

Bassett Healthcare Network

The Mary Imogene Bassett Hospital Clinical Laboratory: PFI 2253

Safety Folder:

Title: Radioactive Specimens Policy

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Radioactive Specimen Policy

A. Key Words

Radiation Radioactive Sentinel lymph nodes Isotope

B. Purpose:

To manage the processing, handling, and disposing of tissues that contain radioactive lsotopes.

C. <u>Scope:</u>

This procedure applies to short-lived radionuclides used at Bassett Medical Center, Surgical Pathology, CLP, Core Lab, Transfusion Services, and the General Laboratory Safety Manual.

D. Note:

This policy is in line with Bassett's ALARA (As Low as Reasonably Achievable) program with regards to managing the risk of unnecessary exposure of laboratory personnel to radioactive materials.

E. Exposure

Initial radiation levels of surgical specimens will be documented by the Radiation Safety Officer. These readings will be taken when specimen(s) is/are initially received into Surgical Pathology, as well as, on the paraffin embedded tissue blocks the following day. Additionally, Gross room staff will wear Radiation Monitoring Dosimeter badges for a finite period of time. It is not necessary for CLP or Histology staff to wear badges as their **exposure is** minimal. Results will be kept by the Laboratory Safety officer. The specimen readings and badge readings will be used to determine baseline exposures well below an actionable level. Monitoring will be discontinued when determined to be appropriate by Radiation Safety officer.

F. Policy:

- 1. Radioactive stickers are placed on a patient's chart at the time of injection of a radioisotope in Nuclear Medicine or T2 Radiology.
- 2. A patient has a procedure in an Operating Room or Ambulatory Surgery where the resulting surgical specimen is marked with radioactive stickers.
- 3. All fresh breast specimens requiring radiographs are transported to T2 Mammography, then to Laboratory.
- 4. All other specimens are brought directly to the Laboratory.

8:00 a.m. and 4:30 p.m. Monday through Friday.

- 5. All surgical specimens labeled with radioactive stickers are brought directly to Pathology by OR staff or ASU staff.
- 6. The pathology specimen is accessioned.

After hours

- All surgical specimens labeled with radioactive stickers are placed in the CLP refrigerator with other surgical pathology specimens by CLP staff. (*Per radiation safety officer, the refrigerator serves as a barrier to protect employees from any radioactive exposure.)
- 8. After receipt into Pathology department gross room, surgical specimen is placed into a lead lined box as described above.

Processing Surgical Pathology

- 9. **To accession specimen**, the required information is entered into the LIS system and the specimen container is marked with Surgical Pathology Number.
- 10. The labeled specimen is returned to the lead box until time of Gross examination.
- 11. The cassettes are held with other accessioned specimens. A lead lined box is kept in the Pathology gross room with plastic liners to protect the box from formalin damage and rust, as well as, absorbent formalin neutralizing pads to minimize fumes within the container.
- 12. Specimen is removed from box a second time for Gross examination.
- 13. If not all of tissue is submitted in cassettes, the remaining tissue is returned to lead box and held for 3 days from time of collection.* If all the tissue is submitted, the specimen container is held in the wet tissue storage cabinet for at least 24 hours.
- 14. A notation is made on the specimen log noting specimen in lead box.
- 15. Disposal. After 3 days, the specimen may be removed from lead box and the radioactive stickers can be removed or defaced.
 *Three days is suggested for the use of short-lived radionuclide such as technetium-99m, which is currently used in lymphoscinitigraphy for both breast carcinoma and melanoma cases. The half-life of technetium-99m is 6 hours. After 10 half-lives or 60 hours the
- radioactivity is reduced to background levels. 16. The specimen can be placed in Gross room storage cabinets and disposed of according
- 16. The specimen can be placed in Gross room storage cabinets and disposed of according to routine policies for surgical specimens.

Non-surgical Pathology Specimens

- 17. All blood, urine, body fluid and stool containers and aliquot tubes must be labeled with a Radioactive Material sticker.
- 18. All materials that come into contact with the specimen (transfer pipets, pipet tips, reagent strips, specimen cups, etc) must be segregated into a separate small biohazard bag.

Label the bag with a Radioactive Materials sticker. When analysis is complete, seal the bag and place in the Radioactive Storage box in Surgical Pathology.

- 19. After analysis, store primary and aliquot tubes in lead box in Surgical Pathology Gross Room. If storage capabilities are exceeded, contact Nuclear Medicine at x3613 to pick up and store waste.
- 20. Tech will document specimen on the Radioactive Specimen Log and leave note in section communication book on the date the specimen is stored.
- 21. The Section Charge Tech or designee will check the Radioactive storage box weekly.
- 22. For body fluids containing isotopes store until specimen is no longer radioactive (<0.4). Refer to the Addendum for use of the Geiger counter. The half-life of decay depends upon the isotope used.
- 23. Once background levels have been reached, the material(s) can be disposed in the typical Regulated Medical Waste stream.
- 24. The date of specimen disposal will be documented on the Radioactive Specimen Log.

Reference

Early, P.J., Sodee, D.B. Principles and Practice of Nuclear Medicine. St. Louis: The C. V. Mosby Company, 1985 p. 485.

CERN lsotopes frequently used in used in Nuclear Medicine and Radiology. https://cds.cern.ch/record/1309915/files/978-3-642-02586-0_BookBackMatter.pdf

Addendum

Using Model ASP-1 Geiger Counter

- 1. Verify cables are attached
- 2. Verify battery (BAT). Set range switch to the *BAT* position. The batteries are okay if the meter shows above the *BAT OK* mark. Recheck the batteries during long periods of operation.
- 3. Set dial to X100 (marked with arrow)
- 4. Background CPM (top scale) should ready ≤0.2 0.4
- 5. Measuring sample place sample close to detector head
- 6. Specimen is ready to be discarded if counts are < 0.4
- 7. Be sure to turn off meter after use to preserve battery life.

Reference

Model ASP-1 Analog Smart Portable Technical Manual.

Non-Surgical Pathology Radioactive Specimens Log

Specimen ID	Specimen Type	Date/Initials Stored	CPM (top scale <0.4)	Date/Initials Disposed

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