

Electronic trigger reduces delays in evaluation for cancer diagnosis

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Electronic triggers designed to search for key data, developed by researchers at Baylor College of Medicine and Michael E. DeBakey Veterans Affairs Medical Center, were able to identify and reduce follow-up delays for patients being evaluated for a diagnosis of colon or prostate cancer.

The full study can be found in the *Journal of Clinical Oncology*.

"Our computerized triggers scanned huge amounts of [patient data](#) in the electronic health record and flagged individuals at risk for delays in follow-up of cancer-related abnormal clinical findings," said Dr. Hardeep Singh, associate professor of medicine at Baylor and chief of [health policy](#), quality & informatics program for the Center for Innovations in Quality, Effectiveness and Safety at the DeBakey Veterans Affairs Medical Center. "We created these trigger algorithms in the hopes of being able to leverage [electronic health records](#) to improve patient care and safety."

The investigators' analysis defined timely follow-up as 30 days for suspected lung cancer, 60 days for colon cancer and 90 days for [prostate cancer](#). Many factors, including primary care workloads, time pressures and information overload, and lack of robust test result tracking systems can contribute to delays in evaluating patients whose original findings were suggestive of cancer, he said.

"There are few, if any, human- or technology-based solutions that efficiently identify such care delays," said Dr. Daniel Murphy, first author on the paper and instructor in the department of medicine and health services researcher at Baylor and the DeBakey Veterans Affairs Medical Center. "Triggers can act as safeguards as long as the information about potential delays can be communicated to clinicians taking care of these patients."

Singh and participating researchers recruited 72 primary care clinicians at two study sites for this 15-month study and divided providers into intervention and control groups. In the control group, clinicians followed up suspicious findings through usual procedures whereas in the intervention group, the study team applied triggers twice a month to all patients under their care. Triggers consider the following test results as

red flags if the patient did not receive timely follow-up:

- Positive fecal occult blood test
- Iron deficiency anemia
- Elevated prostate specific antigen
- Abnormal imaging suspicious for cancer

"While all patients flagged by the computerized trigger algorithm in the intervention group are considered at risk, we confirmed the presence of delay by manually reviewing their records and communicating to their clinicians only when necessary," Singh said.

"Patients seeing clinicians who were notified of potential delays had more timely diagnostic evaluation for both prostate and [colon cancer](#)," Murphy said. "Also, more patients in the intervention part of the study had received diagnostic evaluation by the time we completed our final review."

Singh and his team are refining and exploring trigger application in other settings to detect and monitor delays and improve timeliness of cancer diagnoses.

"Missed or delayed diagnoses are among the most common patient safety concerns in outpatient settings, and measuring and reducing them are a high priority," said Singh, who also presented his team's measurement work to the Institute of Medicine (IOM) last August. This fall, the IOM plans to release a comprehensive report on diagnosis related problems.

"Solutions that harvest and put to use the vast amount of electronic clinical data being collected are essential," he said.

Provided by Baylor College of Medicine

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