



**CancerCare**  
MANITOBA  
*Action Cancer Manitoba*

Radiation Protection Services

X-ray Owner/Operator Information Series

## **Pregnancy and Radiation**

Understanding the functionality of x-ray and other ionizing radiation equipment is particularly important to health care workers. Of course, if you are pregnant, you have even more concerns about the safety of your unborn child. This pamphlet is meant to you with specific information about ionizing radiation and fetal safety.

Ionizing radiation is a natural form of energy that exists outside the parameters of medical science; therefore, all of us are exposed to some radiation.

Thanks to the protective measures taken when constructing x-ray facilities, and the safety precautions taken by the health care staff, worker exposure to radiation is very low in diagnostic centres. In fact, records indicate that x-ray technologists are exposed to *lower* doses of radiation exposure at work than they receive from nature. (Each of us receives approximately 1 mSv per year from natural background gamma radiation and another 1.5 mSv per year from radon).

Nevertheless, it is important for you to understand the consequences of exposure, and to take those precautions you have been instructed to take when working with ionizing radiation, including wearing your radiation monitor.

### **How Does Ionizing Radiation Affect My Fetus?**

Scientific studies indicate that actively dividing cells and those in the early stages of development have greater sensitivity to ionizing radiation.

#### At Conception

In the initial time until the fertilized ovum is implanted in the uterus, radiosensitivity is low and developmental damage due to ionizing radiation is unlikely.

#### During Early Pregnancy – 3 to 9 Weeks

The embryo develops rapidly and radiosensitivity is somewhat elevated.

#### During Pregnancy – 3 Months to 9 Months

Extremely high doses of ionizing radiation (whole body doses of 500 mSv and more) have produced abnormalities such as reduced head size and mental retardation. It's important to remember that these abnormalities have **not** been demonstrated at low doses.

### **Working During Pregnancy**

Doses routinely encountered by workers in chiropractic, dental and medical diagnostic radiology are low. The dose reports, from the radiation monitors worn by hygienists and technologists in Manitoba, are typically at or near zero.

Nevertheless, if you're pregnant, you have the responsibility of declaring your pregnancy to your employer. Continue to wear your radiation monitor. Review your radiation dose records to ensure you, as an x-ray worker, receive less than 2 mSv during the balance of your pregnancy. In choosing when to declare your pregnancy, you accept the responsibility to protect your fetus. As a general rule if you have faithfully worn your radiation monitor, have received less dose than 1 mSv in the previous 12 months and your work will continue the same, there is no radiation-related reason to modify your work during the balance of your pregnancy

Radiation protection measures are very effective means of ensuring that worker exposure is low. Continued good safety practices are advocated. The records demonstrate that you can continue working without risking the health of your unborn child.

#### **Contact Information**

Questions and enquiries are welcome; our goal is not only to ensure that x-ray regulations and codes are followed, but also to provide information and assistance to anyone involved with x-ray technology.

Radiation Protection Services  
Medical Physics Division  
CancerCare Manitoba  
675 McDermot Avenue  
Winnipeg, Manitoba  
R3E 0V9

Phone: 204-787-4145  
Fax: 204-775-1684  
Email: [radiation.info@cancercare.mb.ca](mailto:radiation.info@cancercare.mb.ca)