

Evidence for Global CHD Risk Calculation: Risk Assessment Alone Does Not Change Outcomes

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To prevent heart attack, stroke, or death, the American Heart Association recommends estimating patients' absolute risk of having a coronary heart disease (CHD) event in 10 years.¹ As Drs. Viera and Sheridan point out in this issue of *American Family Physician*,² the use of global risk estimates is based on consensus opinion (Strength of Recommendation = C³). The article also suggests that calculators prevent harm from daily aspirin use in low-risk patients, in whom the number of bleeding events might exceed the number of CHD events that are prevented. However, no studies have evaluated the effect of global CHD risk calculation on daily aspirin use. Before physicians adopt routine risk calculation, we should use the evidence to determine the best use of our patients' time and resources.

Determining a patient's global CHD risk may improve appropriate prescribing. A 2003 study of six subspecialists in diabetes and 323 patients found a nonsignificant trend toward increased overall prescribing of cardiovascular drugs.⁴ In a high-risk subset of these patients, physicians prescribed significantly more blood pressure- and lipid-lowering medications when the global CHD risk score was known.⁴ This is a promising, but selective, example of behavior change among physicians. However, changing physicians' intent to prescribe does not guarantee improved outcomes. For example, a study of patients with hypertension found that physicians who were given charts to calculate CHD risk prescribed more antihypertensive drugs (resulting in a reduction of 4.6 mm Hg in systolic blood pressure); however, the overall risk of cardiac events did not change.⁵ Moreover, physicians who had a risk chart and a computer-based risk calculator did no better than those without a risk tool in achieving absolute risk reduction or blood pressure control. The study concluded that more evaluation of CHD risk calculators was needed.⁵ No studies have shown that risk calculation improves patient compliance with treatment.

Identifying risk and doing something about it are two distinct entities. A systematic review of global CHD risk calculation suggested that it is the quality of educational interventions that drives improvements in risk and treatment compliance.^{6,7} In other words, assessing risk

without making efforts to motivate patients misses the mark. If physicians present only risk, patients hear only ultimatums, and they resist.

Like an automobile driver who sees an electronic road sign telling him that he is speeding, patients may or may not hit the brakes on smoking or other behaviors that increase their risk of CHD. Assuming that quantification of risk automatically changes patients' behavior is a slippery slope toward unnecessary testing. Expensive testing of biomarkers such as C-reactive protein level and coronary calcium score⁸ is often justified by improving risk estimation, but lacks evidence of improved outcomes. A good example of the low yield of sophisticated risk identification is a study of patients with diabetes in whom CHD was diagnosed using nuclear stress imaging.⁹ Patients who were screened did not have significantly fewer cardiac events compared with those who were not screened. The fact that no studies show that CHD risk calculation alone changes outcomes suggests that the patient-physician conversation matters more. Although I am optimistic that future research will develop cost-effective strategies and will determine which patients benefit from risk calculation, none of the current evidence reaches that level.

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