Advice on Exposure to Ionising Radiation for Pregnant and Breastfeeding Staff – Information for Employees and Employers

Introduction
This leaflet provides advice for female employees who are working with X-ray equipment and radioactive substances. It covers the Employer's duties under the Ionising Radiations Regulations 2017 (IRR17) during pregnancy and breastfeeding.

Advice Following Pregnancy
Advice you may wish to follow when you find out you are pregnant:

- Inform your Employer as soon as you know you are pregnant.
- Read and follow the local rules for the area in which you work.
- Follow any specific advice and working instructions given by your employer.
- During X-ray examinations, you should remain behind any protective screen whenever possible. If you need to be outside the main protective screen, spend as little time as possible and keep as far away as practicable from the X-ray tube or patient, and wear a lead apron which is comfortable (the employer should check that such protective measures do not create other risks such as back problems).
- If your place of work has controlled or supervised areas, but you do not enter those areas, then there is no risk of radiation exposure to the baby from those areas.
- If your role requires you to work in controlled or supervised areas, it is perfectly possible that your Employer's risk assessment will show that you can carry on working as normal during your pregnancy. You should not be concerned if this is the case.

The Employer's Legal Responsibilities
When an employee is pregnant or breastfeeding she should inform the Employer. The Employer must then ensure a risk assessment is carried out and decide what they need to do to restrict the employee's exposure to ionising radiation. The employer must:

- Ensure that once the employee has notified them that she is pregnant, the dose to the fetus should be restricted so that it does not exceed 1 mSv (mSv is an abbreviation for milliSievert which is a measure of the radiation dose) during the reminder of the pregnancy. This is equivalent to 2 mSv to the surface of the abdomen which can be assessed using the employee's personal dose monitoring results. Historical dose results can be used to anticipate doses during pregnancy but account should be taken of factors such as any predicted increase in workload or change in working practice.
- For employees who work with radioactive substances, ensure that the conditions of exposure are restricted so as to prevent significant bodily contamination of that employee. The employer also has a duty to ensure that significant ingestion or inhalation of radionuclides is prevented. This is likely to be achieved by standard good working practice.
- Notify employees who are working in a controlled or supervised area (where local rules apply), to follow the local rules to restrict their exposure and that of their unborn baby.

Risks to the Baby
Under IRR17 the limit of dose to the fetus from the time the pregnancy is declared is 1 mSv.

The natural risk of childhood cancer is about 1 in 500. The calculated risk for excess childhood cancers for an absorbed dose of 1 mSv is around 1 in 13,000, which is a small fraction of the natural risk and effectively insignificant.

As such, there should be no significant risk to your baby from radiation at work and there certainly should never be a need to terminate a pregnancy because of doses received at work.

Breastfeeding Staff
Risks from contaminated breast milk can only arise where unsealed radioactive substances are used. Some radioactive substances, if swallowed, could get into breast milk and would contribute to baby's radiation dose. However, this is very unlikely when standard good practice is followed. Breastfeeding employees working with such substances should inform their Employer and the Employer must take necessary actions to prevent this. The Employer will normally assume that any woman returning to work after having her baby may be breastfeeding for six months.

Background Radiation
Background radiation comes from the sun, the food we eat, building materials and natural surroundings like earth and

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rocks. Generally, these cannot be easily controlled but they do not result in significant exposure to a baby in the womb. The dose varies in different parts of the United Kingdom, from 1 to 8 mSv per year, but during pregnancy the baby would receive a dose of around 1 mSv from natural background radiation.

Further Information
We hope you find this information useful. If you would like any additional information or have any concerns, ask to speak to the Superintendent Radiographer or Radiation Protection Supervisor.

Alternatively, you may contact the Radiological Protection Centre (details below).

Radiological Protection Centre

Unit 5, Tramlink Park, 24 Deer Park Road, London SW19 3UA

Telephone: +44 (0)20 8725 1050/1

E-mail: info@sghrpc.co.uk

Web address: sghrpc.co.uk

Further reading and guidance can also be found in:

- "*Pregnancy and Work in Diagnostic Imaging Departments, second edition*",2009, BIR/RCR/CoR, (https://www.rcr.ac.uk/publication/pregnancy-and-work-diagnostic-imaging-departments-second-edition)
- "*Working safely with ionising radiation: Guidelines for expectant or breastfeeding mothers*", HSE, INDG334, 03/01, C400, (http://www.hse.gov.uk/pubns/indg334.pdf)

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