

RADIATION SAFETY FOR PREGNANCY AND BREAST HEALTH

BASICS OF RADIATION EXPOSURE

Perinatal risks are largely stochastic and dependent on gestational age at exposure time. Rising gestational age correlates with rising threshold dose for any negative effect.



Recommended occupational fetal dose limit: **<5mSv**. Average fetal dose for an IR that works for entire 40 week gestation is **0.3mSv** Reference: (Chen et al., 2020)



Pregnant IR staff are only exposed to scattered rays, most of which are absorbed by PPE



Radiation dose correlates with more complex procedures

ALARA

ALARA can be achieved with **greater distance** from radiation source, and **reduced total time of fluoroscopy**



Monitor exposure with single dosimeter at the level of the waist, an additional dosimeter can be added at abdomen. For pregnant personal, monthly readings are required.



EARLY PREGNANCY

Voluntary declaration of pregnancy to radiation safety office. Add abdominal dosimeter as needed.



DURING PREGNANCY

Keep doses to ALARA, especially in first 12 weeks. Keep total dose < 4 mSv during pregnancy



AFTER PREGNANCY

Maternity leave duration is 6-8 weeks. May combine with vacation time.



DID YOU KNOW

50% - 60%

of radiologists wearing lead aprons report neck and back pain

Reference: (Goldstein et al., 2004).

Female interventional radiologists report higher musculoskeletal strain.

PERSONAL PROTECTIVE EQUIPMENT

HEAD: Surgical Cap

Disposable, lightweight, contains 2 layers of barium sulphate-bismuth oxide



EYES: Lead Glasses

0.5mm or higher lead equivalence, recommended to choose larger size glasses (27mm²/lens) and large size panels to DECREASE cataract risk.

NECK: Thyroid Shield

Required, especially for personal with monthly collar readings of > 4 mSv and < 40 yrs old

HANDS: Lead Gloves

Potential exposure to high dose as hands typically closest to field

Axilla: Side panels

Additional shielding, such as side panels, helps reduce radiation exposure to breast tissue and axillary lymph nodes.

TORSO: Lead Apron

Styles with front closures provide a double barrier of protection - desirable for those of reproductive age.

WELL-FITTING EQUIPMENT



Adjustable sizing options

Ergonomic design to reduce strain



Lightweight materials for prolonged wear

BREAST RADIATION EXPOSURE DUE TO IMPROPER SHIELDING



Upper outer quadrant of breast is the most common breast cancer site.



Canadian Association for Interventional Radiology
Association canadienne pour la radiologie d'intervention