

Study Shows QI Helps Heart Attack Patients

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Reminders, checklists helped improve care

Combined results from three studies conducted in 33 Michigan hospitals show it's possible to improve the care provided to heart attack patients after admission by reminding physicians, nurses, and patients about proven therapies. By incorporating a system of reminders, standing orders, and checklists into routine care, the study shows, hospitals significantly improved the percentage of patients receiving certain proven treatments and lifestyle counseling.

After the system was put in place, there were jumps in the use of individual treatments that ranged in size from 5.6 percentage points to 34.8 percentage points.

The new results come from the latest phase of a study sponsored by the American College of Cardiology (ACC) and led by members of the Michigan ACC chapter under the direction of researchers at the University of Michigan Cardiovascular Center in Ann Arbor.

They were presented recently at the ACC's 52nd annual meeting in Chicago. The study was led by **Kim A. Eagle**, MD, the Albion Walter Hewlett professor of internal medicine and chief of clinical cardiology at the University of Michigan Health System (UMHS). "These results leave no doubt that if hospitals and caregivers adopt tools that can help them improve care and create systems to make sure those tools are used, they can improve their performance on quality indicators, which means better care for patients," he says.

The study, called ACC AMI GAP for the ACC's Acute Myocardial Infarction Guidelines Applied in Practice, seeks to find ways to help physicians and hospitals deliver the care outlined in heart attack care guidelines developed by the ACC and the American Heart Association. The guidelines are based on the best available evidence of what drugs, tests, and lifestyle changes (such as smoking cessation and diet modification) work best for patients, preventing complications and recurrences.

The new results of the three projects conducted between the years 2000 and 2003 compare the care given to 1,892 heart attack patients treated at the 33 hospitals before the studies began, and 2,065 heart attack patients treated while the system was in place. The study measured use of aspirin, beta-blockers, and ACE inhibitors early and late in a patient's care; cholesterol tests and cholesterol-lowering drugs; and counseling on diet and smoking cessation.

"These are all proven therapies that — while not indicated for every single patient — have been shown to reduce the risk of death, additional heart attacks, and other complications in the vast majority of patients who receive them. Even though we know what works, it hasn't been easy to make sure that knowledge benefits every patient," Eagle says. "This study aimed to close the gap between what experts recommend and what patients receive."

The new results combine the data collected in three stages of the GAP project: a pilot study in 10 hospitals in southeast Michigan, a phase II study in five hospitals in the Flint/Saginaw region of Michigan, and a phase III study in 19 more southeast Michigan hospitals, including UMHS. The study hospitals were of all different sizes and types, from small community facilities to major urban and tertiary care medical centers. Both teaching and nonteaching hospitals were included, and patients had various forms of insurance — about 70% were on Medicare.

All hospitals were offered a tool kit of reminders, checklists, stickers, standard orders, reference cards, and educational materials that made it easier for physicians, nurses, and patients to follow the ACC's guidelines. The degree to which the care system was incorporated into each hospital varied. Some improvement was seen even in the hospitals that didn't use the tool kit very often — for instance, an increase of about 7 percentage points was seen in prescriptions for aspirin and beta-blockers that were written before patients left the hospital.

But in hospitals that consistently used the tools, the gains were much greater. Use of aspirin and beta-blockers early in a patient's hospital stay increased 6.6 points and 5.6 points, respectively. Pre-discharge prescriptions for the same drugs rose 12.4 points and 6.3 points, respectively. There also was a 7.7 percentage point increase in prescriptions for ACE inhibitor drugs given before patients went home. A 9.6 percentage point jump in cholesterol tests also was seen.

The biggest gains were in the area of diet and smoking-cessation counseling, and in prescriptions for cholesterol-lowering drugs, which rose by 14.3 points. A 34.8 point jump in the proportion of patients who got advice about stopping smoking and a 21.6 point rise in the percentage who saw a dietitian or nutritionist before they went home show how far hospitals have to go in helping patients understand the lifestyle changes that can help their health.

Eagle notes that none of the therapies was used in 100% of patients — the highest percentage achieved was 94%, for pre-discharge aspirin. But not every patient needs every therapy — for instance, nonsmokers don't need advice on stopping smoking, and patients who already are taking blood-thinning drugs generally should not take aspirin, too.

He emphasizes that the ACC guidelines, and the GAP tool kit that incorporates them, aren't a cookbook for cookie-cutter medicine. "These tools, and the processes that lead to their consistent use, simply function as a reminder system. These are key things that need to be thought about and either ordered or ruled out because of a contraindication. We want to help doctors, nurses, and patients consider the priorities and follow them if indicated."

The ACC developed its heart attack guidelines in collaboration with the American Heart Association to address such disparities. The guidelines give recommendations for treatments, tests, and advice patients should get based on age, sex, medical history, and the severity of their conditions.

These are the tools in the GAP initiative tool kit (available on-line at <http://www.acc.org/>):

- standing orders for medication and tests;
- pocket cards of medications and guidelines for medical staff;
- a clinical pathway that guides nurses through their daily activity;
- a special patient information form;
- stickers for the patient's chart;
- chart that shows hospital's overall performance;
- a discharge checklist for doctors or selected nurses to review with patients;
- patient education materials — written and verbal instruction on therapy and lifestyle.

These were the guideline-recommended therapies, tests, and counseling measured in the study:

- aspirin in the emergency department and before discharge to prevent clotting;
- beta-blockers to reduce heart rhythm problems;
- angiotensin-converting enzyme inhibitors, to aid the heart's recovery;
- blood cholesterol tests and, in appropriate patients, drugs to lower cholesterol;
- smoking-cessation counseling (smoking doubles the long-term risk of heart attack);
- diet counseling, with emphasis on low-fat diets.