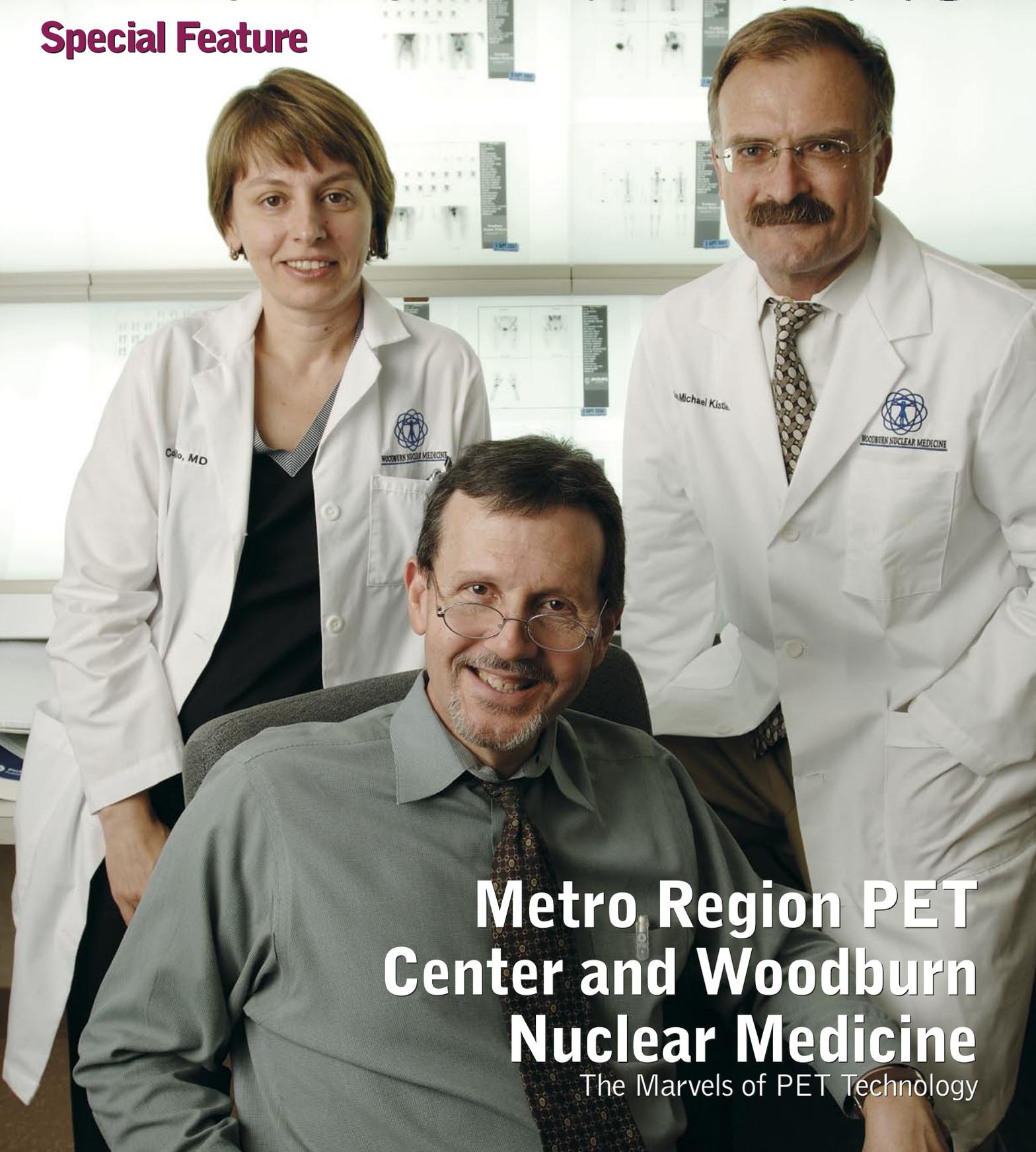


M.D. NEWS

Special Feature



Metro Region PET Center and Woodburn Nuclear Medicine

The Marvels of PET Technology

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The Marvels of PET Technology

By Martie Callaghan

When Dr. Eric Norby, owner and Medical Director of Metro Region PET Center, first hung out his shingle as Woodburn Nuclear Medicine in 1992, positron emission tomography (PET) was still a research modality used to study the biology of human disease. In just a few years, PET imaging would find its way into mainstream clinical use as a very sophisticated diagnostic tool — and Dr. Norby would be onboard.

Dr. Norby purchased the first clinical PET scanner in the Mid-Atlantic region in 1999 and opened Metro Region PET Center in Annandale, VA, just down the hall from Woodburn Nuclear Medicine. “The two nearest PET locations at the time were in New York and North Carolina,” he says, “so we were drawing patients from Virginia, Maryland, Delaware, Pennsylvania and the District of Columbia.”

In 2003, Dr. Norby brought the Metro Region PET Center to Maryland by opening a facility in Chevy Chase.

A NEW KIND OF IMAGING

Physician education was key to the acceptance of PET scanning. In the early years, Metro Region PET Center conducted various seminars for hospitals and physician groups to explain the PET technology and its diagnostic application.

While computed tomography (CT), MRI and ultrasound images show changes in the size and shape of tumors, PET captures the tumor’s physiology at the molecular level, using the isotope fluorodeoxyglucose (FDG) to visualize processes in the body. It can identify malignant tumors by their increased metabolic activity — tumors that often are not detectable by any other means. Unlike X-ray and CT, which require relatively high levels of external radiation, PET technology (and all nuclear medicine imaging) utilizes small quantities of radioactive isotopes administered into the body.

Since FDG is given intravenously, it allows for full-body imaging. “Aside from the fact that PET imaging shows the tumor well, we can also see the whole body,” Dr. Norby says. “If, for example, there is something questionable

on a chest X-ray, the doctor would order a CT of the chest to get more information. If a PET scan is done on that patient, it would image the whole body and the additional information would be available without ordering an additional study.” Today’s PET scanners are fused with CT for attenuation correction and anatomic correlation. The technology is therefore often referred to as PET/CT. As opposed to diagnostic CT, PET/CT is noncontrast enhanced and utilizes a low radiation dose.

Other non-PET nuclear medicine studies are focused on a specific part of the anatomy. “One of the most common is a nuclear medicine bone scan,” Dr. Norby says. “We inject the isotope intravenously and it localizes into the bone to look for fractures, arthritis, infection or cancer.” Localized studies are also performed to evaluate the liver, heart, brain and kidneys, as well as to study the transit of food through the esophagus and stomach. The latter study utilizes radioactive labeled food.

PET scanning is primarily used for the detection, staging and restaging of certain cancers and to evaluate the response to treatment. The first application to be approved by Medicare was the diagnosis and staging of lung cancer. “It was a struggle to get reimbursed and make PET scanning financially viable back then,” Dr. Norby says. “Over the years, more indications became approved and PET scanning became more widely used.”

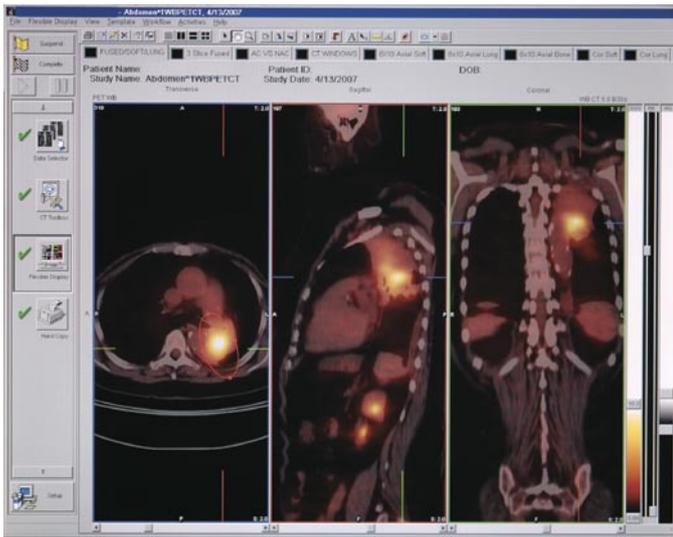
Currently, PET scanning is widely approved for patients with lung,

Jeffrey Kidwell, CNMT, R.T.(N), chief nuclear technologist for PET/CT, monitors a patient during her PET/CT scan.



On the Cover

The physicians of Metro Region PET Center include — (left to right): Corina Millo, M.D.; Julio Garcia, M.D.; and A. Michael Kistler, M.D. Metro Region PET Center physicians have collectively read more than 40,000 PET scans over the last nine years.



This PET/CT image vividly shows the tumor in a patient with locally extensive lung cancer.

breast, colorectal, esophageal and cervical cancers, as well as for lymphoma and melanoma. In the case of breast cancer, it is used for staging and to detect recurrence. Unfortunately, there are still many other oncological indications for which PET scanning is medically indicated, but not yet reimbursable by Medicare or the major insurance carriers. Dr. Norby says, “This, combined with declining reimbursement rates, remains one of our biggest challenges; but we are hopeful because the Centers for Medicare & Medicaid Services is currently considering

additional diagnoses for PET reimbursement through a study called the National Oncologic PET Registry (NOPR). This has the potential to significantly impact many oncology patients.”

SAVED!

Dr. Norby illustrates the unique capability of PET scanning with the story of a young mother who came to him shortly after the opening of Metro Region PET Center. “The patient was a 27-year-old female, pregnant with her third child,” he recalls. “About midway through the pregnancy, she was found to have a large melanoma on her abdomen. It was very worrisome because of its size and depth.”

Four Less Commonly Known Applications of PET Scanning

1. **Unknown primary cancer.** When other imaging studies fail to identify the site of a primary tumor, PET will find it in about 33% of cases. This indication is not yet universally covered for PET.
2. **Infection.** PET has proved to be effective in identifying infection, particularly in patients with metallic orthopaedic hardware. This indication is not yet universally covered for PET.
3. **Fever of unknown origin.** Working with a thorough history and physical and standard laboratory testing, PET can often contribute to uncovering the diagnosis. This indication is not yet universally covered for PET.
4. **Alzheimer’s disease.** No diagnostic study is 100% accurate for determining the presence of Alzheimer’s disease in dementia patients, but PET is currently the best test available for this purpose.

Julio Garcia, M.D., reviews a patient’s previous studies before dictating a PET/CT report to a referring physician.



Because of the pregnancy, doctors removed the tumor under local anesthesia and continued to follow the patient after delivery. “When every conventional study came back negative, she was referred to us for a PET scan — even though it was a new technology and not reimbursed,” Dr. Norby says.

The scan revealed two areas of unsuspected tumor metastases: one in the pelvic region and one in the axilla. Surgery was promptly performed to remove the large metastasis from the groin; but the surgeon could not find the one in the axilla. Follow-up studies were performed every few months until the tumor was finally large enough to be palpated and removed — approximately a year later. “Usually, when a cancer has spread like this, it has gone everywhere and is very deadly,” Dr. Norby says. “The patient is now eight years out, cancer free and doing well. Had it not been for the PET scan, those two areas would have continued to grow and spread and this mother of three small children would most likely have died from metastatic melanoma.”

GOING THE EXTRA MILE

In the first year of operation, 11% of Metro Region PET Center’s work was charity care. Each year, as more indications became approved for reimbursement from Medicare and commercial insurance companies, that number decreased. Currently, about 4% or 5% are charity cases. “We are very proud of our ongoing



PHOTO BY MOLESKY PHOTOGRAPHY

Maria Romero, front office specialist, welcomes patients to the Center and puts them at ease with her friendly and compassionate manner.

Metro Region PET Center Physicians

Each physician of Metro Region PET Center completed a separate fellowship in nuclear medicine. Collectively, they have read more than 40,000 PET scans over the last nine years.

- Dr. Eric H. Norby, Medical Director and owner of Metro Region PET Center and Woodburn Nuclear Medicine, is board certified in both nuclear medicine and pathology. Dr. Norby was first introduced to PET imaging in the course of a two-year fellowship in nuclear medicine at Walter Reed Army Medical Center in the 1980s.
- Dr. Julio E. Garcia is board certified in internal medicine, nuclear medicine and nuclear cardiology. He came to Metro Region PET Center from George Washington University Medical Center, where he served as associate clinical professor of radiology from 1992 to 1997.
- Dr. Michael Kistler is certified in nuclear medicine and internal medicine. He helped inaugurate PET imaging at St. Luke’s Medical Center in Milwaukee, WI, where he served as medical director from 1992 to 2002.
- Dr. Aaron L. Stack is board certified in diagnostic radiology and nuclear medicine. He earned his medical degree from the Uniformed Services University of Health Sciences School of Medicine in Bethesda, MD. He is serving as Chief of Nuclear Medicine at Walter Reed Army Medical Center and will join Metro Region PET Center in 2009 upon completion of his military obligation.
- Dr. Corina Millo holds dual certification from the American Board of Nuclear Medicine and Israeli Board of Nuclear Medicine. She completed her medical training and residency in nuclear medicine in Tel Aviv, Israel, and spent one year as a visiting resident in radiology and nuclear medicine in Vancouver, BC.

history of providing charity care,” Dr. Norby says. “We have never turned away a patient for inability to pay. If a study is not covered by insurance and the patient does not have the financial resources to pay, we will do whatever is necessary so that financial limitations never prevent our patients from receiving the tests their physician considers to be medically indicated. We have also gone as far as to provide free transportation — we have a taxi driver on retainer.”

Scheduling patients promptly — often working them in the same day or the following day — is another service that Dr. Norby is very resolute in providing. Other “perks” include a separate waiting area for families with TV and snacks provided. Fasting patients leave with a “goody” bag filled with water and snacks. “We go the extra mile,” Dr. Norby says. “In addition to being a very patient-friendly place, we also make ourselves available to our referring physicians for telephone consultation and we send reports to them within 24 hours 98% of the time.”

For more information about PET/CT or other nuclear medicine studies, call (703) 698-5593 or visit www.metroregionpet.com or www.woodburnnm.com. ■

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