

Nuclear Medicine in the Spotlight at RSNA

Consolidation of past gains, the capabilities of new hybrids, and the promise of molecular imaging made nuclear medicine news in the technical exhibit hall at McCormick Place during the December meeting of the Radiological Society of North America in Chicago, IL. Several of the innovations making their debuts on the wider radiological stage were previewed at the SNM meeting in Philadelphia, PA, in June, most notably SPECT/CT systems, which makers hope will spur a resurgence of interest in gamma camera imaging.

In the **Philips Medical Systems** booth, the Precedence SPECT/CT was prominently displayed. Philips debuted the unit earlier at the SNM meeting, where the company called it “the first hybrid SPECT with a multislice diagnostic CT system” and outlined its special applications in oncology and cardiology. The Precedence combines the company’s Skylight gamma camera, which uses vertically hung dual detectors, with the Brilliance multislice CT platform. The unit is available in 2 configurations: 6-slice CT for oncology and 16-slice CT for cardiology. All Precedence units feature a software package with advanced data correction algorithms and additional molecular imaging software. “This breakthrough hybrid technology offers unique benefits for all parties: better, quicker exams for patients, higher levels of confidence for physicians, and a competitive advantage—long-term investment and reduced costs for hospitals and research facilities,” said Ian Farmer, vice president, SPECT and PET, for Philips.



FIGURE 1. Philips Precedence SPECT/CT unit.

Literature distributed at the booth also noted that the Precedence was designed as a “platform to accelerate the adoption of molecular imaging into the mainstream of care.” The company is currently engaged in a number of partnerships advancing molecular imaging and therapy on several fronts. These partners and projects include: (a) Kereos: molecular imaging and image-guided therapy using nanoparticles targeted for angiogenesis and unstable plaque; (b) CellPoint: creating a universal linker technology for the development of a new generation of targeted SPECT imaging agents for diagnosis and therapy in oncology; (c) Theseus: refining image optimization for specific apoptosis markers to assess the efficacy of therapy using SPECT imaging agents; and (d) Cytogen: developing image optimization methods and improved diagnostic information for ProstaScint in prostate cancer. “Molecular imaging requires interdependence among key players in the industry,” said Peter Luyten, general manager of molecular imaging at Philips. “We believe that by bringing together the best elements involved, the potential of molecular imaging can be fully realized. And we will continue to advance molecular imaging through partnerships with pharmaceutical companies and clinical sites.” Philips also plans to market an upgraded version of its 16-slice Gemini PET/CT designed to support cardiovascular applications and newly approved indications for evaluation of Alzheimer’s disease.

Siemens Medical Solutions featured its Symbia system, incorporating the company’s TruePoint SPECT/CT technology. The first Symbia unit has been installed at the University of Michigan Health System (UMHS), which plans to install 2 more Symbia systems by the end of 2005. “This device will allow us to take nuclear cardiac imaging to the next level. We expect that within the next year, we’ll be doing 80%–90% of our cardiac studies on these systems,” said James Corbett, MD, Professor of Radiology and Internal Medicine and Director of Cardiovascular Nuclear Medicine, UMHS. The system uses Siemens’s multimodality platform, syngo, which offers a common, intuitive user interface, easy access to patient data, and the ability to acquire and process data at a single workstation. “Since the excitement surrounding its introduction at the SNM meeting in June, our customers have been eagerly awaiting our first clinical installations of TruePoint SPECT/CT technology,” said Michael Reitermann, president of the Siemens Medical Solutions Nuclear Medicine Group. The Symbia T6 version combines a dual-detector, variable-angle gamma camera with a 6-slice CT scanner for advanced oncology, neurology, and cardiology applications.



FIGURE 2. Siemens Symbia system.

Siemens is pursuing innovations in molecular imaging through an ongoing cooperative agreement with the Center for Molecular Imaging Research. One of the tools under development as a result of that collaboration is the MIPortal, a Digital Imaging and Communications in Medicine (DICOM)-compatible information technology platform for molecular imaging. Siemens also showcased bonSAI, a fluorescence optical imaging technology that enables *in vivo* imaging of molecular processes.

Also on display was the X-SPECT, a second-generation microSPECT system marketed by Siemens through an agreement with Gamma Medica. This is a dual-modality SPECT/CT system for small-animal imaging.

General Electric Healthcare featured its PET/CT Advantage Workstation with Volume Viewer Plus, with a suite of image display and analysis tools designed to streamline data-intensive image processing and display. GE is also in the process of upgrading its Infinia Hawkeye SPECT/CT unit from its current single-slice CT configuration. The SPECT aspects of the unit have been upgraded since the unit's formal introduction in 2003, including fanbeam collimation for enhanced brain SPECT and a camera-based PET option for extended clinical utility, first shown at the European Association of Nuclear Medicine meeting in September.

On November 29 in Chicago, GE announced a new research initiative in PET/CT technology. GE Healthcare has initiated deployment of Discovery ST PET/CT research units to premiere clinical partner sites around the world. These units are expected to generate data that will broaden PET/CT applications beyond cancer care. The 4 units will be deployed to sites that were early adopters of the technology, including the University of Texas M.D. Anderson Cancer Center (Houston), the Johns Hopkins University School of Medicine (Baltimore, MD), the Mayo Clinic (Rochester, MN), and University Hospital (Zurich, Switzerland). "This research will allow us to explore the opportunities of new clinical breakthroughs," said Val J. Lowe, MD, associate professor of radiology at Mayo. Among the targets of research are a wide range of diseases and disorders and the acceleration of radiopharmaceutical research.



FIGURE 3. GE Infinia Hawkeye SPECT/CT.