NEWSBRIEFS

2005 Proposed Physician Fee Schedule Available

The Centers for Medicare & Medicaid Services (CMS) Medicare Program; Revisions to Payment Policies Under the Physician Fee Schedule for Calendar Year 2005 (CMS-1429-P) went on display at the Office of the Federal Register on July 27 and was published in the *Federal Register* on August 5. The document is available now on the CMS Web site (www.cms.hhs.gov/regulations/pfs/2005/1429p.asp). The comment period on these revisions will close on September 24, and instructions for submission of comments are included on the site. See the SNM Web site (www.snm.org) for specific comments from the Society on revisions that may affect nuclear medicine reimbursement.

Centers for Medicare & Medicaid Services

SNMTS Announces Scholarships

The SNMTS Professional Development and Education Fund (PDEF) announced in July its sponsorship of 2 $5,000 scholarships for technologists in 2005.

The PDEF Mickey Williams Minority Student Scholarship offers assistance for a minority student currently accepted or enrolled in a nuclear medicine technology program at the time of application for the scholarship. The award is open to students in associate and baccalaureate level programs only. Individuals with previous certificates or degrees in nuclear medicine sciences are ineligible. The scholarship honors the memory of Mickey Williams, SNMTS president in 1991.

The PDEF Professional Development Scholarship assists a nuclear medicine technologist in his or her pursuit of a master's or doctoral degree related to the advancement of a career in nuclear medicine.

Scholarship recipients are chosen by a committee that ranks applicants based on financial need, previous academic performance, recommendations, and other factors. Each carries a $5,000 award, and both are funded through the support of the Corporate Friends of the PDEF. Award monies will be available in January 2005.

The SNMTS PDEF supports the advancement and practice of nuclear medicine technology through activities that ensure an adequate supply of qualified nuclear medicine technologists; encourage research studies, publications, and papers in nuclear medicine technology that promote the development of best-practice techniques; advance the educational background of clinical nuclear medicine instructors, practicing nuclear medicine technologists, and those just entering the field; and advance the education and research programs of SNMTS.

Deadline for scholarship application submission is October 15. Complete information and submission forms are available at www.snm.org.

Sokoloff Honored

The Intramural Research Program of the National Institute of Mental Health hosted a reception and dinner on July 10 to honor Louis Sokoloff, MD, chief of the Laboratory of Cerebral Metabolism and its Section on Developmental Neurochemistry and a major contributor to the understanding of biochemistry and physiologic function in the central nervous system. Sokoloff received his BA from the University of Pennsylvania College of Arts and Sciences in 1943 and his MD from the university's school of medicine in 1946. His postdoctoral work focused on general circulatory and cerebral physiology, pharmacology, and metabolism. His laboratory studies the mechanisms responsible for the interactions of cerebral blood flow, energy metabolism, and functional activity. Methods developed in his laboratory to measure local rates of blood flow, glucose utilization, and protein synthesis in laboratory animals have been central to the development and advancement of clinical and research PET imaging. He has received the F.O. Schmitt Medal in Neuroscience (1980), the Albert Lasker Clinical Medical Research Award (1981), the National Academy of Sciences Award in the Neurosciences (1988), and the Ralph Gerard Award of the Society of Neuroscience (1996). Sokoloff was elected to the National Academy of Sciences in 1981 and the Institute of Medicine in 1997.

National Institute of Mental Health

Pinpointing NMT Radiation Exposure

In a report published in a recent issue of *Radiation Protection and Dosimetry* (2004;109:201–209), R. Smart, from the 500-bed St. George Hospital (Kogarah, Australia) monitored nuclear medicine technologist (NMT) workflow to assess which points in the management of radioactive patients are most likely to result in NMT radiation exposure. NMTs wore dosimeters that measured and recorded dose rates in microsieverts per hour every 32 seconds. The major sources of exposure were associated with transferring incapacitated patients from the imaging table to a gurney, performing difficult injections without syringe shields, and preparing and positioning patients for gated myocardial scans. The average doses to the NMT for each of these procedures are detailed in the article. The author suggests that "staff waiting for assistance with patient transfers stand away from the patient, that tungsten syringe shields be used for all radiopharmaceutical injections, and that a 0.5-mm lead apron be worn when attending patients con-

taining high activities of ^{99m}Tc radiopharmaceuticals, such as those having myocardial imaging."

Radiation Protection and Dosimetry

HHS and Health Information Technology Reform Goals

On July 21, U.S. Health and Human Services (HHS) Secretary Tommy G. Thompson released the first report on a 10-year plan to transform the delivery of health care by building a new health information infrastructure, including electronic health records (EHR) and a new network to link health records nationwide. At the same time, he announced a number of new steps to help advance health information technology in the near term. The plan, prepared by the new National Coordinator for Health Information Technology, David J. Brailer, MD, PhD, lays out the broad steps needed to achieve always-current, always-available EHR in the United States. EHR systems would also enable physicians and other health professionals to electronically tap into a wealth of treatment information as they care for patients. The report was released in Washington, DC, at a Secretarial Summit on Health Information Technology bringing together the nation's technology and health leaders.

The report, titled *The Decade of Health Information Technology: Delivering Consumer-centric and Information-Rich Health Care*, says federal leadership can help hasten efforts to be carried out by the private sector. The report identifies 4 major goals, with strategic action areas for each: (1) inform clinical practice: bring information tools to the point of care, especially by investing in EHR systems in physician offices and hospitals; (2) interconnect clinicians: build an interoperable health information infrastructure, so that records follow the patient and clinicians have access to critical health care information when treatment decisions are being made; (3) personalize care: use health information technology to give consumers more access and involvement in health decisions; and (4) improve population health: expand the capacity for public health monitoring, quality of care measurement, and bring research advances more quickly into medical practice.

In addition, the report identifies potential policy options for providing incentives for EHR adoption, including grants, low-rate loans for EHR adoption, adjustments in Medicare reimbursements, demonstration projects, and "updating federal rules on physician self-referral that may unintentionally restrict investment and networks."

Secretary Thompson announced he would appoint a special leadership panel to assess total costs and benefits of health information technology and report to him by fall 2004. He also announced efforts underway to develop private sector certification for health information technology products. And he said HHS will begin reviewing the feasibility of a private sector consortium to plan and develop a new nationwide network for health information.

Department of Health and Human Services

Biomedical Informatics Symposium Proceedings Available

A symposium on "Biomedical Informatics for Clinical Decision Support: A Vision for the 21st Century" was conducted on June 21–22 at the Natcher Conference Center at the National Institutes of Health (NIH) in Bethesda, MD. The symposium was jointly conducted by the NIH Bioengineering Consortium and the Biomedical Information Science and Technology Consortium. The purpose of the meeting was to identify opportunities, needs, and directions for applying computer science and informatics principles and methods to clinical decision support. Specific areas covered during the meeting included data management (databases and digital libraries), enabling technologies (modeling, software tools, and techniques), and translational informatics. Approximately 400 people attended the symposium. Presentations from all speakers are available at www.becon.nih.gov/symposium2004.htm.

National Institutes of Health

Report on Hospital Deaths from Medical Errors

HealthGrades, Inc., a Lakewood, CO-based health care quality assessment firm, issued a report on July 28 indicating that an average of 195,000 people in the United States died as a result of in-hospital medical errors in each of the years 2000, 2001, and 2002. The study was based on a review of 37 million patient records from across the country. The *Patient Safety in American Hospitals* study is the first to look at the mortality and economic effects of medical errors and injuries that occurred during Medicare hospital admissions nationwide from 2000 to 2002. The resulting annual number of deaths is more than double the number estimated in the widely read 1999 Institute of Medicine (IOM) report, *To Err is Human*. "The HealthGrades study shows that the IOM report may have underestimated the number of deaths due to medical errors, and, moreover, that there is little evidence that patient safety has improved in the last 5 years," said Dr. Samantha Collier, HealthGrades' vice president of medical affairs. "The equivalent of 390 jumbo jets full of people are dying each year due to likely preventable, in-hospital medical errors, making this one of the leading killers in the U.S."

HealthGrades examined 16 of the 20 patient safety indicators defined by the Agency for Healthcare Research and Quality (AHRQ), from bedsores to postoperative sepsis, omitting 4 obstetrics-related indicators not represented in the Medicare data used in the study. Of these 16, the mortality associated with 2, failure to rescue and death in low-risk

hospital admissions, accounted for the majority of deaths associated with patient safety incidents. "If we could focus our efforts on just 4 key areas—failure to rescue, bed sores, postoperative sepsis, and postoperative pulmonary embolism—and reduce these incidents by just 20%, we could save 39,000 people from dying every year," said Dr. Collier.

The complete study, including the list of AHRQ patient-safety indicators, can be accessed at www.healthgrades.com.

HealthGrades, Inc.

JCAHO Supports Increased Accountability, Opens Public Info Site

On July 20, the Joint Commission on Accreditation of Healthcare Organizations (JCAHO) announced its support of a proposal made that day by Representative Pete Stark (D-CA) and Senator Chuck Grassley (R-IA) to develop legislative language that would make the JCAHO hospital accreditation program specifically accountable to the federal government for deemed status purposes. "We view this as a major opportunity to enhance the longstanding, successful public/private-sector partnership between the Joint Commission and the Centers for Medicare & Medicaid Services (CMS) in overseeing the performance of America's hospitals," said Dennis S. O'Leary, MD, president of the JCAHO. "We look forward to working with CMS and the Congress to strengthen the government's mechanisms for oversight of the Joint Commission."

For more than 20 years, the Joint Commission has worked with CMS, formerly the Health Care Financing Administration, to assure that federal performance expectations for hospitals are met and to afford the government access to and application of state-of-the-art standards and evaluation methods.

"We are very pleased that CMS acknowledges, in its last 3 reports to Congress, that Joint Commission–accredited hospitals are in compliance with Medicare standards 98% of the time," O'Leary said. The congressional proposal would, in essence, provide the same deemed status framework for hospitals that exists for other federal deemed status relationships. The JCAHO has 6 other deemed status relationships that are subject to oversight by the secretary of the Department of Health and Human Services. Similar federal deeming relationships with other accrediting bodies exist as well.

During the same week, the JCAHO launched a new Web site for reporting health care information about the quality and safety of care provided in its accredited health care organizations across the country.

Quality Check (www.qualitycheck.org) will provide data to individuals that will permit them to compare local hospitals, home care agencies, nursing homes, laboratories, and ambulatory care organizations with others on state and national bases. For the first time, the JCAHO will provide hospital-specific information about clinical performance in the care of patients with 4 major conditions: heart attack, heart failure, pneumonia, and pregnancy and pregnancy-related conditions. Individuals will also be able to determine how health care organizations compare with others in meeting national requirements that help prevent medical accidents. Health care organizations can be searched on the site by name, type, and/or location.

Joint Commission on Accreditation of Healthcare Organizations

Alzheimer's Spending, Numbers Expected to Increase Rapidly

In little more than a decade, U.S. spending on Alzheimer's disease (AD) may triple, according to projections made by presenters at the 9th International Conference on Alzheimer's Disease and Related Disorders, held July 17–22 in Philadelphia, PA. The growth in spending will outpace even the predicted explosion in numbers of individuals affected by the disease. Recent estimates have put the current number of individuals in the United States with AD at 4.5 million, and projections see 11–16 million individuals with AD in 2050. Moreover, several researchers at the annual convention sponsored by the Alzheimer's Association predicted rising numbers of AD cases in minorities.

"Unless a prevention or cure is found soon, Alzheimer's disease will overwhelm our already stretched health care system and bankrupt Medicare and Medicaid," said Sheldon Goldberg, president and CEO of the Alzheimer's Association. "Medicare expenditures for people with Alzheimer's are almost 3 times higher than the average for all beneficiaries. And, Medicare spending for beneficiaries with Alzheimer's will triple between now and 2015, from $62 billion in 2000 to $189 billion in 2015. State and federal Medicaid spending on people with Alzheimer's disease, for nursing home care only, is estimated to rise from $19 billion in 2000 to $27 billion in 2015." Groups of researchers from Duke University (Durham, NC) and the University of Pennsylvania (Philadelphia) reported in 3 studies on rising cost of care for individuals with AD.

Among the most striking findings from the meeting were conclusions offered from research on the rising toll of AD in minority groups in the United States. Clark et al. from the University of Pennsylvania described a study evaluating 119 Latinos and 55 non-Latino AD patients and their families at 5 National Institute on Aging–sponsored AD Centers. They found that the first symptoms of AD began 6.8 years earlier in Latinos compared with non-Latinos, after adjustment for differences in sex and years of education. Unadjusted mean age of onset for the 2 groups was 67.6 (Latino) versus 73.1 (non-Latino) years. AD and related dementias are projected to increase more than 6-fold among Hispanics in

the United States during the first half of the 21st century, according to a report released earlier this year by the Alzheimer's Association. This increase means that 1.3 million Hispanics will have AD by 2050, compared with fewer than 200,000 currently living with the disease.

High rates of AD were also identified among African Americans in a study by Laditka et al. of the University of South Carolina at Columbia. South Carolina is the only state to keep a comprehensive database of individuals diagnosed with AD. The research team found that African Americans aged 55–64 years were more than 3 times as likely to have AD as their European American counterparts. At ages 65–84, African Americans were more than twice as likely to have AD. Even over the age of 85 African Americans have an Alzheimer's rate nearly 1.5 times higher. Marenberg et al. from the University of Pennsylvania School of Medicine, however, cautioned against a tendency to overestimate the number of African Americans with early signs of AD, noting that screening tests must be adapted to cultural differences. The team's research on a large population indicated that mild cognitive impairment (MCI; increasingly looked to as a precursor for AD) was overdiagnosed in African Americans when using traditional testing methods. "In order to accurately identify African Americans with MCI, we need to develop tools that correct for the fact that many neuropsychological tests are not sensitive to cultural differences," said Marenberg.

Alzheimer's Association

DOE Science Education Initiative Launched

Secretary of Energy Spencer Abraham announced on July 8 that the U.S. Department of Energy (DOE) and its national laboratories will launch an initiative to promote science literacy and help develop "the next generation of scientists and engineers." The initiative will begin with a 7-step program called STARS: Scientists Teaching and Reaching Students. The program is designed to enhance the training of America's mathematics and science teachers; grow students' interest in science and math, especially in the critical middle school years; draw attention to the women and men who have contributed to DOE science; and encourage young people and prospective teachers to pursue careers in math and science. "The risks of a scientifically illiterate nation in the 21st century are too great for business as usual," Secretary Abraham said. "We will work with our partners at the National Science Foundation, the Department of Education and others as we explore new opportunities to attack this challenge." A number of DOE outreach programs to be coordinated through the national laboratories were outlined and will be directed through a new DOE Office of Science Education.

U.S. Department of Energy

From the Literature

Each month the editor of Newsline selects articles on therapeutic, diagnostic, research, and practice issues in nuclear medicine from a range of international publications. Most selections come from outside the standard canon of nuclear medicine and radiology journals. These briefs are offered as a monthly window on the broad arena of medical and scientific endeavor in which nuclear medicine now plays an essential role.

Research

Monitoring Angiogenic Gene Therapy

The growing involvement of nuclear medicine tools and techniques in the most innovative areas of medical research is evident in articles published across the spectrum of practice and investigation. Small animal PET in particular promises not only to aid in novel investigations of disease but to provide a means to radically transform the process of validation of imaging techniques and tracers and to revolutionize the process of pharmaceutical trial and development. During 2004, the number of articles published in the medical literature on research applications of small animal PET has more than doubled every quarter.

Of recent note was a study by Wu et al. from the University of California at Los Angeles on the use of microPET in rats to monitor transgene expression and function in angiogenic gene therapy. The results were published ahead of print in *Circulation* on July 26. An angiogenic gene linked to a PET reporter gene was transfected into rat embryonic cardiomyoblasts in vitro and then injected into the left anterior descending artery in rats with sites of previously induced infarction. Small animal PET assessed the uptake of 9-(4-^{18}F-fluorohydroxymethylbutyl)-guanine (^{18}F-FHBG) PET reporter probe by cells expressing the PET reporter gene. Cardiac transgene expression was found to peak at day 1 and decline over the next 2 weeks. Although the angiogenic gene therapy induced significant increases in capillaries and small blood vessels, these results did not yield significant improvements in functional parameters as measured by echocardiography, ^{13}N perfusion, or ^{18}F-FDG PET. The authors concluded that the findings "establish the feasibility of molecular imaging for monitoring angiogenic gene expression with a PET reporter gene and probe noninvasively, quantitatively, and repetitively." They also noted that the principles demonstrated in this investigation can be translated in studies of other therapeutic genes in animal models before the initiation of clinical trials.

Circulation

Mouse Model Validation of PET in Breast Cancer

In a study e-published ahead of print on July 26 in the *Proceedings of*

the National Academy of Sciences of the USA, Abbey et al. from the University of California–Davis reported on the use of ^{18}F-FDG PET to monitor the longitudinal development of mammary intraepithelial neoplasia outgrowths in immunocompetent FVN/NJ mice. The study was widely covered in the scientific press and provided evidence suggesting the utility of PET imaging for breast cancer in humans. The neoplasia imaged in the mouse model mimics the progression of breast cancer from premalignant ductal carcinoma in situ to invasive carcinoma. The results of the study not only showed progression of the disease and a correlation of ^{18}F-FDG uptake with histology but also yielded quantitative markers that accurately tracked the progression and proliferation of disease over time.

Proceedings of the National Academy of Sciences of the USA

Specifications and Performance of the microPET II

Performance specifications on a high-resolution small animal PET unit were reported by Yang et al. from the University of California–Davis in the June 21 issue of *Physics in Medicine and Biology* (2004;49: 2527–2545). The microPET II includes 17,640 lutetium oxyorthosilicate crystals arranged in 42 contiguous rings, with axial and transaxial fields of view of 4.9 and 8.5 cm, respectively. Performance was evaluated in mouse and rat studies. Image resolution was found to vary greatly with the reconstruction algorithm applied, and different scanner settings were needed to optimize noise-equivalent count rate, depending on the size of the animal and the injected dose of tracer. The authors reported on the results of both phantom and in vivo animal studies with the microPET II and discussed possible applications and advantages.

Physics in Medicine and Biology

In Vivo Evaluation of β_1-AR Density

Wagner et al. from University Hospital Munster (Germany) reported in the August issue of *Bioorganic and Medicinal Chemistry* (2004;12:4117–4132) on research to design a high-affinity selective β_1-adrenoceptor (AR) radioligand for noninvasive in vivo SPECT imaging of cardiac β_1-AR in humans. Although published results of cardiac biopsies suggest that myocardial β_1-AR density is reduced in patients with chronic heart failure, changes in cardiac β_1-ARs vary and have not previously been imaged or quantified in vivo. As part of the research, 6 pairs of new compounds with the 3-aryloxy-2-propanolamine core of the selective β_1-AR ligand, ICI 89,406 (X: CN, Y: H), were synthesized. Each pair consisted of the racemic and the (*S*)-aryloxypropanolamine derivatives. The comparison of racemic (11a**:** X: I, 11b: X: ^{125}I**,** 11c**:** X: ^{123}I, Y: COOH) with (*S*)- (15a**:** X: I, 15b: X: ^{125}I, 15c: X: ^{123}I, Y: COOH) compounds indicated that the (*S*)-enantiomer should improve the feasibility of SPECT imaging of β_1-AR density noninvasively. Biodistribution and metabolism studies in rats indicated that there is a specific heart uptake of 11b-c and especially 15b-c accompanied by rapid metabolism of the radioligands, so that radioiodinated 11c and 15c appeared to be unpromising SPECT radioligands for assessing β_1-Ars in vivo in the rat. The authors noted that the rat may metabolize β_1-AR ligands more rapidly than other species (as has been demonstrated for a structurallly related radioligand) and called for studies in a different animal model.

Bioorganic and Medicinal Chemistry

Diagnosis

PET in FUO Work-Up

Buysschaert et al. from the University Hospital Gasthuisberg (Louvain, Belgium) reported in the June 15 issue of the *European Journal of Internal Medicine* (2004;15:151–156) on the use of ^{18}F-FDG PET in evaluating patients with fever of unknown origin (FUO). The study included 74 patients who underwent PET imaging after meeting the criteria for classic FUO. Scanning results were evaluated against the results of additional diagnostic tests and follow-up, where a final diagnosis was established (39 [53%] patients). Abnormal scans were categorized as helpful (if pointing toward the final diagnosis) or noncontributory (all other scans). For the 74 patients imaged, PET scans were abnormal in 53 (72%). Of these, 19 scans (36% of abnormal scans and 26% of all scans) were helpful. In the group in whom final diagnoses were established, 49% of scans were helpful. ^{18}F-FDG PET contributed positively to the diagnosis in a quarter of all patients undergoing work-up for FUO. The authors commented that, "against the background of the wide array of heterogeneous disorders that make up the FUO spectrum and the low number of final diagnoses established (in only 53% of cases), the diagnostic yield of FDG-PET is encouraging" and should be considered whenever a baseline work-up fails to reveal the cause of a prolonged, febrile illness.

Another note on PET in FUO appeared in July in the *American Journal of Hematology* (2004;76:236–239). Hoshino et al. from the Gunma University Hospital (Japan) reported on the use of PET to diagnose a case of intravascular lymphomatosis (IVL) that was categorized on presentation as FUO. IVL is a relatively rare systemic disease in which diagnosis is often made only when the illness has progressed or at post mortem analysis. Both ^{67}Ga scintigraphy and CT were normal in the patient, but ^{18}F-FDG PET revealed increased uptake in the sternum, left and right vertebra, humerus, femur, and the ilium. A definitive diagnosis was made after iliac bone marrow biopsy.

European Journal of Internal Medicine
American Journal of Hematology

PET and Recurrent Cervical Cancer

In a study published in the July issue of *Gynecologic Oncology* (2004; 94:212–216), Unger et al. from the Louisiana State University Health Sciences Center (Shreveport) reported on the use ^{18}F-FDG PET in detection of recurrent cervical cancer in both asymptomatic and symptomatic women. The retrospective study included 44 women who had been treated previously for cervical cancer and who underwent a total of 47 whole-body PET scans to detect recurrent disease. Of these scans, 26 were performed in asymptomatic women and 21 were performed in women with symptoms suggesting recurrent disease. PET imaging showed recurrent disease in 30.8% of asymptomatic women and 66.7% of women with symptoms. The authors found that sensitivity and specificity of PET for recurrent disease were 80% and 100%, respectively, in asymptomatic women and 100% and 85.7%, respectively, in symptomatic women. The authors concluded that "whole-body FDG PET scan is a sensitive imaging modality for the detection of recurrent cervical carcinoma in both symptomatic and asymptomatic women."

Gynecologic Oncology

^{15}O-Water PET and Marathon Running

Kalliokoski et al. from the University of Turku (Finland) reported in the August issue of the *Scandinavian Journal of Medicine and Science in Sports* (2004;14:208–214) on a study designed to assess the effects of marathon running on cardiac function and myocardial perfusion. Each of 7 endurance-trained men underwent echocardiography and ^{15}O-water PET imaging before running a 42.2-km marathon. Echocardiography was repeated at 10 and 150 minutes and 20 hours after completion of the race, and PET imaging was repeated at 85–115 minutes after running. Echocardiography showed only mild, clinically nonsignificant changes in cardiac function after running. Rate-pressure–corrected basal myocardial perfusion was increased after running. Adenosine-stimulated perfusion was somewhat higher and perfusion resistance during adenosine stimulation was significantly lower after running. Plasma free fatty acid (FFA) concentration was significantly increased after running. The authors concluded that these "results show that marathon running does not cause marked changes in cardiac function in healthy men" and that "strenuous exercise also seems to enhance coronary reactivity, which could thereby serve as a protective mechanism to vascular events after exercise."

Scandinavian Journal of Medicine and Science in Sports

PET and Conventional Imaging in Metastatic Melanoma

In a study e-published ahead of print on July 12 in the *Annals of Surgical Oncology*, Finkelstein et al. from the National Cancer Institute (Bethesda, MD) reported on a study comparing PET and CT or MR imaging in the detection of stage IV metastatic melanoma in patients scheduled to undergo metastasectomy for palliation or cure. The study included 18 patients who underwent CT or MR and ^{18}F-FDG PET imaging, followed by metastasectomy and serial postoperative evaluations. Independent observers performed separate analyses of CT or MR alone, PET alone, or PET read with knowledge of the CT or MR results. Results of these analyses were compared with clinical outcomes and subsequent evaluations. A total of 94 lesions were noted in the 18 patients. Lesion-by-lesion analysis showed sensitivity, specificity, positive predictive value, and negative predictive values of 76%, 87%, 86%, and 76%, respectively, for CT or MR imaging; 79%, 87%, 86%, and 80%, respectively, for PET alone; and 88%, 91%, 91%, 88%, respectively for PET plus CT or MR imaging. The authors concluded that these results indicate that a combined use of ^{18}F-FDG PET and conventional imaging may be "an accurate strategy to identify sites of disease in patients with stage IV melanoma being considered for metastasectomy."

Annals of Surgical Oncology

PET in Gallbladder Cancer

To counter difficulties in differentiation of gallbladder cancer from cholecystitis or cholethiasis, Rodriguez-Fernandez et al. from the Virgen de las Nieves University Hospital (Granada, Spain) explored the presurgical use of ^{18}F-FDG PET in diagnosing gallbladder lesions. The results were published in the August issue of the *American Journal of Surgery* (2004;188:171–175). The study included 16 patients with clinical symptoms suggesting biliary colic or chronic cholecystitis in whom CT and ultrasound findings were inconclusive for the presence of cancer. All patients underwent ^{18}F-FDG PET imaging, with a sensitivity of 80%, specificity of 82%, and positive and negative predictive values of 67% and 90%, respectively, for gallbladder cancer. The authors concluded that ^{18}F-FDG PET "may be of utility to establish the diagnosis of gallbladder cancer in patients with nonspecific clinical and imaging findings."

American Journal of Surgery

Metabolic Bases of Impairment in Cocaine and Alcohol Addiction

The research group at Brookhaven National Laboratory (Upton, NY) continues to publish groundbreaking studies illuminating the functional and physiologic mechanisms underlying a range of addictions and associated symptoms and behaviors. Goldstein et al. reported in a recent issue of *Neuropsychologia* (2004;42:1447–1458) on a study exploring the severity of neuropsychological impairment in 42 crack/cocaine-addicted individ-

uals and compared this with similar studies in 40 alcohol-addicted individuals and 72 controls. Each participant underwent neurocognitive testing based on a 4-dimensional model of neurocognitive function in which verbal knowledge, visual memory, verbal memory, and attention/executive functioning accounted for 63% of variance. Each patient then underwent ^{18}F-FDG PET imaging to compare resting glucose metabolism with the model's assessment. Results showed that cocaine-addicted individuals had a generalized but mild level of neurocognitive impairment. Relative metabolism in the dorsolateral prefrontal cortex significantly predicted the visual memory and verbal memory factors of the test model, and relative metabolism in the anterior cingulate gyrus significantly predicted the attention/executive factor. The results also indicated that alcohol has a more detrimental effect on attention/executive functioning. The authors concluded that "relative to other psychopathological disorders (such as schizophrenia), the severity of neuropsychological impairment in cocaine addiction is modest, albeit not indicative of the absence of neurocognitive dysfunction." The authors added that the impact of such small differences in performance on quality of life and possibly on craving and relapse may be substantial.

Neuropsychologia

Marrow ^{18}F-FDG Uptake in Hodgkin's Lymphoma

Elmstrom et al. from the University of Pennsylvania Medical Center (Philadelphia) reported in the June issue of *Clinical Lymphoma* (2004;5: 62–64) on a case in which a woman with Hodgkin's lymphoma was imaged with ^{18}F-FDG PET for staging. Marked tracer uptake by tumor and bone marrow initially suggested diffuse marrow involvement of lymphoma. However, iliac crest bone marrow examination showed marked myeloid hyperplasia without evidence of lymphoma. The authors discussed the implications for interpretation of PET imaging of bone marrow in staging and treatment assessment in lymphomas.

Clinical Lymphoma

Early Diagnosis of Progressive Supranuclear Palsy

Mishina et al. from the Nippon Medical School Chiba-Hokusoh Hospital (Japan) reported in the August issue of *Acta Neurologica Scandinavica* (2004;110:128–135) on the use of ^{18}F-FDG PET in the diagnosis of progressive supranuclear palsy (PSP), which is often misdiagnosed in its earliest manifestations. The study included 15 patients with diagnoses of PSP and 16 healthy individuals. All individuals underwent PET imaging. Glucose metabolism in the midbrain was found to be significantly lower in the PSP patients than in the control subjects, but these findings did not correlate with clinical deterioration as measured by traditional evaluation standards. Statistical maps clearly demonstrated hypometabolism in the midbrain in PSP patients, which the authors called "a most promising sign for early diagnosis of PSP."

Acta Neurologica Scandinavica

Therapy

Amino Acid Infusion Effects in Peptide Radiotherapy

In a study e-published ahead of print on July 13 in *Nephrology, Dialysis, Transplantation*, Barone et al. from the University of Louvain Medical School (Brussels, Belgium) reported on a PET study investigating the metabolic effects associated with the infusion of large amounts of amino acids, a technique that is used for reduction of renal uptake during peptide radiotherapy for neuroendocrine tumors. The study included 24 patients, divided into 4 groups of 6. All received a 4-hour infusion of 120 g of mixed amino acids, and 1 group received a 4-hour infusion of 50 g of l-lysine, a second group received a 10-hour infusion of 240 g of mixed amino acids; a third group received a 4-hour infusion of 50 g of l-lysine + l-arginine; and 1 group received no additional infusion. All underwent underwent ^{86}Y-DOTA(0)-D-Phe(1)-Tyr(3)-octreotide imaging. No clinical side effects occurred during the infusions except for nausea and vomiting in the mixed amino acid group, which also showed an increase in serum urea. Varied alterations in serum potassium, chloride, and inorganic phosphate levels were noted in all groups except the controls. The authors concluded that "although infusion of AA solutions can improve the effect of therapy by allowing the administration of higher doses of radiolabeled somatostatin analogues, each preparation has specific sides effects that should be taken into account with this type of therapy."

Nephrology, Dialysis, Transplantation

Complete RCC Response to Semaxanib

Jennens et al. from the Royal Melbourne Hospital (Parkville, Australia) reported in the May–June issue of *Urologic Oncology* (2004;22:193–196) on a case in which SU5416 (semaxanib) treatment of probable von Hippel-Lindau syndrome and metastatic renal cell cancer (RCC) resulted in a complete radiological and metabolic response. SU5416 is a small-molecule inhibitor of vascular endothelial growth factor (VEGF) receptors. The patient was enrolled in a clinical trial examining the efficacy of 145 mg/m^2 SU5416 administered twice weekly for 5 weeks to patients with metastatic cancer. ^{18}F-FDG showed an early metabolic response in the patient after 2 weeks of treatment, and subsequent PET (at 9 months after therapy) and CT (at 12 months after therapy) showed ongoing complete radiologic and metabolic response. The patient remained tumor free 18 months after treatment. The authors called for additional

studies using VEGF inhibitors in patients with von Hippel-Landau syndrome and RCC.

Urologic Oncology

Functional Imaging and Radiotherapy Planning

In a study published in the June issue of *Medical Physics* (2004;31: 1452–1461), Das et al. from Duke University (Durham, NC) reported on an investigation of the dosimetric feasibility of delivering radiotherapy doses to lung tumors in proportion to ^{18}F-FDG activity measured in tumors on PET. The fact that FDG uptake is correlated with tumor cell proliferation rate, the authors reasoned, implies that this dose delivery strategy is theoretically capable of providing the same duration of local control at all voxels in tumor. Preliminary work with target dose-delivery calculations based on SPECT maps of normal lung perfusion was outlined and additional considerations described. An intensity modulation optimization methodology was developed to deliver the calculated doses and applied to 2 patients with lung cancer. Dosimetric feasibility was assessed by comparing spatially normalized dose-volume histograms from the nonuniform dose prescription (^{18}F-FDG PET derived) with those from a uniform dose prescription with equivalent tumor integral dose. Although the optimization methodology was capable of delivering the nonuniform target prescription as easily as the uniform target prescription, in 1 patient the critical structure dosage from the nonuniform dose prescription exceeded dose-volume/function limits and greatly exceeded that from the uniform dose prescription. Adhering to these limits in practice would theoretically entail reduction of the duration of local control. The authors concluded that "even though it appears feasible to tailor lung tumor dose to the FDG-PET activity distribution. . .strict adherence to dose-volume/function limits could compromise the effectiveness of functional image guided radiotherapy."

Medical Physics

From the SNM Annual Meeting (Continued from page 16N)

Bexxar therapy, all patients showed a response, with 83% showing a complete response. Seventy-two percent of all patients treated are still in complete remission 4.4 years later. Kostakoglu noted that "the results are very encouraging. We feel that further evaluation of the addition of RIT to chemotherapeutic regimens for patients with follicular lymphoma is warranted. This may be the future of treatment with radiolabeled antibodies."

The use of radiotracers in gene therapy is among the most rapidly growing areas in medical research. Lee et al. from the Case Western Reserve University (Cleveland, OH), the Thomas Jefferson National Accelerator Facility (Newport News, VA) and the University of Virginia (Charlottesville) reported on small animal ^{125}I-FIAU imaging of the expression of the HSV1-tk delivered into cystic fibrosis (CF) knockout mice. The authors had previously reported on in vivo imaging of radiolabeled DNA complexes containing the therapeutic CF transmembrane conductance regulator gene and monitored its distribution in transgenic CF mice. The HSV1-tk in the current study was delivered in the same fashion. In this study, a custom-built imaging system included both x-ray and planar gamma scintigraphy. The authors found that x-ray images of the mice were readily aligned with scintigraphic images and that radioactivities detected on day 2 indicated that new genetic material was being expressed in the lungs of the mice. According to Lee, "Although the results are preliminary, they are extremely encouraging."

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de Hevesy Award (Continued from page 36N)

Alavi's contributions to nuclear medicine extend well beyond his own research. He and his wife, Dr. Jane Alavi, have been long-time supporters of educational and research opportunities for students in nuclear medicine. Their names are associated with the Alavi–Mandell Awards, which recognize trainees and young scientists who publish articles as senior authors in *The Journal of Nuclear Medicine*. Their generosity also supports the Pilot Research Grants and the Bradley–Alavi Student Fellowship Awards funded by the Education and Research Foundation (ERF) of the SNM. The Alavis not only continue to contribute to the foundation but are active in persuading other colleagues to join them in their support of these important endeavors. Most recently, Abass donated time, energy, and funds to his country of origin, Iran, by assisting physicians and scientists from that country in developing a PET center. He is similarly generous with his time: he serves on the Society's ERF board of directors and is also involved in numerous SNM activities.

"I am honored that I was selected by the Society of Nuclear Medicine for such a distinction," said Alavi. "I share this recognition with my family, my mentors, and with so many students with whom I have worked over the past 3 decades. This is truly a highlight of my career."

Kuhl–Lassen Award *(Continued from page 38N)*

study," said Devous in accepting the award. "I can't imagine a more interesting career, unless as a poet, than to be part of the effort to unravel one of the last great mysteries of biology—the intersection between thought and the physical functioning of the brain."

Devous received his undergraduate degree from Washington University in 1970 and earned his doctorate in nuclear chemistry and physics from Texas A&M University in 1976. Among his awards and honors are the SNM Presidential Distinguished Service Award (1997), the Award of Merit from the Hong Kong Society of Nuclear Medicine (1997), and the Charles A. Dana Foundation award (2001). His wide-ranging investigations include the role of functional brain imaging in exploring the biology of psychiatric and neurologic disorders as well as in understanding brain function and central nervous system pathology in animal models. His work with functional brain imaging has included foci on mood disorders, deafness and speech disorders, substance abuse, bipolar disorders, dementia, schizophrenia, anxiety disorders, head trauma, epilepsy, and stroke.

Previous recipients of the Kuhl–Lassen award include Dean F. Wong, MD, PhD, Johns Hopkins University; Ronald S. Tikofsky, PhD, Columbia University; Yoshiharu Yonekura, MD, PhD, Fukui Medical University, Japan; Peter Herscovitch, MD, National Institute of Mental Health; Nora Volkow, MD, director of the National Institute of Drug Abuse; Albert H. Gjedde, DSc, MD, Aarhus University, Denmark; Marcus E. Raichle, MD, Washington University; and Louis Sokoloff, MD, National Institute of Mental Health.

Tetalman Award *(Continued from page 38N)*

Science Award given by the Nuclear Medical Imaging and Sciences Technical Committee of the Institute of Electrical and Electronics Engineers and the Varian Prize awarded by the Swiss Society of Radiobiology and Medical Physics. He is a member of the editorial boards of a number of Scientific journals He is the editor of 2 textbooks on therapeutic applications of Monte Carlo calculations in nuclear medicine and quantitative analysis in nuclear medicine imaging. He recently joined the Computed Imaging for Medical Imaging collaboration hosted by CERN to work on novel design of high-resolution, parallax-free Compton-enhanced PET scanners.

IASNM *(Continued from page 40N)*

young investigators of Indian origin working in the United States went to Dr. Rakesh Kumar from the University of Pennsylvania for best abstract in clinical science and to Dr. S. Vemulapalli from Duke University for best abstract in basic science.

The relationship between the IASNM and SNM(I) is growing, and IASNM is building a relationship between the SNM and the SNM(I). An important milestone for Indians in North America was the assumption of the presidency of the SNM by a person of Indian origin. Mathew Thakur, PhD, has contributed significantly to the field, not least with his development of white cell labeling techniques. To commemorate Mathew's presidency, we plan a strong presence in India at the annual meeting of the SNM(I), December 15–18, in Mysore. A number of speakers, including Drs. Tom Miller of Washington University (chair of the SNM Scientific Committee), Steve Larson of Memorial Sloan–Kettering Cancer Center (a director of the American Board of Nuclear Medicine), and Alexander McEwan from the Cross Cancer Institute (president of the Nuclear Oncology Council) have agreed to participate. The SNM(I) has graciously drawn up a program that will feature keynote lectures by these speakers. A finalized list of speakers and topics will be available shortly.

During the past year, the IASNM has taken several steps toward strengthening the organization and expanding its services. The Web site (www.iasnm.org) is fully functional and updated regularly. Jim Strommer at the University of California at Los Angeles has provided valuable assistance in maintaining the site.

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Errata

In the August issue of Newsline, page 20N, **Suzuki et al. from the Jikei University School of Medicine (Japan)** should have been listed as the authors of the study on differentiation of Parkinson's disease from dementia with Lewy bodies discussed in the text and presented in Figure 13.

In the same issue, page 37N, the text should have indicated that "**83** FDA-approved RDRCs conducted **280** studies" in 2002.