



Conference of Radiation Control Program Directors, Inc.

POSITION

H-48 The Committee on Radiation Therapy

Relating to: Use of Biology-Guided-Radiotherapy (BgRT)

Use of Biology-Guided-Radiotherapy (BgRT)

Positron Emission Tomography (PET) scanners have been in clinical use for decades and exploit the fact that malignant cells are metabolically more active. These cells consume sugar (glucose) faster than normal cells. For PET imaging, the patient is injected a radiotracer agent. For example, a radionuclide with a short half-life that emits a positron, such as fluorine 18 (F-18), is combined with glucose), and injected in the patient. Tumor cells pick up the PET agent preferentially. The radionuclide decays emitting a positron which combines with an ambient electron and releases two photons each with an energy of 511 keV. The scanner has detectors that detect these photons, and the scanner software uses algorithms to determine the precise location of the source of the photon emission(s) within the body to build an image of the body internals. For treatment using BgRT, the patient is injected with a radiotracer prior to the treatment session. The PET scanner component of the device locates the tumor site, guiding delivery of radiation from the linear accelerator to the tumor.

Regulatory concerns

US NRC 10 CFR Part 35 regulations or equivalent agreement state regulations are applicable for medical use of radioactive material.

This procedure can only be performed in facilities that maintain a radioactive materials license for the medical use of unsealed radioactive material and also provide radiation therapy services.

Radiotracers may only be injected by an appropriately trained person under the supervision of a physician authorized for the use of unsealed radioactive materials for the purpose of imaging and localization studies in humans. A radiation therapy technologist may not inject a patient with radioactive material.

The American Registry of Radiologic Technologist states the Radiation Therapy Technologist may not administer the radiotracer without being dual certified in Radiation Therapy and Nuclear Medicine.

Therefore, the position of H-48 CRCPD Working Group H-48 is that a Certified Nuclear Medicine Technologist must deliver the PET radiotracer while only a Registered Radiation Therapy Technologist (RTT) conducts the prescribed radiation therapy treatment approved by the Radiation Oncologist.

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Adopted by the CRCPD Board of Directors on April 14, 2025.

A handwritten signature in black ink, reading "L Bruedigan", positioned above a horizontal blue line.

Lisa Bruedigan
CRCPD Chairperson