

  
TECHNOLOGIST JOB NETWORK

The New England Chapter—SNM/TS announces “**The Job Hotline,**” a national toll-free, hotline for nuclear medicine. The hotline is designed to provide a quick link for technologists seeking jobs and for hospitals seeking technologists. Institutions seeking technologists should call the hotline number, leave the name of the institution, title of the job opening, and name and number of the contact person; data are then stored for three months in a database for anyone who calls the hotline seeking employment. Technologists seeking employment should call the hotline number, specify state(s) which are of interest, specify type of job desired, and leave name and address. A listing will then be sent out in 48 hours; all inquiries are kept confidential. If an opening has not been filled within three months, the institution should call again to have it listed. The institution should also call if an opening has been filled so that it can be deleted from the database. The hotline numbers are **1-800-562-6387 (1-800-JOB-NETS)** or **1-990-4212 in Maine**. Questions or comments should be directed to: Tom Starno, Manager, Job Hotline, New England Chapter—TS at **(207) 945-7186**.

The Mideastern Chapter—SNM/TS will provide a referral network for technologists seeking employment and for hospitals in need of technologists. Interested individuals should call Cathy Gonzalez at **(301) 855-1712**. Please leave your name, address, phone number and a brief description of your request.

**EDITOR'S NOTE**

SNM chapters are invited to submit job referral service listings for publication. Pertinent information—name and brief description of the service, telephone numbers and/or address, name or number of contact person for inquiries—should be sent to: Joan Hiam, Section Editor, *JNM*, Society of Nuclear Medicine, 136 Madison Avenue, New York, NY 10016-6760.

cians," he noted. "I don't have to go out and con the technologists into supporting department programs. Technologists volunteer and come up with many ideas of their own for increasing patient [and] physician satisfaction with [the] services we offer the community."

The hospital's other activities included an open house tour of the department, a newsletter on nuclear medicine procedures made available to patients, hospital staff, physicians and visitors, and pictorial displays in main areas of the hospital. The hospital also received state and county proclamations commending them on their efforts in promoting nuclear medicine to the community.

The central region winner, the Children's Memorial Hospital, a 250-bed, nonprofit private tertiary care teaching hospital affiliated with Northwestern University, concentrated on educating the general public and health care community about the realities of nuclear medicine.

"Because we're the pediatric teaching arm of Northwestern University, we have first-, second-, and third-year house staff who are Northwestern residents," said Susan Weiss, CNMT. "We educated all of them. We reached three years worth of pediatric physicians [and] about 40 student technologists in all."

The technologist staff at Children's Memorial Hospital prepared posters explaining commonly performed imaging studies, which were on display throughout NMW. Banners were also placed in several main areas of the hospital. The staff also purchased and presented to their patients "goodie bags" with toys and other treats for the children. The hospital's public relations department also sent out press releases and radio public service announcements, and even paid for a NMW ad in the *Chicago Tribune*.

Staff wore flowers on their lab coat lapels during NMW to identify them as experts and resource people for information about nuclear medicine.

"I think we have an obligation as professionals to educate the community about the beneficial role that nuclear

medicine plays and to inform them so they can make an informed decision about the risk and benefit of a nuclear medicine procedure, particularly if you're a parent making a decision for your child," stated Ms. Weiss.

"It's not the children, it's the parents who express fears about nuclear medicine," she added. "We've received many comments from parents that they [now] had a better idea of our service after Nuclear Medicine Week and they felt we [communicated] it to them in a very professional manner."

**Kipp Friedman**

*Kipp Friedman works for the firm that administers the contest for GE.*

## ■ Annual Meeting Preview

Hailed by Winston Churchill as "the most beautiful inland city in the United States," Cincinnati, OH is the site of the 38th Annual Meeting of The Society of Nuclear Medicine. Over 7,000 nuclear medicine professionals will be in attendance to review the latest developments and state-of-the-art instrumentation in nuclear medicine.

Convening the week of Monday, June 11, more than 1,000 scientific papers and posters encompassing a wide spectrum of nuclear medicine applications, including SPECT, PET, MRI, computer instrumentation, pediatrics, cardiology, neurology, radiopharmaceuticals, and oncology will be presented at the meeting. As in previous years, these papers will be presented by the original authors who also will be available for questions and comments following their presentations. Both SNM and SNM-TS posters and exhibits will be on view throughout the meeting in the Exhibit Hall of the Convention Center.

The meeting's Formal Opening and Plenary Session features a special address by Congressman Willis D. Gradison, Jr., Second District Ohio, Ranking Minority, Ways and Means Subcommittee on Health. The Plenary Session will also feature the presentation of the Twelfth Annual Georg Charles de Hevesy Nuclear Medicine Pioneer Award to Alfred P. Wolf, PhD,

Brookhaven National Laboratory, Upton, NY.

Important components of the meeting are the SNM and SNM-TS continuing education (CE) programs. The SNM CE program again is comprised of categorical seminars (full-day sessions on topics geared for nuclear medicine practitioners, senior medical technologists, and referring physicians) as well as CE courses and the Nuclear Medicine Review Course. In this year's "Chapter College Bowl" the Southwestern Chapter challenges the Greater New York Chapter in a "College Bowl" quiz and answer question. The session enables participants and viewers "to expand their basic knowledge of classical cases that have easily identifiable characteristics which lead to a correct diagnosis."

This year the SNM-TS CE program provides over 70 hours of clinical updates that will provide chief and staff technologists with the latest clinical information. The complete SNM-TS program is presented on pages 112-141 in this issue. Of particular interest is "The Technologist Section Management Categorical Seminar," which provides technologists with the strategies necessary for effective departmental management. Another Section-sponsored course is "FDA: Medical Device Problems—New User Reporting Legislation and Guidelines," which will apprise participants of the 1990 Safe Medical Devices Amendment and describe and provide examples for the Problem Reporting Program and the Medical Device Program. A course on professional development, which is based on the DuPont Nuclear Medicine Technologist Advisory Board's workbook, is two half-day sessions that will help technologists develop skills to ensure better communication with physicians, patients, and other staff members.

Social activities provide a welcome change of pace from the flurry of lectures and committee meetings. The ever-popular Technologist Party (sponsored by all of the Meeting's exhibitors) will be held on Thursday, June 13 in the Regency Ballroom of the Hyatt Regency Hotel.

The Technologist Section Business Meeting, which is open to all members, will be held on Thursday, June 13 from 5:00-6:00.

Additional information about the Annual Meeting may be obtained by contacting: The Meetings Department, The Society of Nuclear Medicine, 136 Madison Avenue, New York, NY 10016-6760 or by calling (212) 889-0717.

## ■ Four-Head SPECT Systems Face Challenges in Imaging Market

While the high-resolution single-photon emission computed tomography (SPECT) field is currently dominated by single-head, dual-head, and three-head systems, four-head SPECT camera units have slowly begun to gain a foothold into the market. Due to design and geometric constraints, however, four-head SPECT systems are exclusively brain-dedicated and, as a result, their future success hinges upon the expansion of clinical neurology investigations within the field of nuclear medicine. In addition, while four-head SPECT cameras provide high resolution and sensitivity, their high cost—in the neighborhood of \$1 million each—precludes their use in most small community hospitals and clinics and limits their use to large neurologic and psychiatric research institutes. Nevertheless, four-head SPECT has earned supporters within the nuclear medicine community and may eventually become an important component of the overall SPECT domain.

According to Eric Woronowicz, Marketing Manager, Siemens Gammasonics, Inc., Hoffman Estates, IL, "While the demand for three-head SPECT systems is growing every year, single-head SPECT still owns quite a sizable share of the SPECT market." Mr. Woronowicz adds that "the foreseeable market for four-head systems seems to be too narrow at this time for most gamma camera firms to consider manufacturing them." However, Kurt Nissen, Sales Manager, Medimatic, Inc., Irvine, CA, counters that, "four-

### JNMT 1990 Outstanding Paper Award

Mel L. Allen, Allan J. McPherson, Bernie J. Mertes, David F. Preston, and Ralph G. Robinson are the recipients of the *Journal of Nuclear Medicine Technology* Outstanding Paper for 1990 award. Their winning paper, "Effects of Cyclosporine in Lowering Red Blood Cell Labeling," was selected from over 30 submitted entries. Papers are judged on their educational utility, innovation, timeliness, and method of publication by the *Journal's* Associate Editors. First published in the September 1990 issue of the *Journal* (p. 191-193), this paper also was selected as the winning manuscript for the Education and Research Foundation's Technologist Award last year.

Presentation of the award will be made during the Technologist Section's Business Meeting in Cincinnati, OH. As primary author, Mr. Allen will receive a plaque inscribed with the authors' names and a \$100 honorarium.

head SPECT offers higher sensitivity, higher resolution, and faster acquisition time than three-head SPECT," and its development is forthcoming.

### Advantages of Four-Head SPECT

In 1988, investigators at Hitachi Medical Corporation, Tiba, Japan, in collaboration with the Osaka University Medical School, National Osaka-Minami Hospital, Osaka, Japan, led by Kazufumi Kimura, MD, successfully developed a four-head gamma camera for brain imaging in response to the inferior sensitivity and resolution provided by single-head rotating SPECT cameras and ring-type SPECT systems (1). "Given the complex nature of the brain... our design objective targeted achieving three-dimensional volume imaging with high sensitivity, equivalent high resolution in all planes, and sufficient temporal resolution to permit dynamic SPECT applications," wrote Dr. Kimura et al. "To achieve these goals, priority was given to the development of higher performance detectors with optimal positional proximity to the head, maximization of viewing vol-

ume and data collection sensitivity, and high speed multiple rotation stability. The detectors, small enough to be positioned close to the head without obstruction by the patient's shoulders allow full volume imaging of the cerebellum." While reporting a sensitivity with the four-head apparatus that was ten times higher than measurements obtained with a single-head SPECT camera, Dr. Kimura concluded that "preliminary clinical application of our device has clearly demonstrated the potential usefulness of imaging detailed brain structures and precise visualization of the three-dimensional extent of lesions present. [Furthermore], the high sensitivity and high speed rotational acquisition capability of the device permits dynamic SPECT studies to be carried out in the analysis of rapidly varying radiotracer concentrations."

The Johns Hopkins Medical Institutions, Baltimore, MD, a leading neurologic research facility, is a proponent for the use of four-head SPECT cameras. "The images generated by our four-head SPECT camera are far superior to anything I've seen before," says Petra Jeffery, MD, Clinical Research Fellow at Johns Hopkins. "Its improved spatial resolution allows us to detect signs of Alzheimer's disease and small cerebral infarcts. We can also detect lesions in the brain as small as 6-7 mm." Dr. Jeffery notes that the number of brain scans performed with SPECT has increased dramatically in the past three years. "A neuro-research facility might conduct between 500 to 1,000 brain SPECT scans a year, and with such a substantial turnover, an imaging system with high resolution and fast acquisition and processing times is imperative. Four-head SPECT provides those requirements." Dr. Jeffery further stated that a premier neurologic research facility like Johns Hopkins can justify the purchase of a sophisticated four-head SPECT unit by virtue of its large annual volume of neurologic patients. "Here [at Johns Hopkins] we are using a Hitachi four-head SPECT to clinically diagnose patients with severe psychiatric disorders, multi-infarct dementias, epi-

lepsy, subarachnoid hemorrhages, strokes, etc, and the improvement in resolution has led to a significant increase in diagnostic sensitivity and specificity," she says. "However, I must point out that a single-head SPECT would be useful and cost-effective in a small community hospital with a limited budget that occasionally encounters cases of straightforward dementias."

One of the major advantages of multi-head SPECT is its rapid scan time. "This is particularly important when treating patients with cerebral disorders," says Michael Devous, PhD, Associate Professor of Radiology and Associate Director of the Nuclear Medicine Center, University of Texas, Southwestern Medical Center, Dallas, TX. "Many of them cannot sit still for the 30 or so minutes required for the traditional single-head SPECT brain scan. With the multi-headed detectors we can do a scan in five minutes, and have more time to properly evaluate the patient and develop an effective therapy program. Moreover, the rapid acquisition and processing time increases our throughput while vastly improving the quality of the images generated."

### Disadvantages of Four-Head SPECT

The two major drawbacks to the four-head SPECT systems are their prohibitively high cost and their current limited applicability to brain imaging procedures only. "Its geometric configuration prevents the four-headed gamma camera system from being used anywhere but on the head," explains Dr. Devous. "Whereas a three-head detector system can image the heart, bones, liver, as well as the brain; a four-head machine can't be positioned close enough to the body. The field of view of each of the four heads must be quite small in order to situate them around the patient. As a consequence, the current four-head detectors are solely designed for cerebral imaging." Dr. Devous adds that if the design of four-head detectors could somehow be altered in order to image other body parts, their

usefulness and desirability might increase dramatically, "although such a development would appear to be a long way off."

Ronald J. Jaszczak, PhD, Professor of Radiology and Associate Professor of Biomedical Engineering, Duke University Medical Center, Durham, NC, and a pioneer of SPECT technology, offers that while four-head SPECT scanners deliver slightly higher resolution than three-head systems, the improvements are not enough to offset their considerable cost. "I estimate that the image quality and resolution provided by four-head SPECT is superior to three-head SPECT by a factor of no more than 5%," Dr. Jaszczak said. "Such a small improvement cannot be reconciled with the fact that a four-head detector is nearly double the cost of a three-head system [\$475,000-\$600,000]." Dr. Devous adds that based on his observations, the image quality and resolution provided by four-head SPECT is "identical to the three-head and only a tad bit faster in acquisition time."

### Future Outlook

Mr. Nissen believes that the market for four-head SPECT is presently larger in Europe and Japan than in the United States. "This can be attributed to two things: the progress of brain research in the U.S. is largely shaped by the Food and Drug Administration's (FDA) approval of new brain imaging agents. The FDA is slow to authorize new agents. In Europe and Japan, neurologic research institutions have a little easier time in obtaining newly approved agents, and therefore, their facilities can perform more brain scans exclusively. Also, the billing procedures for these scans is an issue not yet resolved in the States, [given] the controversy over Medicare reimbursement for nuclear medicine procedures."

"Multi-headed SPECT is clearly the wave of the future," asserts Jonathan M. Links, PhD, Division of Nuclear Medicine, The Johns Hopkins Medical Institutions. "While the differences between three-head and four-head systems are relatively small, they are both

vastly superior to single-head capabilities." While Dr. Links admits that the four-head camera's singular applicability to cerebral imaging is something of a "drawback," he remains confident that it will have a firm place in nuclear medicine due to the recent growth of brain imaging studies, the development of new imaging agents, and the renewed emphasis upon brain research—as exemplified by President Bush designating the 1990s as the "decade of the brain."

**Palash R. Ghosh**

Associate Production Editor, JNMT

### Reference

1. Kimura K, Hashikawa K, Etani H, et al. A new apparatus for brain imaging: Four-head rotating gamma camera single-photon emission computed tomograph. *J Nucl Med* 1990;5:603-609.

## ■ News Briefs

### Nordion Shuts Down NRU Reactor

On January 12, 1991, Nordion International of Kanata, Canada shut down its primary medical radionuclide-producing reactor (the NRU). Nordion, which is the sole provider of molybdenum-99 for the United States, stated that the reactor was shut down due to "airborne contamination in the reactor building." Although no supplies were immediately available on the day of the shut down, Nordion's backup reactor, the NRX, was in operation by January 13. According to Iain C. Trevena, PhD, Vice President of Nordion's Isotope Divisions, "By January 20, Nordion was meeting all customer requirements for the major nuclear medicine isotopes."

Of major concern to the Society of Nuclear Medicine (SNM) is the lack of a secondary source for these isotopes.

According to Richard A. Holmes, MD, Immediate Past President of the SNM, the SNM is seeking to work with industry and the Department of Energy to implement the development of a secondary source of reactor-produced radionuclides. According to Dr. Holmes, "Because it is a critical need for all of nuclear medicine, the Socie-

ty should really be involved. Alternative sites must be developed if we are to avoid the problem that happened to Nordion."

### **Nuclear Medicine Week 1991**

Nuclear Medicine departments across the nation are preparing for the sixth annual observance of Nuclear Medicine Week (NMW), which will occur July 28 through August 3. Sponsored by the SNM and the SNM-TS, NMW provides a forum for the medical community and the general public to learn about the status and progress nuclear medicine has made in the diagnosis and treatment of disease.

The Society will once again make available "Guidelines for Promoting Nuclear Medicine Week," a pamphlet outlining information on various promotional activities. In addition, a special poster and button have been designed to commemorate the event. A small number of these items will be sent to each chapter. Additional buttons, posters, and stickers will be sold to hospitals, institutions, and individuals interested in promoting NMW. These materials may also be purchased at the SNM's Annual Meeting in Cincinnati, OH. The poster and button can be seen on page 6A in this issue.

In association with the observation

of NMW, General Electric Medical Systems again is sponsoring the Media Stars contest, which will award a \$250 honorarium to three individuals who devise and conduct the most effective public relations campaign for NMW and a \$1,000 donation to each individual's institution. Entry forms for the contest are included in the Guidelines package. Awards of the winners of the 1990 Media Stars Contest will be presented at the 38th Annual Meeting.

Additional information about NMW may be obtained by contacting: Virginia Pappas, CAE, The Society of Nuclear Medicine, 136 Madison Ave., New York, NY 10016-6760, (212) 889-0717.