

# Blood pressure, cholesterol most important indicators of heart disease risk in diabetics

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For people with diabetes, meeting the recommended guidelines for blood pressure and cholesterol is even more important than meeting the guidelines for blood sugar control in reducing the risk of heart attack or stroke, according to a new Kaiser Permanente study published today in the *Journal of General Internal Medicine*.

The study included more than 26,000 patients with diabetes. Patients who met guidelines for all three [risk factors](#) and those who met the blood pressure and cholesterol guidelines were least likely to be hospitalized for a [heart attack](#) or stroke. Those who met none of the guidelines and those who met only the blood sugar guidelines were most likely to be hospitalized for a heart attack or stroke.

"People with diabetes are often focused on controlling their blood sugar, but our study found that controlling blood pressure and cholesterol is even more important in preventing heart disease," said Greg Nichols, Ph.D., lead author of the study and senior investigator with the Kaiser Permanente Center for Health Research. "This doesn't mean that people with diabetes should ignore their [blood sugar levels](#). They should still get regular A1C tests to measure and control their blood glucose, but it's also important to pay attention to other factors that increase the risk for cardiovascular disease."

Adults with diabetes are two to four times more likely than people without diabetes to have cardiovascular disease, and most people with diabetes will die from a heart attack or stroke, according to the U.S. Department of Health and Human Services. There is abundant evidence that controlling the ABCs—A1C (an average measure of blood sugar), blood pressure, and cholesterol—can reduce the risk, but until now it has been unclear which of these factors is most important.

The [American Diabetes Association](#) recommends that patients with diabetes maintain a target blood

pressure reading of less than 130/80 mm Hg, an LDL [cholesterol level](#) of less than 100 mg/dl, and an A1C [blood glucose](#) level of less than 7 percent.

For this study, researchers examined the medical records of 26,636 adult patients from the Kaiser Permanente diabetes registry in Oregon and Washington starting in 2002 and following the patients through 2010, or until they died, left the health plan, or were hospitalized for a cardiovascular event such as a heart attack. Patients who were included had to have measurements of [blood pressure](#), cholesterol, and A1C no more than six months apart, and researchers used the mean of those measurements if they were taken several times throughout the study period.

Most previous studies have examined one or two of these risk factors, but not all three at the same time. This is the first time researchers have published results of a study examining the risk factors simultaneously, and reporting the individual contribution of each factor on diabetes-related heart disease.

About 13 percent of patients in the study met targets for all three risk factors. Their rate of hospitalization for heart attack and stroke was about 2.5 times lower than the patients who met none of the targets. Patients were followed for an average of six years, and during that time 7 percent of the patients were hospitalized for a cardiovascular event.

For the last few years, Kaiser Permanente has encouraged [diabetes patients](#) who are at least 55 years old to participate in an aggressive initiative to prevent heart attacks and strokes. The ALL initiative is a therapeutic program that includes the use of aspirin, lisinopril, and a lipid-lowering medication. The initiative which also now includes the use of a beta blocker is also actively promoted and shared with other health systems outside

Kaiser Permanente.

This study marks the latest effort by Kaiser Permanente to better understand the impacts of diabetes. Last year, a Kaiser Permanente study published in the Journal of the American Board of Family Medicine found that when patients with diabetes experience interruptions in health insurance coverage, they are less likely to receive the screening tests and vaccines they need to protect their health. The study found this was true even when patients received free or reduced-cost medical care at federally funded safety net clinics.

Provided by Kaiser Permanente

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