One standard approach to “imaging” suspected blockages involves injecting a radioactive substance with a very short half-life into the bloodstream. The patient then undergoes an exercise stress test, and the radioactive material is tracked as it travels through the cardiovascular system, identifying narrowing or blockage.

That process is called single photon emission computed tomography, or SPECT. A study published in the July 2007 issue of the Journal of Nuclear Medicine shows that a newer imaging method called positron emission tomography myocardial perfusion imaging, or PET MPI, provides a more accurate “picture” of coronary obstruction, reduces the need for follow-up invasive procedures by 50 percent, which reduces overall costs, and produces excellent clinical outcomes.

Michael E. Merhige, MD, clinical associate professor of nuclear medicine in the School of Medicine and Biomedical Sciences, is first author on the study. “Our evidence has shown that invasive procedures such as coronary arteriography [inserting a cardiac catheter into an artery in the upper arm or thigh, threading it through the vessel and injecting a contrast medium directly into the heart, bypass surgery and stent placement are overused in the U.S.],” says Merhige.

“Using these procedures when noninvasive approaches work equally well, if not better, contributes to unnecessary health-care expenses without improved patient outcomes.”

Physicians need to know how badly heart vessels are blocked before they can decide how to treat patients at risk of having a heart attack.

Using these procedures when noninvasive approaches work equally well, if not better, contributes to unnecessary health-care expenses without improved patient outcomes.