# Clinical MI: Breast Cancer

Mammographic screening for breast cancer has resulted in a documented reduction in mortality, but sensitivity remains a problem, particularly in dense-breasted women for whom the superposition of tissue in the image reduces detectability.

To address this, much work has been done in tomosynthesis and cone-beam CT of the breast, with very encouraging initial results. However, x-ray techniques rely principally on morphologic or vascular change to determine pathology. Molecular methods such as optical and nuclear imaging may therefore add information by probing specific molecular pathways in tissue.

Devices for nuclear projection imaging of the breast are now commercially available, and a range of limited-angle single-photon devices, positron emission mammography, and fully tomographic systems have been developed. Clinical data are sparse but encouraging, and some exciting presentations on the topic were given at the 2007 SNM Annual Meeting.

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In whole-body imaging, the general consensus is that combined functional and anatomic imaging increases diagnostic accuracy. This has motivated some groups to consider dedicated PET/CT and SPECT/CT for breast imaging.

For example, a collaboration at the University of California-Davis between my lab and the labs of John Boone, PhD; Simon Cherry, PhD; and Jinyi Qi, PhD, has built a dedicated breast PET/CT scanner, and we acquired our first patient images in December 2007 (Fig. 1). In addition, a group lead by Martin Tornai, PhD, at Duke University Medical Center (Durham,

*(Continued on page 20N)*

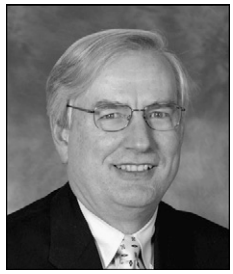


# MOC Part II: Frequently Asked Questions

Now that maintenance of certification (MOC) requirements are a reality, diplomates and boards are confronted with many questions about implementation. Because MOC is an evolving process, American Board of Nuclear Medicine (ABNM) policies may change. Diplomates should check www.abnm.org for up-to-date information. Four frequently asked questions about MOC Part II are:

**(1) What are the requirements for Part II: Lifelong Learning and Self-Assessment?** Beginning in 2007, each diplomate must confirm a total of 50 continuing medical education (CME) credits annually:

- **25 noncategory 1 CME credits:** Acquired by reading journals, articles on the Internet, etc. No documentation is required; the diplomate simply attests to having completed the required number of credits.
- **25 category 1 CME credits:** Courses and reading materials must meet specific requirements to qualify. Up to 7.5 of the 25 credits/y may be unrelated to nuclear medicine. **At least 17.5 credits/y must be related to nuclear medicine**. Because nuclear medicine now includes anatomic as well as molecular and functional imaging and therapy, related subjects could include a wide variety of topics. **At least 8 of the 17.5 nuclear medicine credits must come from self-assessment modules (SAMs)** that require the active participation of the diplomate. The SAMs must be preapproved by the ABNM. A list of approved SAMs is available from the SNM (www.snm.org).



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*(Continued on page 20N)*

*(Continued from page 17N)*

NC) has built a SPECT/CT device. Although low-dose CT of the breast has clear potential in screening, this is less likely to be true for breast PET/CT and SPECT/CT, because dosimetry and uptake time considerations alter the cost/benefit ratio for the screening population. Instead, applications may lie in local staging, response assessment in primary chemotherapy, surgery planning, and (possibly) monitoring and follow-up for high-risk populations.

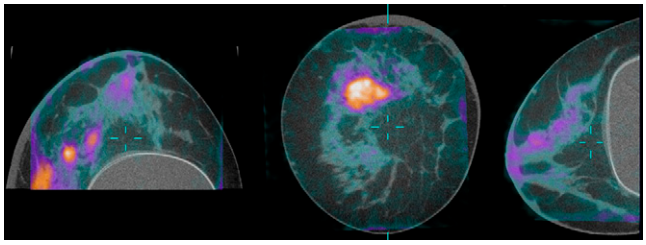

**FIGURE 1.** First patient scanned on our dedicated breast PET/CT scanner (tracer, $^{18}$F-FDG). A 49-year-old woman with implants and a palpable mass in the right breast. Left to right: axial, coronal, and sagittal views. A diagnosis of invasive mammary carcinoma was made at biopsy. Images courtesy of Spencer L. Bowen.

However, it is not yet clear whether such technologies are in competition with or are complementary to breast MR, whether utility is limited by technological considerations, or what the benefits of adding dedicated anatomical–metabolic imaging to the breast cancer management algorithm will be. Innovation in this field is rapid and the possibilities are wide, but more clinical data are needed.

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No CME credit is given for certification or MOC examinations.

**(2) Do I need to send my CME documentation to the ABNM?** No. As with CME for medical licenses, CME documentation does not have to be sent to the ABNM except when a diplomate is audited. The board plans to audit a small percentage of its diplomates each year. CME credits that are automatically entered by SNM will not be subject to audit. The ABNM also plans to allow automatic entry of CME through the CME Gateway (www.CMEgateway.org) later this year.

**(3) Will the ABNM provide my CME credits for state licensing board audits?** No. If a diplomate is audited by a state licensing board, verification of CME credits is best done by the provider of those credits.

**(4) What happens if I don't complete my CME requirements this year?** The ABNM expects all of its diplomates to meet the 50 CME credit requirement annually, because learning should be continuous and ongoing. The board has developed a list of criteria to determine whether a diplomate is participating in MOC. For Part II, the ABNM will continue to list a diplomate as participating in MOC as long as he or she is no more than 5 years behind in meeting CME requirements. To take the MOC examination, diplomates will need to be up-to-date with their CME requirements.

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