

Equine Medical Center Nuclear Medicine Program Initial Training Information for Ancillary Personnel

This information is provided to new students, staff, and faculty for review before beginning work.

Radioactive material will be used in various areas within the Teaching Hospital because of the nuclear medicine program.

The radioisotope, Technetium 99m, will be used for internal imaging of horses. This radioisotope has a very short half-life of 6 hours, i.e. half of the radioactivity will be gone in 6 hours. This also means that within 3 days, the radioactivity will decay to background radiation levels.

Primary locations where radioisotopes are used/may be present:

- Isotope receiving
- Scintillation Camera Room
- Equine Nuclear Medicine Stalls
- Necropsy Cooler

Radiation Levels and Control

Radiation levels accessible by individuals that are not authorized radiation workers are controlled and monitored to be very low. Be aware and read all postings available. The Camera room is locked to control access.

Each area or room in which radioactive material is used will be posted with the radiation warning symbol and the words "CAUTION - RADIOACTIVE MATERIAL". If the radiation level is greater than 5 mr/hr, then the "CAUTION - RADIATION AREA" sign is required.

Contamination levels on floors and other surfaces accessible by individuals will be kept below a very low limit. These contamination levels will be checked on a routine basis. The proper steps to reduce personal contamination potentials are:

- Wear gloves at all times
- Wear lab coats whenever close contact with patients is possible
- Wear shoe covers whenever floor contamination is possible (stalls)
- Exit contaminated areas properly
- Monitor hands, feet and clothing after any involvement

Note: All individuals MUST wear their badge whenever in areas where isotopes are being used.

If a contamination problem does occur, emergency procedures have been developed for Principal Users (P.U.) to control and clean up the contamination quickly. See list of Principal Users below.

- Dr. Morton Adams
- Dr. James Brown
- Laura Dawson
- Meaghan Dunn
- Gail Figgins
- Sara Lundy
- Ann Masters-Stern

In the event of a spill or release, the following Emergency Steps are to be followed:

- Notify people in the immediate area
- Restrict access to the affected area
- Clean up the contamination under the supervision of a Principal User.
- Confirm cleaning success with monitoring
- Restore access to the affected area

The Radiation Safety Office can be contacted at (540) 231-5364 or dcon@vt.edu to discuss any radiation-related concerns. These discussions can be confidential if requested. Questions at EMC can be directed to Ann Masters-Stern in Radiology, (301) 676-0253. During a radioactive material emergency, if there is no answer at (540) 231-5364 or it is after normal work hours, call Virginia Tech Police at 540-382-4343 and ask them to contact the Radiation Safety Office staff.

Equine Medical Center DOs and DON'Ts for the Nuclear Medicine Department

DOs

- Do wear personal dosimeter badges when cleaning the nuclear medicine stalls, working around sources of radioactive material, x-ray machines or nuclear medicine patients or their blood, urine, or feces.
- Do read and follow the rights and responsibilities on the state form, [VDH Notice to Employees](#).
- Do report areas that should be kept locked for security of radioactive materials, if they are not locked.
- Do put all radioactive waste in a well-marked, appropriate container such as liquid, sharps or solid radioactive waste including used protective clothing.
- Do immediately notify a Principal User and your supervisor if there is a spill of radioactive material, some other related event, or you are asked to get help. The Radiation Safety Office must also be contacted at (540) 231-5364, or if busy, the Virginia Tech Police at 540-382-4343.
- Do notify the Radiation Safety Office anytime you have a question or want to declare your pregnancy.
- Do ask to see your radiation dose report if you have a dosimeter badge and you are concerned about your dose history.
- Do wear lab coats and gloves any time you may come in contact with radioactive materials or a radioactive patient. Carefully remove gloves and wash hands with soap and water.
- Do wear booties or protective shoe covers if there is a chance that you will enter a nuclear medicine stall.
- Do get training in patient control, visitor control, contamination control, waste control from a Principal User before working with radioactive materials or animals.
- Do ensure that all nuclear medicine patients remain until at least 24 hours post injection.
- Do notify a Principal User and the Radiation Safety Office if a radioactive nuclear medicine patient dies. If a nuclear medicine patient dies or is euthanized before it reaches background radiation levels, label the carcass appropriately and store in a properly marked necropsy cooler until background radiation levels are reached.
- Do notify the Radiation Safety Office if a radioactive nuclear medicine patient requires surgery. Establish contamination control by wearing protective clothing and consider all equipment and supplies contacting the patient contaminated. Clean equipment and work areas and survey for contamination prior to reuse.
- Do use time, distance and shielding consistent with good patient care. Limit time to only that required to do the job. Try to complete routine tasks, if possible, away from the patient and radiation field.
- Do check calibration due date, batteries and response to a known source before each use of a portable survey instrument. Check calibration due date located on the side of the meter and verify that the due date is not passed. Turn the instrument to battery test and

verify it indicates good battery condition. Check that there is a response to the source on the side of the instrument.

- Do ensure that stalls are not cleaned until 60 hours post injection. They must be surveyed by a P.U. before cleaning to ensure they are at background level. Remove 'Radioactive Material' signs to release the stall and document survey readings. Stalls may be cleaned before 60 hours post injection if approved by Ann Masters-Stern (EMC). The bedding must be placed in a locked dumpster and stored until 60 hours post injection, surveyed and then processed as usual if at background radiation levels.
- Do clean stalls and associated rooms with copious amounts of water. Avoid splattering.
- Do always use two persons to move patients and have a spill kit available.
- Do if an equine nuclear medicine patient urinates out of its stall, avoid the splatter, warn others, cordon off the area and contact Ann Masters-Stern for assistance.

DON'Ts

- Don't allow owners or visitors to touch or enter stalls. Visits should be discouraged and all visitors must be escorted by a student or clinician.
- Don't clean stalls until released by a Principal User. Seek them out during any emergency (list above).
- Don't prepare or administer radiopharmaceuticals unless you are a Principal User.
- Don't enter stalls with "Caution Radioactive Material" signs unless immediate patient care is needed. Wear booties if entering.
- Don't eat, drink or store foods in areas where radioactive material is used or stored. Look for "Caution Radioactive Material" signs.
- Don't have unnecessary objects in radioactive material areas where they may become contaminated.
- Don't work around or use radioactive material unless you have successfully completed nuclear medicine training and have a radiation dosimeter badge.