

Tumor Technology ... 3-D images help doctors locate cancer growth

The benefits march on.

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Technology that gives cancer specialists a clear three-dimensional view of tumors and pinpoints their location is being used for the first time in Southwest Colorado.

A \$3 million, 52-foot motor coach loaded with equipment that merges PET and CT scans to create a single image visits Mercy Medical Center every other Tuesday. On-board computers combine the images produced by positron emission tomography (PET) and computerized tomography (CT).



Gary Sheek, nuclear medicine technologist at Mercy Medical Center, looks through the gantry of the PET/CT scanner.

With the combined images in hand, radiologists can zero in on the exact location and size of the cancer. The technology is used in planning how to treat a tumor, or as a follow-up, said Gary Sheek, a nuclear medicine technologist at Mercy.

"Last week a man who had radiation, chemo and surgery for rectal cancer was here for a checkup," Sheek said. "The PET/CT scan allowed doctors to determine that what they thought possibly could be residual cancer was only scar tissue."

Eighty percent of PET scans in the United States are done in mobile units, Sheek said. "It's a wonderful tool for oncology work."

PET scans detect metabolic activity such as cancerous tumors. CT scans delineate anatomical features such as bones and organs.

The PET/CT scans can do cardiac work, Sheek said. But their main power is locating tumors. They are not used in diagnosing cancer.

"This is a relatively new technology, but an important advance in staging," said Dr. Steven Bush, a radiation oncologist at Southwest Oncology in Durango. "It's important to determine the size of a tumor and its pattern of spread so we can figure out a treatment and how to do it."

Bush said PET/CT technology is particularly helpful in his specialty.

"Radiation therapy does good only if you put it right on the tumor," Bush said. "Radiation can injure other tissues, so an exact location is important."

Dr. Cynthia Cathcart, a Bush colleague at Southwest Oncology, put the technology to immediate use.

"I'm delighted that we have one (PET/CT scanner) here," Cathcart said. "It saves me a half-dozen patients a month who have to go to other cities."

Patients find the \$3 million mobile unit stationed every other Tuesday in the Mercy parking lot. Inside, they prepare for the two scans by swallowing a glucose mixture laced with a radioactive tracer. Forty-five minutes later, when the tracer has diffused through the body, patients mount a stretcher that passes them through the scanners. The CT scan takes a minute, the PET scan about 20 minutes.

The PET/CT technology was designated Time magazine's "invention of the year" in 2000. In addition to visiting Durango, the Radiology Corporation of America motor coach travels to Irving and Arlington, Texas, and Albuquerque and Santa Fe.

Marianne Zierer, a nuclear medicine technologist and an employee of Radiology Corporation of America, travels with the van in New Mexico and Colorado.

Zierer is confident that PET/CT technology will improve as the crystals that capture the energy from the isotopes improve.

The Radiology Corporation of America has 20 coaches nationwide, Kristina Riva, the firm's education specialist for the western region, said by telephone from Evergreen.

"People are warming up to the PET/CT scan," Riva said. "Earlier, computers could fuse the two images, but they weren't anatomically perfect. The PET/CT took the guesswork out of it."

In its first two visits to Durango, the mobile unit received five patients. Sheek expects the number to increase as the availability of the service is more widely known. Mercy has a three-year contract with the provider.

After a grace period, Mercy will be billed for six scans a day, even if no patients are seen, Sheek said. The number may seem high, but demographics say otherwise, he said.

"According to national and state cancer registries, we have the numbers to support this service," Sheek said.

For now, the merged scans are stored on a CD and transferred to a computer in Mercy Medical Center for analysis by radiologists and oncologists. Eventually, the images will be transferred automatically from the motor coach to the hospital.