

## Radiation Protection Advice & Guidance no 7

### **STAFF PREGNANCY & BREASTFEEDING<sup>a</sup>**

#### ***RPAG 7 Summary***

*An employer must undertake a risk assessment when a member of staff who works with ionising radiation declares herself to be pregnant.*

#### **Background**

Members of staff working with X-ray equipment and radioactive substances are naturally concerned to minimise any risk to a foetus should they become pregnant. The Ionising Radiations Regulations 1999 (IRR99) specifically identify the need for adequate information, placing an onus on the employer to provide information and on the employee to report a pregnancy.

More detailed national recommendations can be found in "*Pregnancy and Work in Diagnostic Imaging Departments, Second edition*", 2009, BIR/RCR/CoR, ([http://www.rcr.ac.uk/docs/radiology/pdf/Pregnancy\\_Work\\_Diagnostic\\_Imaging\\_2nd.pdf](http://www.rcr.ac.uk/docs/radiology/pdf/Pregnancy_Work_Diagnostic_Imaging_2nd.pdf) )

General guidance from the Health & Safety Executive can be found in "*Working safely with ionising radiation: Guidelines for expectant or breastfeeding mothers*", HSE, INDG334, 03/01, C400, (<http://www.hse.gov.uk/pubns/indg334.pdf> )

#### **Legal Requirements**

The employer must

- in relation to pregnant employees, ensure that the dose to the foetus is unlikely to exceed 1 millisievert (mSv) after they are notified of the pregnancy
- in relation to breastfeeding employees who work with radioactive substances, ensure that the conditions of exposure are restricted so as to prevent significant bodily contamination of that employee
- notify female employees working with ionising radiation of the possible risks to a foetus from radiation, and the importance of informing the employer in writing as soon as possible after they become pregnant

---

<sup>a</sup> Same requirement as to HEY Hospitals Health & Safety at Work Policy CP137 (4/12/09) section 12.6

- notify female employees working with radioactive substances of the possible risks to a nursing infant from contamination, and the importance of informing the employer in writing if they are breastfeeding.

## **Doses and Risk to the Foetus**

The current legal limit of dose to the foetus, from the time pregnancy is declared to term is 1 mSv, which corresponds to a dose to the woman's abdomen of around 2 mSv for diagnostic X-ray work, or 1.3 mSv for nuclear medicine work. If we assume eight months of declared pregnancy, the dose must be kept below an average of 0.25 mSv (X-ray) or 0.16 mSv (NM) per month for that eight month period.

Personal monitoring over many years has shown that this level is well below the dose received by virtually all staff, providing that the Local Rules are followed.

It should be noted that the "dose limits" do not imply that exposures above these limits will necessarily cause any harm. Severe effects (such as malformation or foetal death) only occur if the foetus is exposed to hundreds of millisieverts in a short period of time. Smaller doses of radiation can increase the risk of childhood cancer by a small amount. The natural risk of fatal childhood cancer is 1 in 1,300. The risk of radiation induced childhood cancer from 1 mSv is around 1 in 17,000, more than ten times less than the natural risk.

In the UK, 98% of staff working in imaging departments, including nuclear medicine, do not receive a dose above the 1 mSv per year public dose limit. Areas where pregnant members of staff may need to alter working practice to remain below 1 mSv are

- interventional X-ray work
- cardiac catheterisation laboratories
- nuclear medicine procedures, including positron emission tomography (PET)

## **Breastfeeding**

Risks from contaminated breast milk can only arise where unsealed radioactive substances are used, which could be ingested or inhaled by the breastfeeding woman (i.e. nuclear medicine).

Breastfeeding employees working with unsealed radioactive substances should inform their employer so that the employer can undertake a risk assessment before they return to work. It is

prudent for employers to assume that any woman returning to work following the birth of a child may be breastfeeding for six months.

## **Conclusions**

- Staff working with x-rays or radioactive materials should inform their Radiation Protection Supervisor (RPS) as soon as they learn that they are pregnant.
- In almost all circumstances, there are no grounds for amending staff working practice during pregnancy.
- The manager should, however, consider whether changes are necessary in working practice, on the basis of previous personal dose badge results.
- If there are any questions or doubts, then contact the Radiation Protection Adviser (tel. 01482 461329).

Mr John Saunderson,  
Radiation Protection Adviser  
10/12/09

---

### **Changes since last version (July 2001)**

General revision. Reference to new radiation section of Hull & East Yorkshire Hospitals Health & Safety at Work Policy. Inclusion of brief breastfeeding section. Reference to new BIR guidance.

---