

# Part 2

## Part 2: Radiation Safety for the Pregnant Worker

.....

In this part:

- ▶ Learn about why radiation safety in the pregnant employee is a special situation
  - ▶ Learn about the Maximum Permissible Dose for the pregnant employee
  - ▶ Can a technician take radiographs during pregnancy?
  - ▶ Learn what an employee must do if they become pregnant?
- .....

## Radiation Safety is Just Different for the Pregnant Employee

The fetus is particularly susceptible to the harmful effects of ionizing radiation during the first four months of pregnancy. Scientific studies have identified data that “are consistent with a lifetime cancer risk resulting from exposure during gestation which is two to three times that for the adult.”

This special sensitivity must be considered when formulating a radiation safety protocol for the pregnant veterinary technician. The NRC states that the MPD for the pregnant patient is less than for other occupational workers. According to the NRC , the pregnant technician should not receive more than 500mrem of exposure during the entire pregnancy and less than 50mrem in any given month.

All pregnant employees should be given a copy of the United States Nuclear Regulatory Commission (NRC) Regulatory Guide 8.13 - Instruction Concerning Prenatal Radiation Exposure. This guide can be found on the NRC website at <http://www.nrc.gov/reading-rm/doc-collections/reg-guides/occupational-health/active/8-13/> or downloaded in printable PDF form at <http://www.animalinsides.com/genrad/safety2/08-013.pdf>.

The million dollar question that is always asked by veterinarians and technicians is “can pregnant employees continue to take radiographs during pregnancy?”

This is a difficult question. Legally, technicians are able to continue obtain radiographs in a veterinary hospital if the hospital follows a strict protocol for radiation monitoring and safety during the pregnancy (see below). However, a prudent and recommended approach (and an approach that nobody will criticize) is to encourage technicians to stay out of the x-ray room for the duration of the pregnancy.

One of the reasons we recommend keeping technicians out of the x-ray room is recommended because we live in a litigious society and because the actual effect of radiation to the fetus are not known. As you can imagine this is a very difficult area to research.

Previously, it was stated that all ionizing radiation is potentially harmful and there is no threshold below which one can absolutely say for certain that that radiation exposure to the fetus is safe. This lack of scientific evidence for a threshold could be cited by a technician (or technician’s lawyer) in a legal proceeding if there was a problem associated with pregnancy. If there is an issue with a newborn, people (by nature) look to point fingers and blame the problem on someone or something. Don't let the radiation safety practices in your hospital be the focus of this blame.

A second reason we recommend keeping pregnant technicians out of the x-ray room is that the MPD for the pregnant worker is much lower than other radiation workers. You never know when they will require radiographs for their

own medical purposes and you don't want to exceed their MPD during daily work just in case they need radiographs or a CT scan for health reasons during the pregnancy.

It is my opinion, that this situation simply be avoided if at all possible. However, if a technician insists on working in radiology during the pregnancy, or if working in radiology is an unavoidable requirement of employment, a strict radiation safety protocol that conforms to the NRC guidelines must be in place to protect the embryo-fetus from the harmful effects of ionizing radiation; and the veterinary hospital from liability if problems should arise related to the pregnancy.

## Do this if you are a pregnant radiation worker:

When a technician becomes pregnant they must alert their supervisor of the pregnancy and declare the pregnancy in writing. If the technician does not declare the pregnancy in writing, the technician's dose continues to be controlled under the normal dose limits for radiation workers.

In other words, in order for a pregnant worker to take advantage of the lower exposure limit and dose monitoring provisions, the woman must declare her pregnancy in writing to the employer. A form letter for declaring pregnancy is provided in this chapter (see page XXXX) or the licensee may use its own form letter for declaring pregnancy.

The declared pregnant worker (DPW) should then be counseled regarding their exposure history, safety aspects of the employee's work, the harmful effects of radiation exposure to the fetus, the proper radiation safety protocols used to protect the fetus, and provide the worker with an opportunity to ask questions.

These items are outlined in the NRC regulatory guide 8.13 (Instruction concerning Prenatal Radiation Exposure). All DPW's should be given a copy of this document. A signed copy of this document should be kept on record.

**NOTE: Declaration of pregnancy forms, and a record of attendance at a pregnancy consultation can be found at the end of this chapter.**

**NOTE: You can download a copy of the NRC Guide 8.13 at <http://www.animalinsides.com/genrad/safety2/08-013.pdf>**

If the technician elects to continue working in radiology (which should not be a problem given the exposures commonly encountered in veterinary hospitals following prudent radiation safety procedures):

1. The technician is given two radiation monitoring badges. One badge is worn on the torso and the other badge worn over the abdomen.
2. The badges must be submitted for evaluation on a monthly basis.
3. Exposures must be less than 50mrem per month during the pregnancy.
4. The monthly reports should be reviewed with the DPW and these reports should become part of the workers permanent dose history.
5. Contact your local or state radiation safety officer to make sure that you have taken all of the proper precautions.

The fetal dose limit will remain in effect until the DPW is known to no longer known to be pregnant, or informs their supervisor that they are withdrawing their declaration of pregnancy.

**Order Now to Get the Declaration of Pregnancy Forms and the Rest of this Chapter**