

Clinical PET/CT: A Win or a Loss for Nuclear Medicine?

PET/CT dual-modality imaging is here to stay. There can be no question of that. Almost 3 of 4 new units sold today are PET/CT hardware fusion units. Clinical PET performed with ^{18}F -FDG has been the domain primarily of nuclear medicine since clinical units first became commercially available in the early 1990s, and PET technology has been developed almost exclusively by professionals in the field of nuclear medicine.

Rapid improvements in PET technology have occurred in the last 5 years, including the introduction of commercially manufactured dual-modality PET/CT devices. The advantages of PET/CT units over dedicated PET units are inherent in the marriage of 2 modalities capable of providing the ideal combination of structural and metabolic information. These advantages and associated improvements in the ability to localize and characterize disease have now been embraced by a far larger medical community than just nuclear medicine. With this movement is the likely potential that at least some members of the nuclear medicine community—physician professionals—will be left in the dust. The reason is obvious and simple.

Just as PET/CT has begun largely to replace dedicated PET, PET/CT with the incorporation of diagnostic CT scans that use oral and intravenous contrast material and have a higher effective amperage will begin to replace single-modality CT. Because many nuclear medicine physicians have not received the training or obtained enough experience to be proficient in CT cross-sectional anatomy, many are currently not able to profes-



sionally interpret the CT component of PET/CT. As long as PET/CT dual-modality imaging remained in the introductory mode that used the CT component for just attenuation correction and localization of ^{18}F -FDG PET abnormalities, diagnostic-quality CT scans were not generated and a formal interpretation of the CT information was not required. Given this circumstance and one similar but opposite for a radiologist who is not proficient in PET, some have proposed that the PET and CT components be interpreted and reported separately by physician professionals who are qualified to do so. Over the long run, this solution will not be viable.

To ensure that the patients who are examined with PET/CT receive the best possible care, the physician professionals interpreting these clinical studies will need to be proficient in both PET and CT. At the highest level of integration, these physician professional will evaluate and report on both the diagnostic-quality CT image data and the PET image data. This can be achieved only by

professionals who are trained and experienced in both modalities. Unfortunately, current independent pathways for graduate medical education (GME) in nuclear medicine and radiology do not provide adequate training or experience to achieve this level of proficiency. Without such a curriculum, there can be no win/win scenario for either the patient or the professional communities.

The remedy requires changes on 2 levels. On the GME level, programs must be of a length and scope sufficient for the resident to receive education and training in both cross-sectional imaging and PET. On the clinical practice level, continuing medical education (CME) and experience must be of a magnitude and mix sufficient for the practitioner to become proficient and confident in the evaluation, interpretation, and integration of both modalities. For residents, the level of training and experience that programs currently provide will need to be evaluated and adjusted to meet the newly defined requirements for education in both PET and CT. For practicing clinicians, the involved professional communities will need to agree on, define, and establish pathways for CME and clinical experience, and these pathways will need to provide credentials that are recognized and satisfactory for clinical privileges in PET/CT.

These processes are in motion and the pathways are being laid. This will certainly be a win for nuclear medicine... and for the patient.

James W. Fletcher, MD

*Indiana University School of Medicine
Indianapolis, Indiana*