

Radiation and pregnancy

PATIENT INFORMATION SHEET G04

Benson Radiology is an accredited medical imaging provider.

We abide by the South Australian Radiation Protection and Control Act and the guidelines of the Australian Radiation Protection and Nuclear Safety Agency (ARPANSA).

Pregnancy and radiation

While pregnant women are no more sensitive to radiation than a woman who is not pregnant, an unborn child is more sensitive to medical radiation. However birth abnormality and cancer risk from medical radiation is very low.

Almost all imaging tests expose a foetus to such low levels of radiation that they are not a cause for concern. However, it is good practice to avoid procedures that directly expose the uterus or abdomen to radiation if a woman is (or may be) pregnant.

As with all medical imaging, the benefit of the test should outweigh the risk to the mother and foetus.

Inform your doctor and medical imaging staff

It is essential to inform your doctor and our imaging staff if you are or if you think you may be pregnant. Non-urgent procedures should be delayed until after giving birth or until pregnancy can be excluded.

There may be good reasons to undertake the imaging examination to enable the best care for the mother. Your doctor, in consultation with you, will make this assessment.

Our radiologist or nuclear medicine specialist will also assess if it is the most appropriate test, taking into account the information on the imaging request form together with your medical history.

Our staff will take special care to protect the unborn child to minimise exposure to the developing foetus. In deciding to undergo a

medical radiation procedure while pregnant our staff may request you sign a form consenting to the examination.

Short term risks

The short term risk for a foetus (or embryo) may include death, slowing of growth, abnormal growth and intellectual or emotional underdevelopment.

The International Commission on Radiological Protection states these risks wouldn't be expected in an embryo or foetus exposed to less than 100mGy of radiation.

Long term risks

The risks of hereditary diseases occurring in the descendants of someone exposed to radiation as a foetus are considered to be negligible.

For most medical exposures within the first 3–4 weeks after conception, the risks of childhood cancer will be very small and likely much smaller than if the exposure occurred later in pregnancy.

Even for higher dose examinations, the risk of childhood cancer is considered to be low.

Exposure to medical radiation is not (on its own) a reason to consider pregnancy termination. We encourage you to speak with your doctor for further information.

Further radiation information

This sheet provides information specifically about radiation in pregnancy. For further information on radiation in medical imaging please refer to our sheet "Benefits and risks of medical imaging radiation".



Foetal doses and risks of childhood cancer for common radiology tests

The table indicates foetal doses for common procedures (figures are generic, and are subject to a great deal of variability).

Please note that the normal lifetime risk of a child developing a cancer is approximately 1 in every 500, even in the absence of any exposure to any radiation as a foetus. These statistical risk assessments are estimates only and can only be applied to populations and not individuals.

Examination type	Typical foetal dose (mGy)	Increased risk of childhood cancer per study
Ultrasound Magnetic resonance imaging (MRI)	0	0
X-ray skull X-ray chest X-ray thoracic spine Mammogram Head or neck CT scan	0.001–0.01	< 1 in 1,000,000
CT pulmonary angiogram Lung ventilation scan	0.01–0.1	1 in 1,000,000 to 1 in 100,000
X-ray of abdomen, pelvis or hip Barium meal CT scan of the chest and upper abdomen NM scans using technetium-99m including: thyroid scan, lung perfusion scan, renal scan (MAG3, DMSA) or white cell scan	0.1–1.0	1 in 100,000 to 1 in 10,000
Lumbar spine x-ray Barium enema CT abdomen or CT lumbar spine NM scans using technetium-99m Cardiac blood pool scan Myocardial scan/renal scan/bone scan	1.0–10	1 in 10,000 to 1 in 1,000
CT of pelvis, or pelvis plus abdomen PET-CT Technetium-99m myocardial SPECT (rest – exercise protocol)	10–50	1 in 1,000 to 1 in 200 <i>Natural childhood cancer risk: 1 in 500</i>

References

1. Mr Anthony Wallace and, Prof Stacy Goergen, 'Radiation Risk of Medical Imaging During Pregnancy', The Royal Australian and New Zealand College of Radiologists (2011, January 31)

2. Mr Anthony Wallace and, Dr Timothy Cain, 'Radiation Risk of Medical Imaging for Adults and Children', The Royal Australian and New Zealand College of Radiologists (2013, December 24)

3. Government of Western Australia

Department of Health. (2011, December). *Ionising Radiation (IR) In Diagnostic Imaging*. Retrieved from Diagnostic Imaging Pathways - About Imaging: Imaging During Pregnancy & Lactation

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5. Radiation and Medical Imaging - Queensland Health

6. Health Protection Agency The Royal College of Radiologists and the College of Radiographers. (2009, March). Protection of Pregnant Patients during Diagnostic Medical Exposures to Ionising Radiation. Retrieved from Health Protection Agency