

Only Education (Not Credentialing) Truly Advances the Field

Nuclear medicine occupies an unusual position within the spectrum of medical specialties and, indeed, sits at a critical point in its history with respect to the most appropriate training path. The advent of hybrid imaging and particularly the rapidly emerging technique of PET/CT have led to increasing interest in molecular imaging by the radiology community. SPECT/CT and PET/MR imaging will also likely have a greater penetration into the diagnostic arena in coming years. As a result, many now consider nuclear medicine to be a diagnostic imaging specialty most appropriately performed by radiologists. In the United States, nuclear medicine specialization from a physician track has significantly diminished, and physicians in nuclear medicine are reported to be finding it increasingly difficult to find employment as the imaging aspects of the specialty are progressively incorporated into routine radiology practice. An increasing number of nuclear medicine specialists in Australia are also now trained radiologists.

Nevertheless, for many reasons a focus on the medical aspects of nuclear medicine remains as important or more important today than it ever was. As the delivery of health care moves inexorably toward personalized medicine, there is an overwhelming need for experts in the definition, selection, and delivery of targeted therapies. Molecular imaging, particularly the development of a range of highly specific imaging tracers, will be an important tool in this process. Important advances are also being made in the use of radiolabeled therapeutic agents. I believe that we are on the cusp of an era in which molecular imaging will emerge as a vital complement to advances in molecular biology and will require a training program that will not be met adequately by either the radiology or physician training programs as currently formulated. Although the European Community remains strongly oriented to physician-led nuclear medicine, it seems to me that it has been slow to recognize the advantages of a detailed understanding of the complementary nature of many radiologic techniques, entrenching a “them and us” mentality.

An enlightening perspective on the evolution of new specialties was provided by Sean R. Eddy, PhD, a molecular biologist and research scientist, in 2005 in the online journal *PLOS Computational Biology* (1). He pointed out that new developments in medicine have arisen in the absence of formal accreditation frameworks. He noted, for example, that Watson and Crick were trained not as molecular biologists but rather as an ornithologist and a physicist, respectively. I am concerned that the credentialing processes currently being adopted in various parts of the world will stifle the

development of new medical specialties. My own perspective is that credentialing serves merely to stop us from going backward by limiting the likelihood of incompetent practitioners being able to provide clinical services, whereas research and education are vital for us to advance.

It is ironic that although many international trainees beat a path to my department door, my department is no longer accredited for core training in nuclear medicine for Australian trainees. This has occurred because I have migrated the practice of nuclear oncology so far from what is considered standard practice that we now are considered to do too few “conventional” nuclear medicine studies. In particular, through my efforts to progressively replace conventional nuclear medicine procedures with PET/CT equivalents that are diagnostically superior, safer, and more convenient, the throughput of oncologic nuclear medicine tests using single-photon agents has dramatically decreased over the past decade. As director of what my international colleagues tell me is one of the leading molecular imaging facilities in the world, I find it bemusing that representatives of my own college cannot appreciate how regressive a policy is one that judges the quality of training by counting the number of ^{99m}Tc -MDP bone and ^{201}Tl cardiac scans. This “value quantity over quality” mentality ignores the importance of innovation and the educational opportunities that exist in an environment of change that will be crucial to the future of nuclear medicine. No one who has read an ^{18}F -fluoride bone scan or ^{82}Rb myocardial perfusion scan will ever want go back to the conventional equivalent.

Medicine has made its greatest advances by breaking with convention. I am very concerned that a rigid view of the requirements of specialist training will diminish the fertilization of new ideas and perspectives into existing specialties and impede the development of new areas of expertise. What, for example, would be the “approved” training program for a clinician wanting to use synchrotron radiation in his or her research and potentially for diagnostic and therapeutic purposes?

Those of us who believe in the principles developed by de Hevesy and other pioneers of nuclear medicine, who came from disciplines as diverse as the processes, techniques, and diseases that they studied, need to rediscover the value in



Rodney J. Hicks, MD

(Continued on page 16N)

CMIIT Sponsors Breast Cancer Imaging Meeting at NIH

The centerpiece of the SNM Center for Molecular Imaging Innovation and Translation (CMIIT, formerly the Molecular Imaging Center of Excellence) activities each year is an annual multimodality molecular imaging symposium at the National Institutes of Health (NIH). This year, CMIIT is sponsoring “Breast Cancer Imaging: State of the Art 2011” to be presented April 21 and 22 at the Natcher Auditorium on the NIH campus in Bethesda, MD.

The program committee—Jason Lewis, PhD, David Mankoff, MD, Sandra Swain, MD, and I—has designed a 2-d symposium that brings together individuals from multiple clinical and scientific disciplines associated with the diagnosis, staging, and treatment of patients with breast cancer. The conference will address the need for synergy between diagnostic radiology and molecular imaging as it is applied to the care of breast cancer patients. Speakers include expert diagnostic radiologists, molecular imaging physicians and scientists, oncologists, surgeons, economists, and radiation oncologists.

During the meeting, we will review the current state of imaging of breast cancer, from the screening mammography controversy and advanced screening technology to local and distant staging and response to treatment. Although breast cancer diagnosis and staging have been primarily in the realm of diagnostic radiology, mammography, ultrasound, MR, and CT imaging, the importance of molecular imaging is increasing, and this symposium will

address the best way to integrate these previously separate disciplines going forward. Along with imaging lectures will be lectures on local and systemic treatment by clinical experts who care for breast cancer patients. These lectures will emphasize the role of molecular imaging in conjunction with radiology in enabling better treatment selection and evaluation and the ideal approach to assessing response to treatment. Timely topics on the agenda are cost effectiveness and radiation risk, with an additional look into the future of molecular imaging in breast cancer and the potential of personalized, targeted care. Abstracts from our poster presenters can be found in the back of this issue of *The Journal of Nuclear Medicine*.

Part of the formula for these meetings is the participation of patient groups and other societies active in these areas. We are proud that a number of groups have joined us in supporting this meeting.

Our meeting coincides with the spring cherry blossom season in Washington, and I hope you will consider bringing your family with you to our nation’s capital. Please visit www.snm.org/breast2011 for additional information, including the names of participating groups. I look forward to seeing you there!

Maxine S. Jochelson, MD
Chair, Breast Cancer Symposium Program Committee

(Continued from page 15N)

breaking free of dogma. If our craft groups, journals, and professional societies cannot evolve and adapt, we should find new ones. It is indeed encouraging that the nuclear medicine community is willing to critically consider its future through the medium of *The Journal of Nuclear Medicine*. However, it must also not succumb to hopelessness but rather be proactive in charting its own course. Molecular imaging and molecular biology are natural partners in the development of personalized medicine, and the diagnostic techniques that we develop will inevitably enhance

patient treatment selection, planning, and monitoring, and, thereby, outcomes.

REFERENCE

1. Eddy SR. Antedisciplinary science. *PLoS Comput Biol*. 2005;June1(1):e6.

Rodney J. Hicks, MD
Professor of Medicine and Radiology
University of Melbourne
Director, Centre for Cancer Imaging
The Peter MacCallum Cancer Centre
Melbourne, Australia