)

English

Workshop Topics

- Overview of procedures under fluoroscopy control
- State of the art of fluoroscopy imaging technology

- Facility design and shielding calculation
- Equipment specifications for FGI procedures
- Configuration and exposure setting optimization
- Radiation effects and risks in FGI procedures
- Prevention and management of tissue reactions
- Patient dose estimation and measurement
- Skin dose estimation
- Patient radiation dose monitoring
- Diagnostic reference levels in FGI procedures
- Managing radiation exposure of staff
- Staff radiation dose monitoring
- Quality assurance programme
- International safety standards and guidance

Participation and Registration

The event is open to 25 participants from Member States and Entities who meet the qualification requirements.

All persons wishing to participate in the event have to be designated by an IAEA Member State or Entity.

In order to be designated by an IAEA Member State or Entity, participants are requested to send the **Participation Form (Form A)** to their competent national authority (e.g. Ministry of Foreign Affairs, Permanent Mission to the IAEA or National Atomic Energy Authority) for onward transmission to the IAEA by **24 January 2025**.

Participants are hereby informed that the personal data they submit will be processed in line with the [Agency's Personal Data and Privacy Policy](#) and is collected solely for the purpose(s) of reviewing and assessing the application and to complete logistical arrangements where required. The IAEA may also use the contact details of Applicants to inform them of the IAEA's scientific and technical publications, or the latest employment opportunities and current open vacancies at the IAEA. These secondary purposes are consistent with the IAEA's mandate. Further information can be found in the [Data Processing Notice](#) concerning IAEA InTouch+ platform.

Administrative and Financial Arrangements

Nominating authorities will be informed in due course of the names of the candidates who have been selected and will at that time be informed of the procedure to be followed with regard to administrative and financial matters.

Selected participants will receive a stipend for meals and incidental expenses as well as a contingency allowance from the host organization (Argonne); accommodation costs will be directly paid by Argonne. They will also receive a round-trip air ticket based on the most direct and economical route between the airport nearest their residence and the airport nearest the event location.

Disclaimer of Liability

The organizers of the event do not accept liability for the payment of any cost or compensation that may arise from damage to or loss of personal property, or from illness, injury, disability or death of a participant while he/she is travelling to and from or attending the course, and it is clearly understood that each Government, in approving his/her participation, undertakes responsibility for such coverage. Governments would be well advised to take out insurance against these risks.

Visas

Participants who require a visa to enter United States of America should submit the necessary application as soon as possible to the nearest diplomatic or consular representative of United States of America.

Organization

Scientific Secretary

Ms Chadia RIZK

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Administrative Secretary

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Subsequent correspondence on scientific matters should be sent to the Scientific Secretary and correspondence on other matters related to the event to the Administrative Secretary.