Radiation Safety: how to keep your staff safe

ESCOLA SUPERIOR DE TECNOLOGIA DA SAÚDE DE COIMBRA

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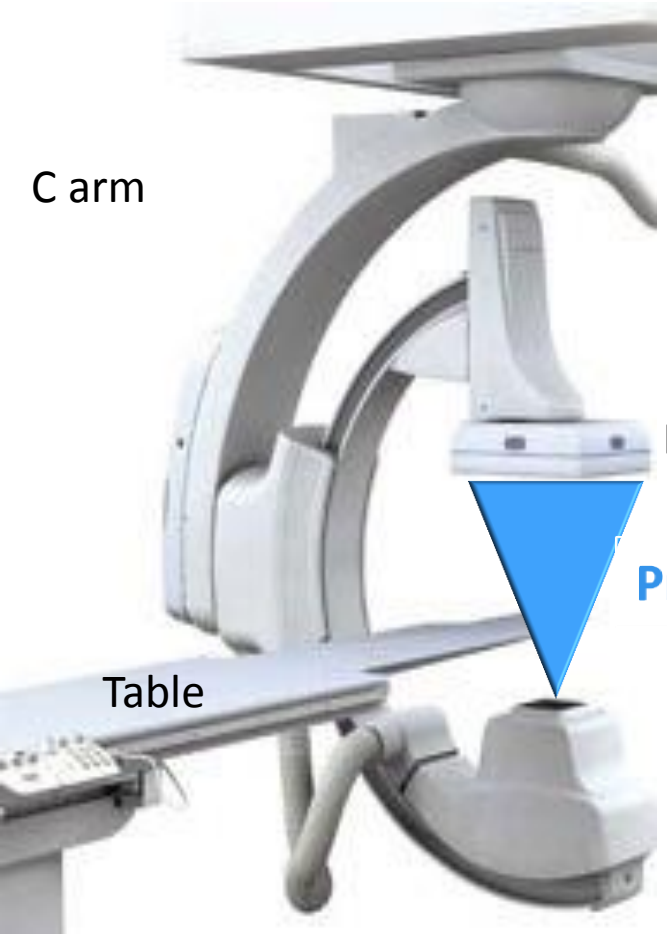
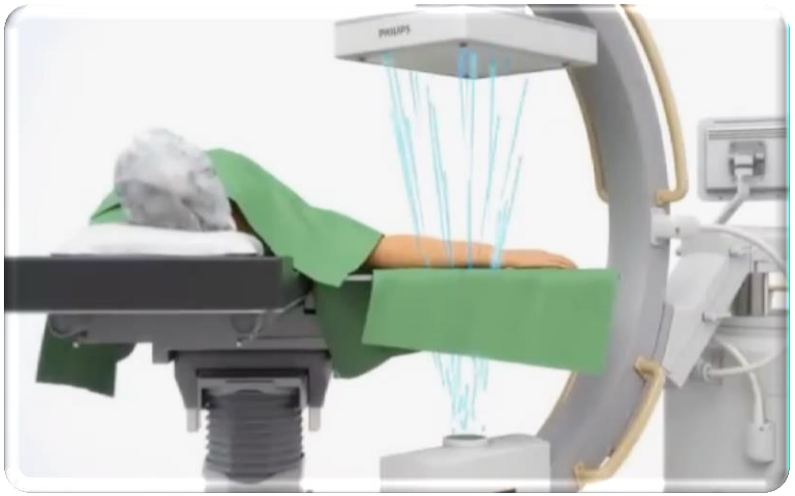
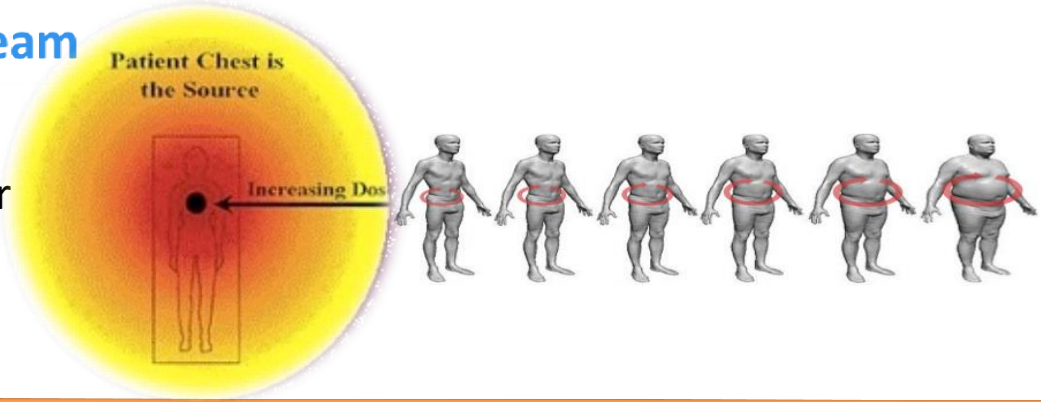
Fluoroscopy

Radiation safety in Interventional Radiology, Vol13, Set 2010







Exposure parameters

AEC

Intensity

Fluoroscopy

Pulses/sec

MODE

Continuous

Pulsed

High Fluoro (+)

Normal

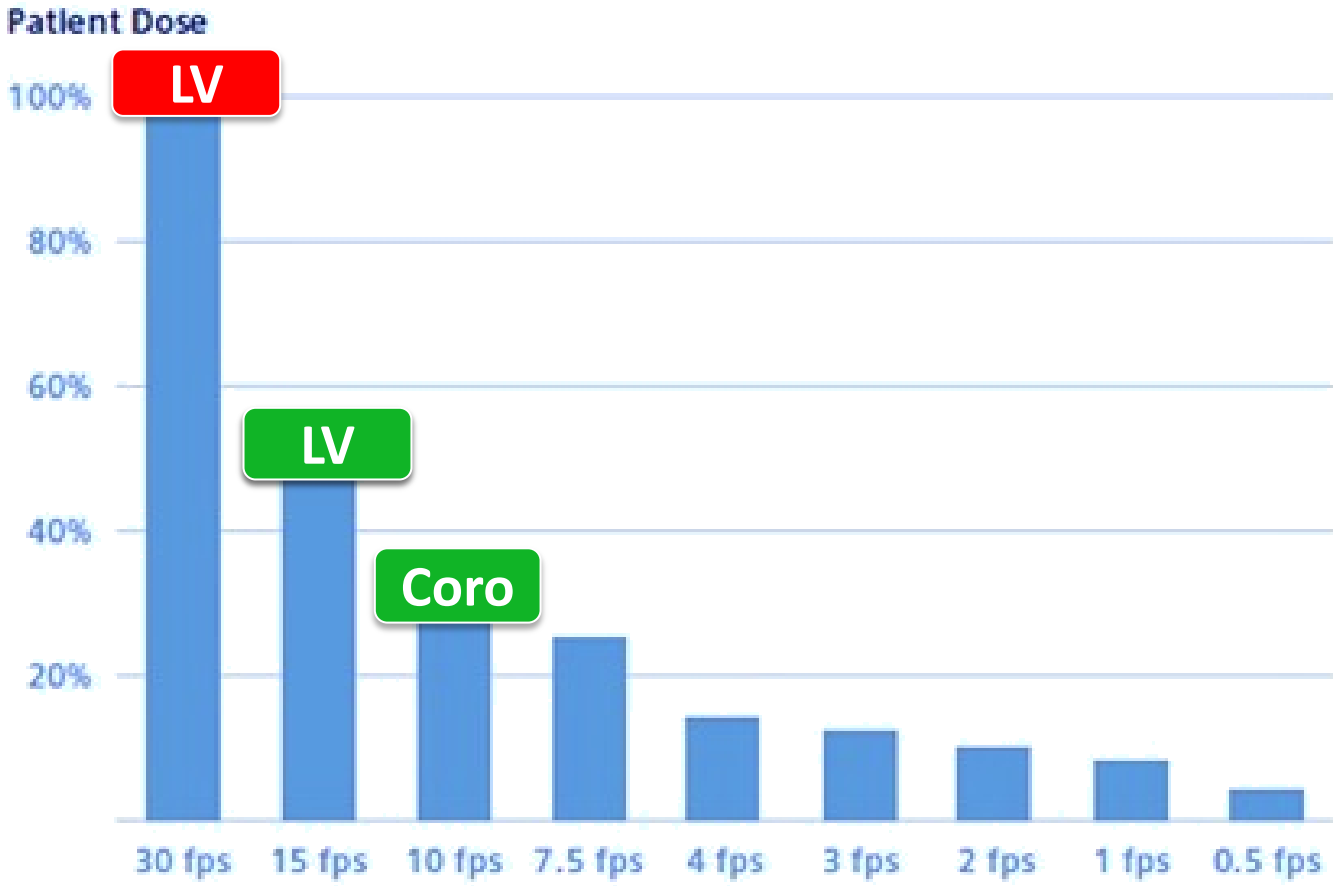
Low Fluoro (-)

Cine mode

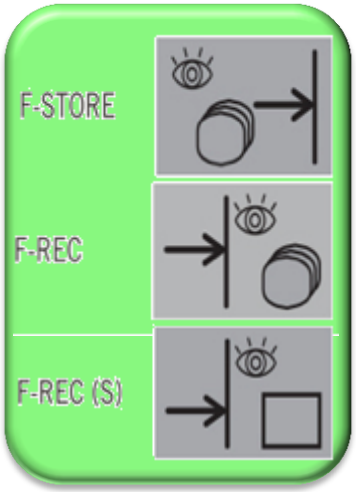
Frames/sec

10 fold increase of scattered radiation

Cine - Acquisition



Frame Rate



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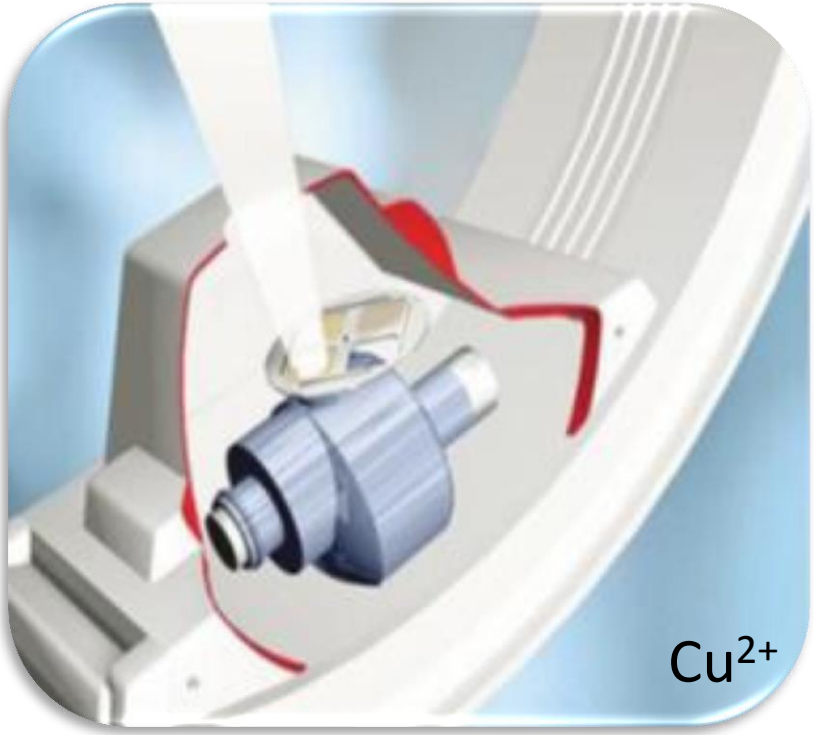
Patient safety

ICRP ref 4818-2733-7736
May 20, 2011

- 30% patient dose



- 70% patient dose

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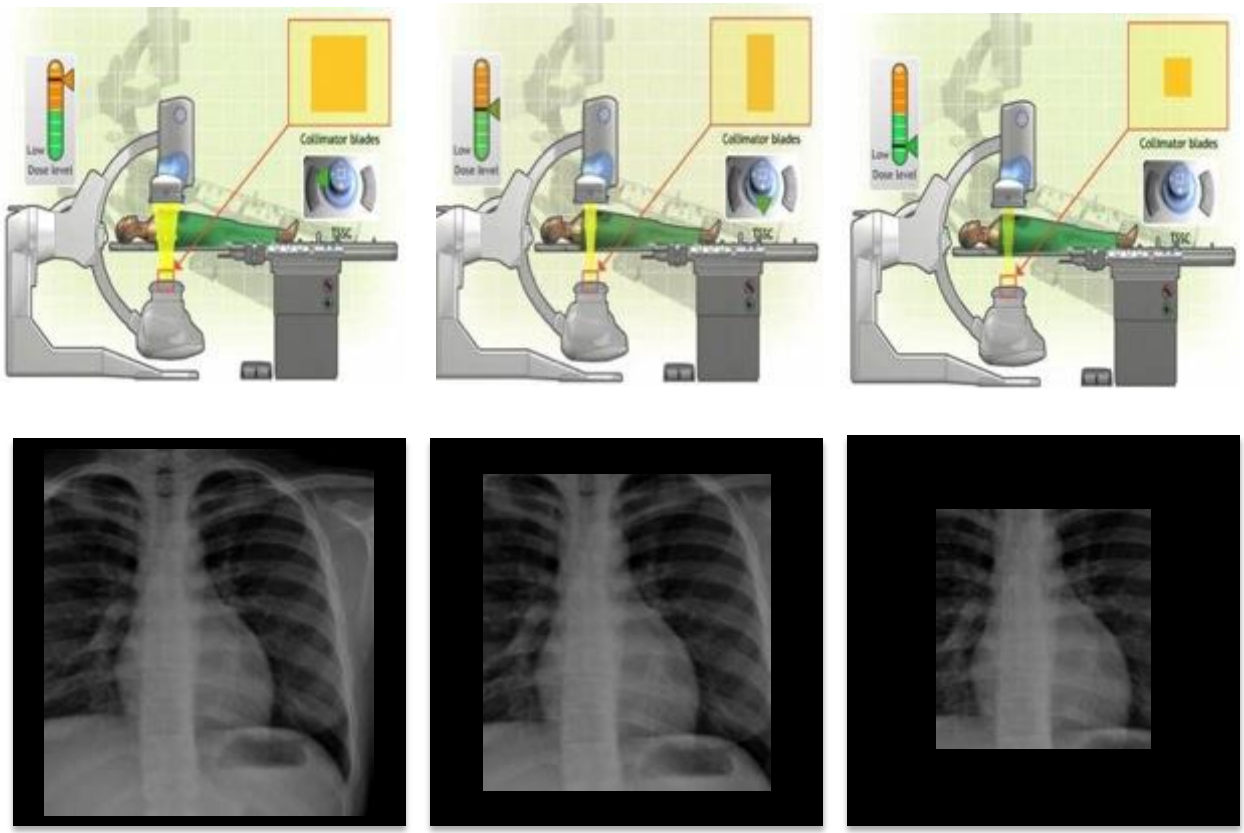
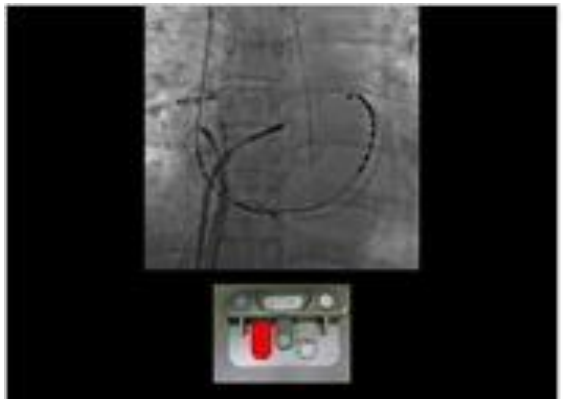
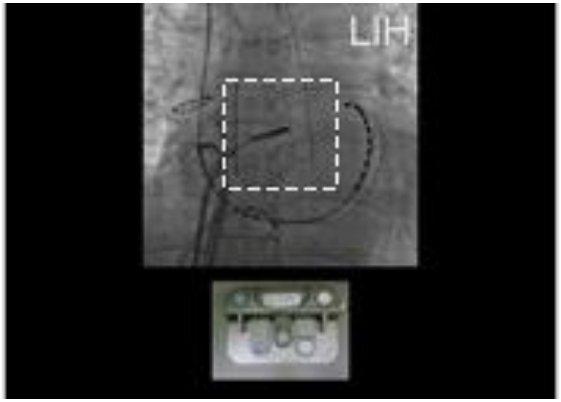
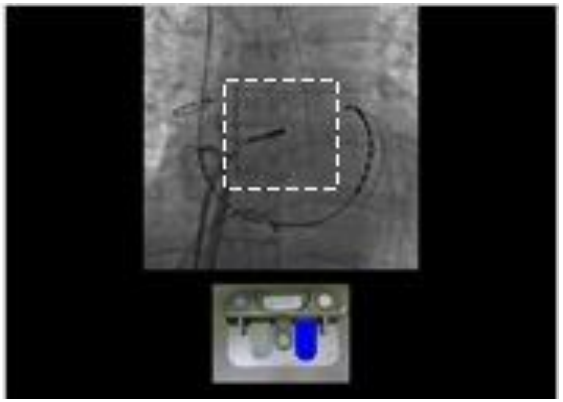
Primary beam collimation

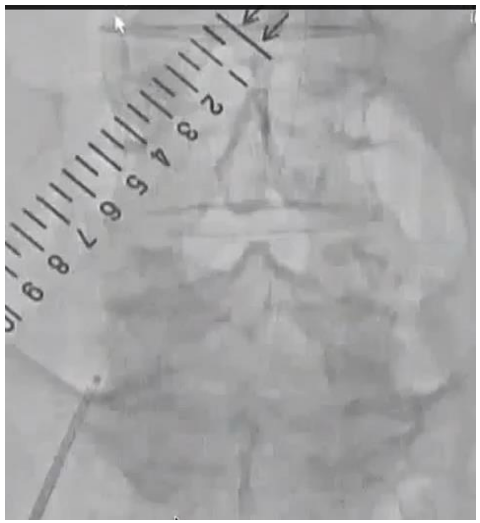


The advantages of Spot Fluoroscopy









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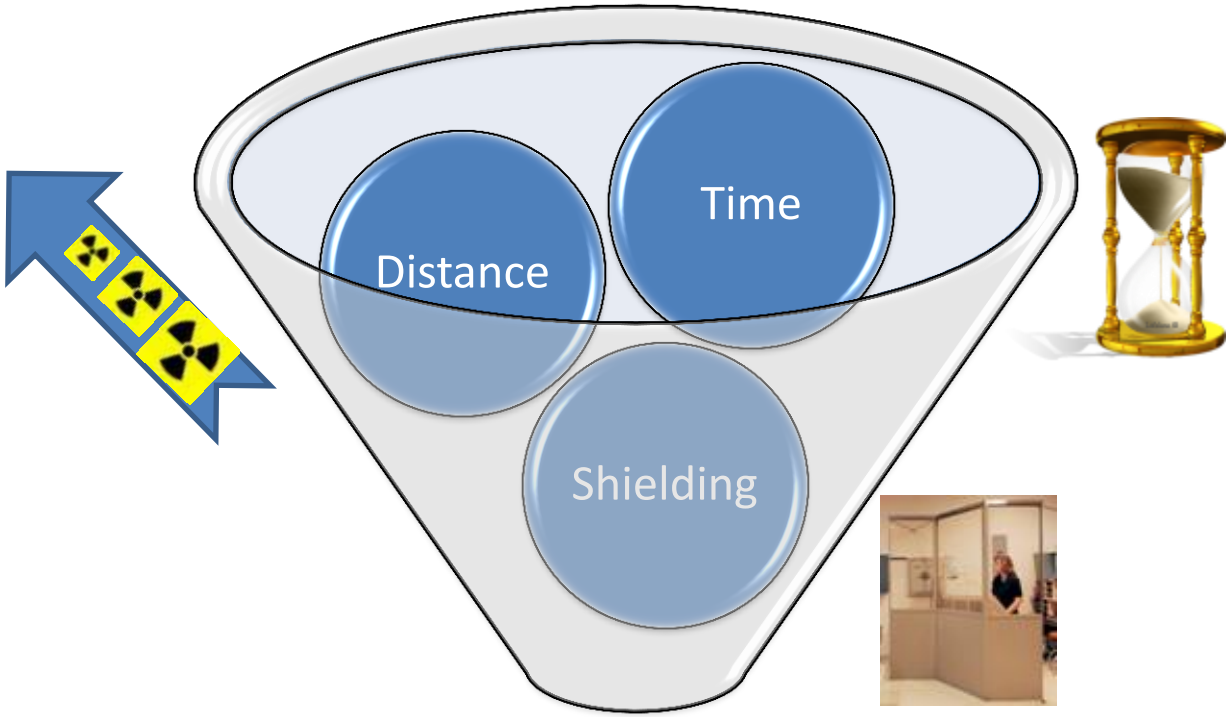
3 Basic Concepts for Radiation Protection



Radiation Protection

- Time - Minimize the exposure time
- Distance - Increasing distance from the source
- Shielding - Use protection properly

(apron, collar, glasses,...)

Equipment Position

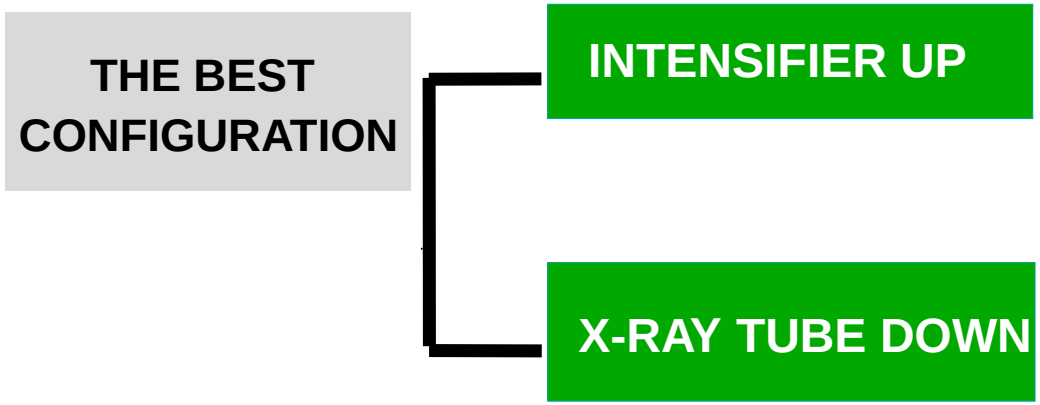
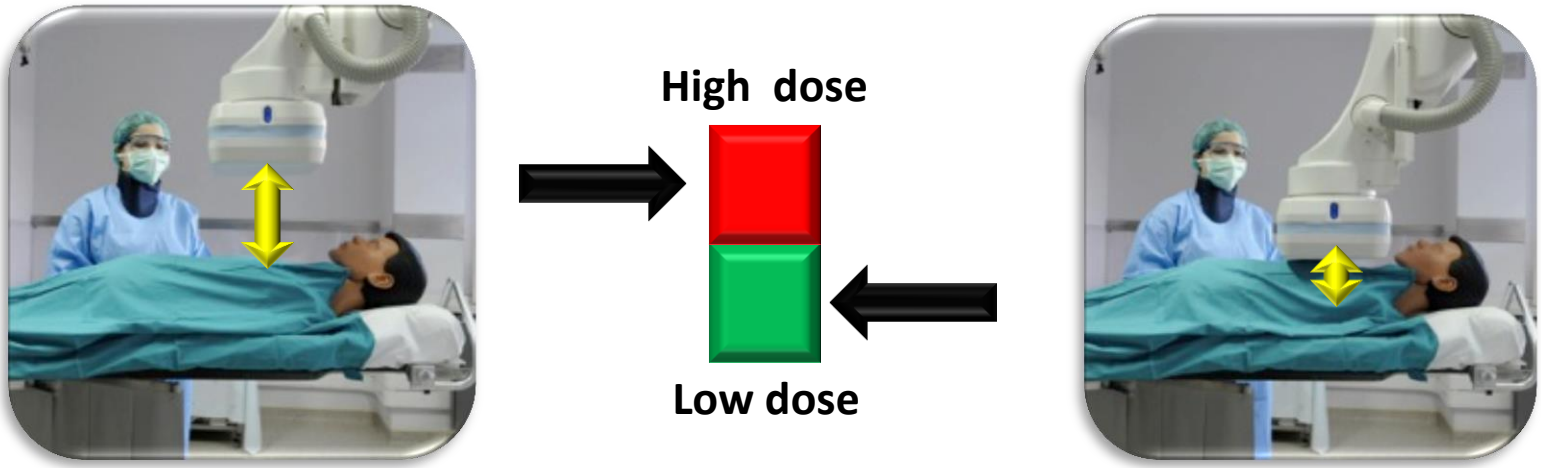
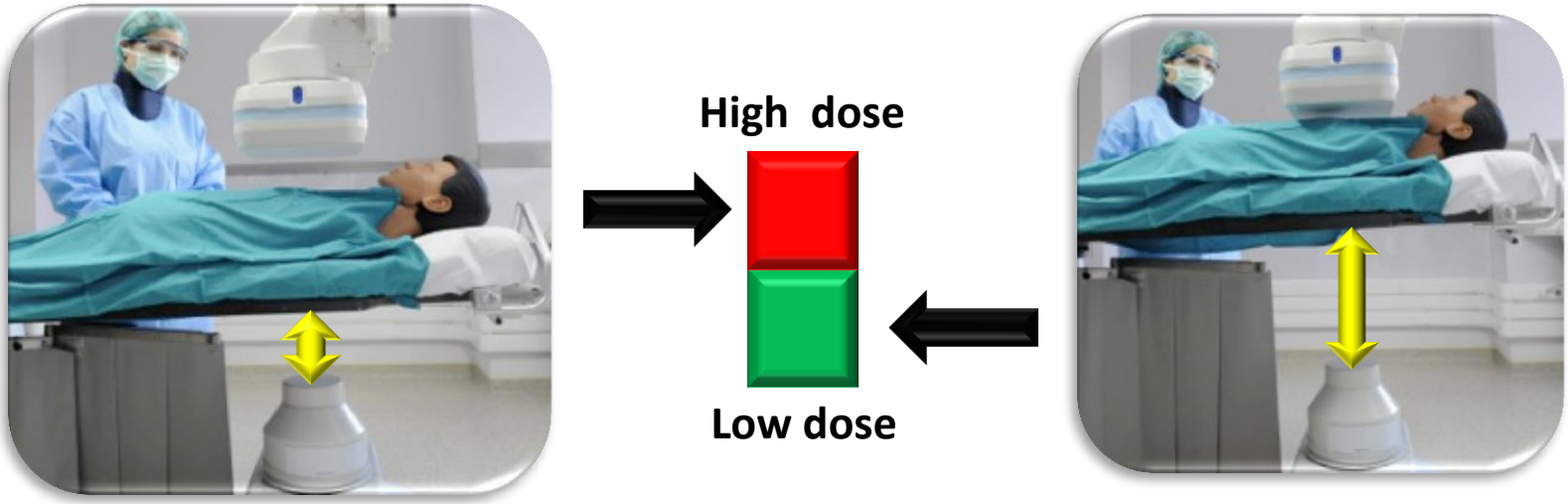


Image intensifier position



Keep the image intensifier as close to the patient, ensures a lower radiation exposure of the operator

Tube Position

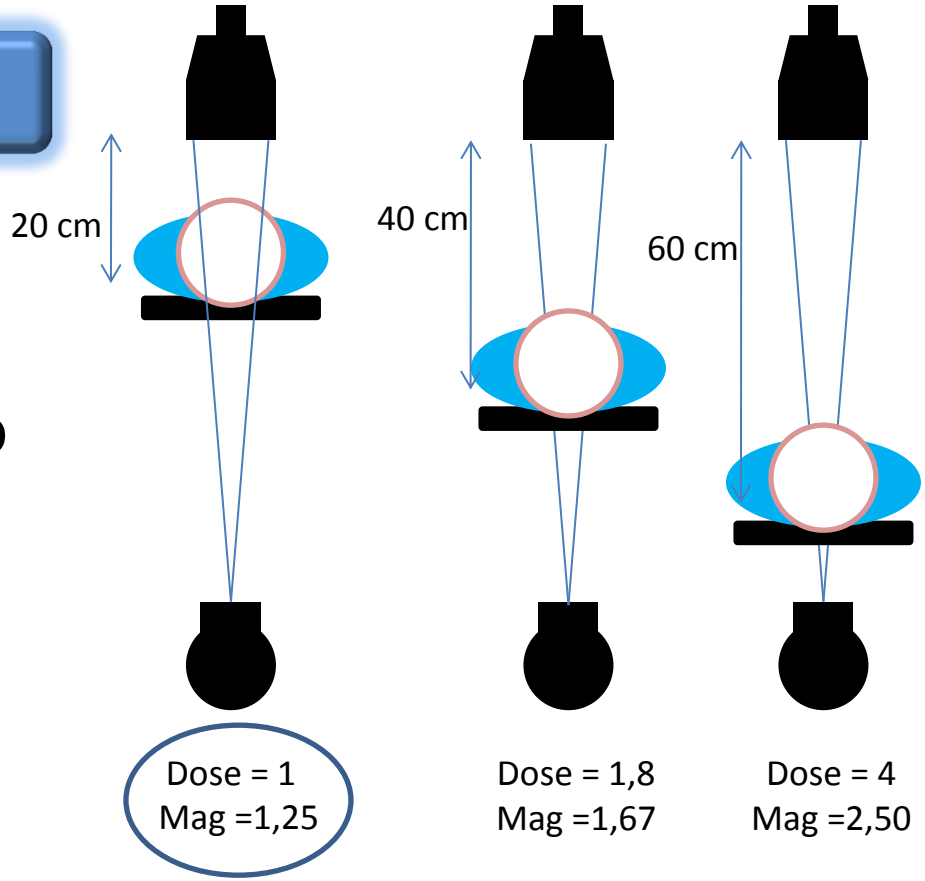


Keep the X-ray tube away
of the patient guarantees a lower
entrance skin dose

Magnification

Geometric

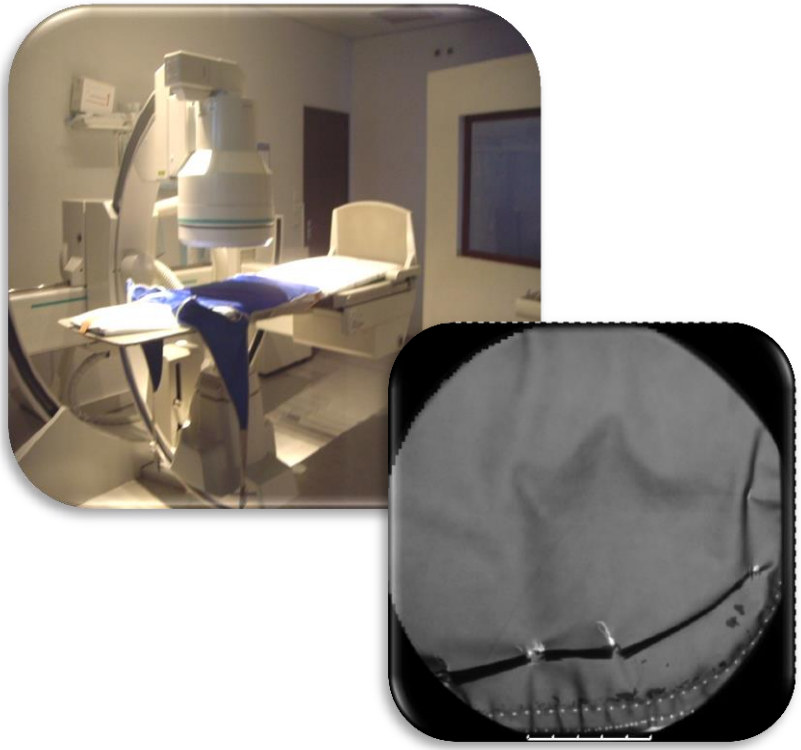
If possible just do zoom



Individual behaviour

Personal protection

Keep hanging aprons properly



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Personal protection

Personal Monitoring




The use of Active Dosimeters should be considered as mandatory in fluoroscopy guided procedures

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The Model

New Paradigm

Pathway for a safe fluoroscopy guided procedure

promoting patient safety culture

Medical Physicist
+
Radiographer
(quality control check)

IR physician
+
Radiographer
(procedure planning)

Procedure
+
Final Procedure Report

Head of Departments must acknowledge that keeping teams stable will allow them to achieve high technical and professional differentiation, to minimize practice error and maximize patient and staff protection.

Life Long Learning is essential to maintain KSC up-to-date

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Take home points

What is necessary ?

To guarantee the effective implementation of EU guidelines about Education & Training in RP;

To develop a team document about the roles and responsibilities in FGP, focusing on best practice, quality of care and patient safety;

To implement an effective clinical audit system, as a tool to promote a patient safety culture and to improve the quality of care;

To implement a Life Long Learning plan to maintain up-to-date the KSC in RP

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