Applying certain computer-based algorithms to an electronic health record (EHR) system could help identify patients with undiagnosed hypertension, according to a new study in the July/August issue of the Annals of Family Medicine.

The technology-based strategy filtered patients with potential hypertension based on three algorithms that included parameters around patients’ most recent blood pressure measurements or average blood pressure measurements. More than 100 physicians in 23 primary care practices ran the algorithms through their EHRs, eventually targeting 1,432 patients for the study.

Staff from each office mailed letters to at-risk patients notifying them that they may have hypertension and requesting that they schedule an office visit for evaluation. One week after the letters were mailed, office staff called the patients to answer questions and schedule an office visit, during which staff would take the patient’s blood pressure measurement with an automated blood pressure device. These devices automatically take six measurements with no health care provider present, each a minute apart, discard the first measurement and average the remaining five measurements.

In an effort to capture patients who chose not to come in for the automated office blood pressure evaluation, as well as all future patients who might become at risk for hypertension, the participating practices established a continuous quality improvement initiative to evaluate these patients. Staff routinely followed up with patients by phone and provided physicians with special lists of patients who were identified as potentially having undiagnosed hypertension.

In addition, when an at-risk patient arrived for an office visit, a notification appeared on the EHR screen to alert the medical assistant or physician that the patient needed an automatic blood pressure measurement.

More than 70 percent of patients received a diagnosis of hypertension, and the quality improvement initiative improved the accuracy of hypertension diagnoses by 72 percent over a 30-month period by screening for those patients with undiagnosed hypertension.
“Our experience suggests that such strategies have the potential to eliminate undiagnosed hypertension and may well be applicable to other common undiagnosed chronic diseases,” the study said. “Furthermore, similar methods can be adapted to assess and inform clinicians and patients on blood pressure control after the diagnosis of hypertension.”

The study’s lead author, Michael K. Rakotz, MD, is a Chicago family medicine physician participating in the AMA’s Improving Health Outcomes initiative. As part of this, the AMA is working with physician practices in Illinois and Maryland to apply principles of safe design in the ambulatory setting to improve outcomes around hypertension.

The clinical sites piloting the initiative have been using checklists to ensure more accurate blood pressure readings and applying safe design principles to blood pressure management. The AMA and pilot sites are collaborating with researchers at Johns Hopkins Armstrong Institute for Patient Safety and Quality and the Johns Hopkins Center to Eliminate Cardiovascular Health Disparities to develop and test a set of evidence-based recommendations.

The AMA plans to take what is learned about improving control of high blood pressure to spread effective models and methods to more practice settings and communities.