

# Outcome of routine screening of patients with diabetes for CAD with CT angiography

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Routine heart imaging screenings for people with diabetes at high risk to experience a cardiac event, but who have no symptoms of heart disease, does not help them avoid heart attacks, hospitalization for unstable angina or cardiac death, according to a major new study.

Instead, high-quality diabetes care is still the most effective way for diabetics to avoid heart attacks, according to the study by researchers at the Intermountain Medical Center Heart Institute in Murray, Utah.

Researchers will present their findings from the study at the 2014 American Heart Association Scientific Session in Chicago on Nov. 17 at 11:45, ET. Results are also being published in *JAMA*, the *Journal of the American Medical Association*.

The study is significant because diabetes is the most important risk factor for heart disease. Patients with diabetes often develop severe, but asymptomatic heart disease. The combination of aggressive, asymptomatic heart disease has made it the most common cause of death in patients with diabetes.

Researchers examined whether the use of advanced coronary computer CT angiography screening would result in significant long-term reduction in death, heart attack and hospitalization for these patients.

"We found that the best treatment to prevent heart attacks and death among diabetics is excellent diabetes management," said Brent

Muhlestein, MD, director of cardiovascular research at the Intermountain Medical Center Heart Institute, and lead researcher of the study.

"Many diabetics die from heart disease before they ever have any typical heart attack-related symptoms," he said. "The question was whether screening for the presence of silent heart disease in these patients would be helpful. However, although the screenings did lead to recommended changes of treatment, including surgery in some cases, it didn't benefit the patients enough to support a change in the current recommended standards of care."

For the study, more than 900 diabetic patients were randomly assigned to undergo screenings or pursue standard diabetes management, which consisted of continued care from the patient's Intermountain Healthcare physician. Among patients who were screened and found to have silent heart disease, aggressive treatment recommendations were provided with the goal of more effectively preventing future adverse heart events than might be obtained by standard diabetes management.

Researchers say the screening resulted in a modest number of revascularization procedures and increased the use of cholesterol-lowering statin drugs. After four years of follow-up, however, the occurrence of deaths, heart attacks and episodes of unstable angina did not differ significantly between those who were screened (6.2%), and those who were not (7.6%).

According to Dr. Muhlestein, one element that may have affected the overall results of the study is Intermountain Healthcare's Diabetes Management program, which Intermountain began in 1997, and which became fully operational in 2005.

"If Intermountain hadn't implemented this program and patients weren't

already receiving excellent diabetes management support, we may have had different results from the screenings," he said. "But the program is working very well, which led us to conclude that excellent standard management is the best route to help diabetics avoid heart disease."

In the past, screening diabetics for heart disease before they had noticeable symptoms was limited to tests that did not yield direct anatomical information. Screens were only able to detect if blood flow to the heart muscle is decreased by a partial or complete artery blockage. The development of 64-slice coronary computed tomographic angiography (CCTA) technology, however, now provides the opportunity to evaluate the actual anatomy of the heart non-invasively and allows physicians to see the hardening of the arteries.

The 64-slice CCTA takes pictures of the structure and blood vessels of the heart from outside the body using imaging dye injected through a vein in the arm. With each 'slice', the quality and clarity of the final image increases. As the most advanced imaging method, this screening was used in this study to identify patients who already had significant plaque build-up in the coronary arteries of their heart.

"This non-invasive imaging technology that we have is incredibly accurate, however, it does involve additional expense and some radiation exposure," said Dr. Muhlestein. "Previous studies have shown that CCTA screening is nearly as good as standard invasive heart catheterization in defining coronary arteries. Because of this, we hoped this new technology would help us identify heart disease in high-risk patients who don't have symptoms, and thereby allow us to better care for them. However, it turned that the excellent standard of care offered to diabetic patients is just as effective."

**More information:** [DOI: 10.1001/jama.2014.15825](https://doi.org/10.1001/jama.2014.15825)  
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