

Pregnancy Policy for Employees Exposed to Ionizing Radiation

I. Sensitivity of Fetus to Radiation

A number of studies have suggested that the embryo/fetus may be more sensitive to ionizing radiation than an adult, especially during the first three months of gestation. The National Council on Radiation Protection and Measurements (NCRP) has recommended (NCRP No. 53 & 91) that special precautions be taken to limit exposure when an occupationally exposed woman could be pregnant. Specifically, the NCRP has recommended the maximum permissible dose to the fetus from occupational exposure of the expectant mother should not exceed; 1) 500 mrem during the entire gestation period and/or 2) 50 mrem per month. This is approximately one-tenth of the maximum permissible occupational dose limit.

II. What to do if You Become Pregnant and are Exposed to Ionizing Radiation in Your Work

It is your choice whether to declare your pregnancy to your supervisor or another employer representative. If you choose to declare your pregnancy, in writing, a lower radiation dose limit will apply to you. If you choose not to declare your pregnancy, you will continue to be subject to the same radiation dose limits that apply to non-pregnant workers even if you are visibly pregnant.

III. Hospital Policy for Declared Pregnant Workers

- A. If you choose to declare your pregnancy, the dose of ionizing radiation to the fetus will be limited to 500 mrem during the entire period of gestation. In addition, the dose will be limited to 50 mrem per month.
- B. If you work in an area where the anticipated dose is less than 500 mrem to the fetus over the period of gestation and 50 mrem per month, you will be able to continue to work in this area with no restrictions. Your work assignments will be under the direction of your supervisor. However, the radiation safety officer may make certain recommendations regarding your work assignments to further reduce the dose to the fetus.
- C. Based on past experience, no areas in the Hospital have been identified which would be considered likely to result in a dose to the fetus exceeding 500 mrem (50 mrem/month), if the established radiation safety procedures are practiced. If a situation is identified in which the anticipated dose to the fetus over the gestation period would be more than 500 mrem (50 mrem/month), the following three alternatives listed below are possible:

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1. You may be assigned to another area involving less exposure to ionizing radiation.
 2. You may continue to work in the area with certain restrictions to limit exposure of the fetus to less than 500 mrem (50 mrem/month) (based on recommendations made by the radiation safety officer). In nearly all cases, the work environment will require slight modifications to ensure that the dose to the fetus does not exceed 500 mrem (50 mrem/month).
 3. You may, at your option and with the full awareness of a slight increased risk for the unborn child, decide to continue working in this area. It is likely, under these circumstances, that the fetus could receive a dose of more than 500 mrem (50 mrem/month). If you choose this option, you must sign a statement acknowledging your willingness to work in the area where the dose to the fetus might exceed 500 mrem (50 mrem/month). You are not encouraged to select this option.
- D. If you are unwilling to accept the increased risk to your unborn child due to your current level of radiation exposure, you may request reassignment to an area involving less exposure to ionizing radiation. We will make a good faith effort to accommodate your request in accordance with the Hospital's general policy for reassignments. Please be aware that transfer to another area may result in a change of working hours and take-home pay. If it is not possible or practicable to grant your request, after a good faith effort has been made, then you may be laid-off or placed on a leave of absence in accordance with the Hospital's general policies.
- E. Individuals who are pregnant are not prohibited from working in or frequenting radiation areas. These individuals may also operate source of ionizing radiation (diagnostic x-ray equipment, cobalt-60 teletherapy units, and linear accelerators) and handle radioactive materials such as those that are present in the RIA laboratory and in Nuclear Medicine.
- F. During your pregnancy, you are expected to perform your assigned duties as a radiation worker, unless certain restrictions are placed upon you by the radiation safety officer.
- G. During your pregnancy, you are encouraged to monitor your radiation exposure via the film badge readings, which are made available to radiation workers. Contact the radiation safety officer if any unusual readings occur.

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IV. What the Radiation Experts Say About Exposure to Ionizing Radiation

- A. Natural background radiation levels are such that the average person in the United States receives approximately 125 mrem each year.
- B. The actual dose received by the embryo/fetus is less than the dose received by the mother because some of the radiation is absorbed by the overlying maternal tissues.
- C. The unborn child is most sensitive to ionizing radiation during the first three months of gestation.
- D. The normal incidence of congenital abnormalities is 4-6%. It is impossible to attribute a given anomaly to a small dose of radiation received by an embryo/fetus. The estimated risk to the unborn baby is small, 0.025% for 500 mrem.
- E. Some studies suggest a relationship between prenatal exposure and childhood leukemia. This risk is small: 1 in 8,800 for 500 mrem. The induction of other childhood cancers is considered to be at a similar level of risk.
- F. The radiation dose required to produce sterility is 200,000 mrem or more. Occupational dose levels will not interfere with your ability to bear children.

V. If You Have Questions or Want Additional Information

- A. The Nuclear Regulatory Guide 8.13 ("Instruction Concerning Prenatal Radiation Exposures") will be made available to you for informational purposes, if you request.
- B. The radiation safety officer is available for discussion regarding levels of exposure from sources of ionizing radiation in the work environment and the risks to the developing embryo/fetus as a result of prenatal exposure. You will be asked to acknowledge in writing that the radiation safety officer gave you instruction.

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VI. Documentation

The following signatures will serve to document that the above policy has been reviewed by or with the Radiology Administrator, the Radiation Safety Officer, and the pregnant staff member.

Radiology Administrator date

Radiation Safety Officer date

Technologist date

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GENERAL GUIDELINES FOR THE PREGNANT WORKER

	Restrictions	Allowed Tasks
Diagnostic X-Ray	- No restrictions	- General radiography - Portable radiography - Fluoroscopy - Special Procedures
Laboratory	- Iodination of proteins	- RIA - In-vitro laboratory tests
Nursing	- Care of patients undergoing treatment of thyroid carcinoma with I-131 - Care of patients undergoing treatment with brachytherapy sources	- Care of patients following Nuclear Medicine diagnostic procedures - Diagnostic x-ray procedures
Radiation Therapy	- Handling of brachytherapy sources - P-32 Therapy	- External beam treatments - Simulations
Nuclear Medicine	- Treatment of thyroid carcinoma with I-131	- Preparation of radiopharmaceuticals - Injection of patients - Imaging - QA procedures

Reference: *MANAGING THE PREGNANT RADIATION WORKER: A REALISTIC POLICY FOR HOSPITALS TODAY.* By Wayne R. Hedrick, Ph.D.; Joseph J. Feltes, M.D.; Dale E. Starchman, Ph.D.; and Gary C. Berry. Radiology Management: Summer, 1986.