

# Chest pain? New system helps to determine whether to head to ER

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(PhysOrg.com) -- Currently, when heart patients phone a health-care professional complaining of chest pains, they are advised to call 911 for transportation to the local emergency room in case they're having a heart attack.

About half of those patients are hospitalized, yet only 20 percent of them actually have heart attacks. At the same time, 2 percent of patients experiencing a [heart attack](#) are mistakenly sent home.

To improve on these statistics, the Stanford [Cardiac Rehabilitation Program](#) has developed an online decision-support system to triage patients with previously diagnosed coronary artery disease. The program consists of an online survey that can be administered by a health-care professional in five minutes or less.

"Patients don't know when to go to the ER," said Robert DeBusk, MD, founder of the Stanford Cardiac Rehabilitation Program, which focuses on developing more effective methods of managing chronic diseases. "They agonize, they wait. Once the patient does go to the ER, there's a high rate of unnecessary hospitalization. By streamlining the decision-making process, this system hastens the care of high-risk patients and provides more convenient care options for patients at moderate or low risk."

The results of the first of three studies planned to evaluate the tool, published in the Nov. 23 issue of *Circulation: Cardiovascular Quality*

and Outcomes, found that it was quick - three to five minutes - and reliable in establishing a provisional diagnosis consistent with patients' reported symptoms. "The system is designed to prevent patients from falling through the cracks," DeBusk said. "Somebody is responsible for the patient throughout the episode of illness, beginning with the initial phone contact. We always phone the patient's physician regarding the appropriate triage decision, and we help to arrange for follow-up care."

To test the new system, researchers recruited 20 healthy "volunteer" patients who used a printed script to report symptoms. The study was conducted at Stanford, where eight cardiologists and 12 cardiac nurses were recruited to use the online questionnaire to elicit patients' symptoms over the telephone.

The questionnaire asks patients to identify symptoms of chest pain, shortness of breath, dizziness, weakness and visual changes. It can be administered by telephone, as in this study, or in urgent care clinics or ER settings. Questions ask about the nature and severity of symptoms, the response to medication and relationship of symptoms to activity. The system uses the guidelines developed by the American College of Cardiology and the American Heart Association to classify patients as low, moderate or high risk, depending on each patient's unique combination of reported symptoms.

The answers are then input into the computer by a physician or nurse and a diagnosis is made that categorizes patients' risk for death or nonfatal heart attack. For example, a patient reporting ischemic chest pain that occurs at rest, lasts 20 or more minutes and is still present at the time of the patient's report, would be categorized as "high risk." The patient would be advised to call 911 for transport to the [emergency room](#).

Moderate-risk patients would be scheduled for a same-day visit with their cardiologist, and low-risk patients would be scheduled for an

outpatient evaluation by their cardiologist within 72 hours.

The study showed that the nurses' performance in eliciting and recording patients' symptoms was equal to that of the cardiologists, and that the time needed to conduct the survey ranged from 2.6 to 4.8 minutes.

The study was funded by the California HealthCare Foundation of Oakland. Two members of the Stanford Cardiac Rehabilitation Program - nurse coordinator Nancy Houston Miller, RN, and operations coordinator Lynda Raby - also contributed to the study.

Provided by Stanford University Medical Center

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