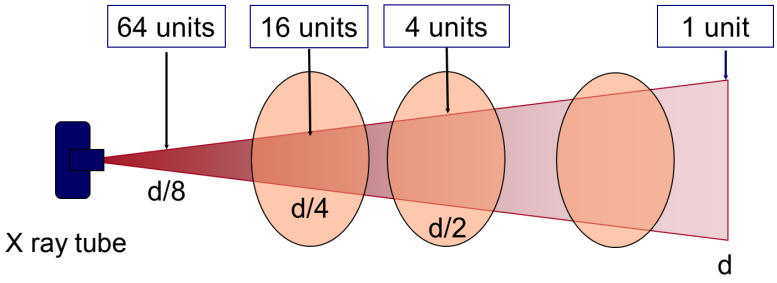
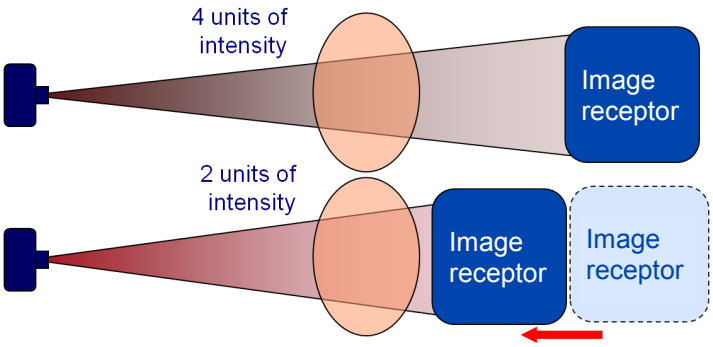
10 Pearls: Radiation protection of *patients* in fluoroscopy

1. Maximize distance between the X ray tube and the patient to the extent possible

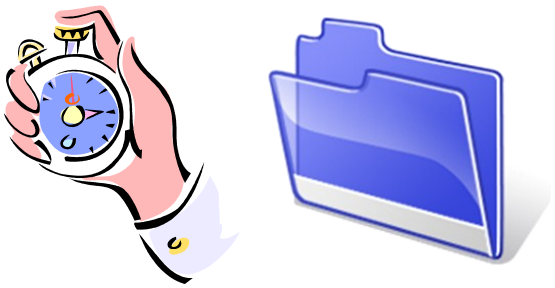


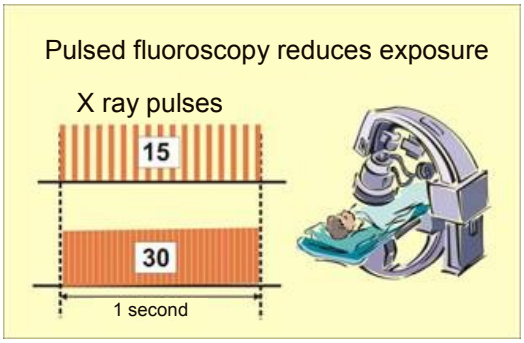


2. Minimize distance between the patient and the image receptor

3. Minimize fluoroscopy time

Keep records of fluoroscopy time for every patient





4. Use pulsed fluoroscopy with the lowest frame rate possible to obtain images of acceptable quality

5. Avoid exposing the same area of the skin in different projections

Vary the beam entrance port by rotating the tube around the patient

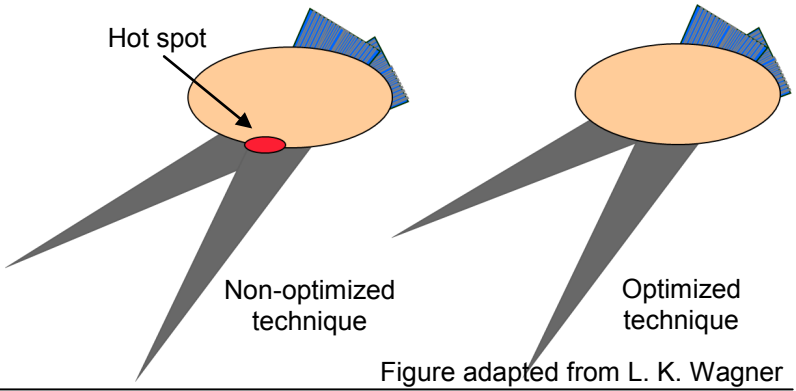


Figure adapted from L. K. Wagner

IAEA RPOP Radiation Protection of Patients

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10 pearls! Radiation protection of staff in fluoroscopy

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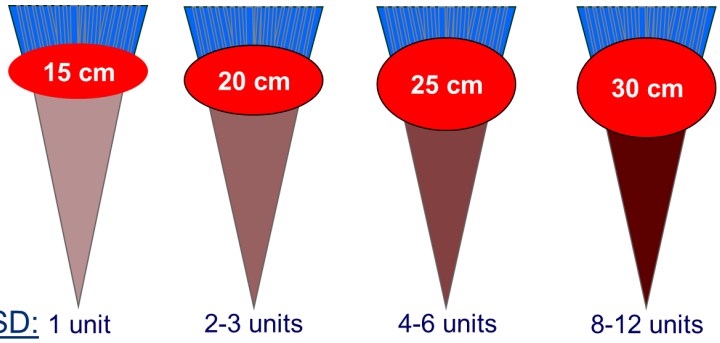
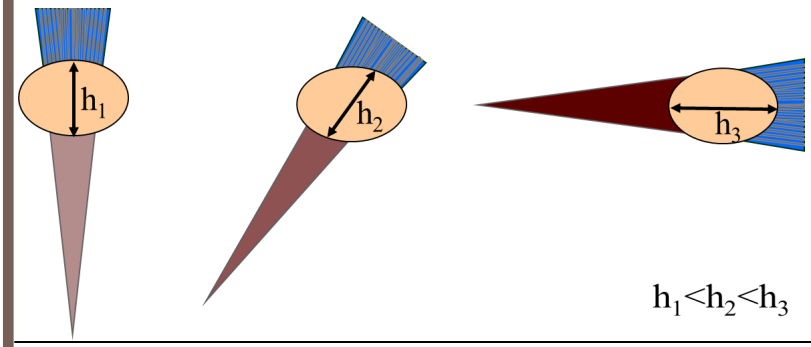
6. Larger patients or thicker body parts trigger an increase in entrance surface dose (ESD)





7. Oblique projections also increase ESD

Be aware that increased ESD increases the probability of skin injury

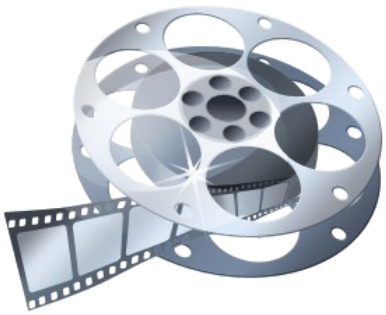
INTENSIFIER Field-of-view (FOV)	RELATIVE PATIENT ENTRANCE DOSE RATE FOR SOME UNITS
12" (32 cm)	100
9" (22 cm)	200
6" (16 cm)	300
4.5" (11 cm)	400

8. Avoid the use of magnification

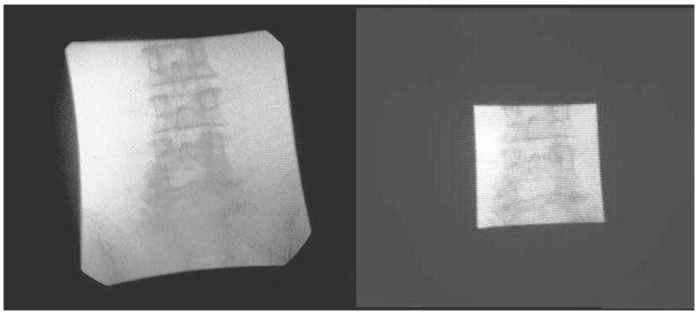
Decreasing the field of view by a factor of two increases dose rate by a factor of four

9. Minimize number of frames and cine runs to clinically acceptable level

Avoid using the acquisition mode for fluoroscopy



Documentation should be performed with last image hold whenever possible and not with cine images



10. Use collimation

Collimate the X ray beam to the area of interest

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