DENVER—A pharmacist’s involvement in medication discharge counseling can substantially reduce the number of patients who later return to the emergency department (ED), according to two Boston Medical Center research projects presented at the 2007 annual meeting of the American College of Clinical Pharmacy (ACCP).

The two projects, conducted on different campuses at Boston Medical Center, scrutinized the extent of the pharmacist’s influence either through in-person medication counseling before discharge or by telephone once the patient is at home.

One of the studies (abstract 282), a retrospective analysis involving 2,183 patients, focused primarily on the impact of discharge counseling on hospital readmissions. The study found that 30-day ED visits were significantly lower among those who received such counseling, at 12.3%, compared with 16.5% for those who were not counseled ($P=0.01$).

In the second study (abstract 79), which assessed telephone follow-up among 285 patients, pharmacists called patients within several days of discharge. Nurses had also counseled the patients before they left the hospital. Of those patients contacted by phone, 9% returned to the ED within 30 days compared with 18% of those who were not called.

The projects add to a growing body of research literature published in the last several years that delve into the influential role that pharmacists can play in addressing questions and misunderstandings about medications that can occur after patients are discharged. To help improve patient flow and comprehension during the discharge process, Boston Medical Center is conducting a randomized trial called Project RED (Re-Engineered Discharge), funded by the Agency for Healthcare Research and Quality. The telephone follow-up study is part of Project RED.

“Our motto became that you should start thinking about discharge from the day of admission,” said Gail Burniske, PharmD, BCPS, a Project RED team member and lead researcher on the telephone follow-up study.

In Fall 2007, Boston Medical Center officials began expanding the number of clinical pharmacists involved in discharge counseling. The goal is to add nine pharmacists—at least seven were employed by year’s end—through a combination of increased funding and reassignment from other roles, said Dr. Burniske, also an internal medicine clinical pharmacist at the center. Along with discharge counseling, the pharmacists are involved with other clinical activities, she said.

Boston Medical Center’s efforts, and related research findings conducted in recent years by other teams, further attest to the pharmacist’s ability to improve medication safety via discharge counseling and medication reconciliation. Both processes, unfortunately, do not occur as frequently as they should, according to Frank Federico, RPh, director, Institute for Healthcare Improvement, Cambridge, Mass.
Part of that gap, Mr. Federico said, can be attributed to the fact that "there have been fewer pharmacists than nurses available to do this work." But awareness and resources are starting to shift, he added. "Hospitals are recognizing the need for both discharge counseling and medication reconciliation as a key ingredient to preventing re-hospitalization."

**The Pharmacist’s Role**

Although the majority of discharge studies to date have involved nurses and other clinicians, since 2005 several have scrutinized pharmacist involvement. One prospective randomized study published in 2006 in the *British Medical Journal* (2006;333:522-527) focused on the influence of pharmacist follow-up by telephone. The patients, each of whom were receiving five or more drugs, had demonstrated noncompliance and were being treated by a hospital medical clinic in Hong Kong. Of the 442 patients who were randomized, telephone counseling over two years resulted in a 41% reduction in the risk of death.

Another randomized study published in the *Archives of Internal Medicine* (2006;166:565-571) involved 178 patients being discharged from the general medicine service at Brigham and Women’s Hospital in Boston. This study found that pharmacist involvement in medication discharge counseling initially at the bedside and later in a follow-up telephone call had demonstrable results. Thirty days after hospital discharge, only 1% of those who were counseled had preventable adverse drug events (ADEs), compared with 11% of those who were not counseled ($P=0.01$).

To help prevent complications related to their medications, patients must be given opportunities to ask questions, which doesn't always occur, Mr. Federico said. He helped author a study published in *The New England Journal of Medicine* (2003;348:1556-1564) that showed that 28% of ADEs among outpatients could have been ameliorated (95% confidence interval [CI], 19%-37%). For example, two-thirds of ADEs could be traced back to the physician’s failure to respond to medication-related symptoms. But the remainder involved patients who did not tell their physicians about symptoms in the first place, he said. That’s where a follow-up phone call could potentially make a significant difference, he added.

In-person counseling would be ideal, but a phone call is a very efficient way of doing things, said Timothy Lesar, PharmD, director of clinical pharmacy services, Albany Medical Center, New York, and a consultant for the VHA New England Medication Error Prevention Initiative collaborative. "And, [telephone calls have] a greater application in terms of contacting a patient at multiple points in time," he said.

**A Team Approach**

With the help of a greatly expanded team of clinical pharmacists, internal medicine patients at Boston Medical Center are being assisted in a number of ways.

Each pharmacist works with the physician staff to reconcile medications before discharge, Dr. Burniske said. This involvement might include speaking with the patient to clarify some questions or address any potential insurance hurdles. Then the medication list is faxed to the outpatient pharmacy and, later, hand delivered to the patient prior to discharge. Before the patient leaves the hospital, the pharmacist counsels him or her on how the drugs should be taken, potential interactions and any other concerns.

Constance Law, PharmD, a Boston Medical Center clinical pharmacist, was involved with the inpatient discharge counseling project presented at the ACCP meeting. She is now a member of the expanded team of clinical pharmacists involved with discharge counseling at the center. Typically, the entire medication discharge process does not require more than 30 minutes, roughly half of which involves medication reconciliation at the front end and, later, counseling before the patient is discharged, she said.

She added that one common problem is the gap between the patient’s ability to list his or her medications and to understand how the medications work. “Most of them knew the names of the medications, but very few knew what the medications actually did,” she said.

In the research presented at the ACCP meeting, Dr. Law tracked a substantial reduction in ED visits among patients who received inpatient discharge counseling, but only a slight reduction in inpatient readmission. And while her study focused primarily on counseling, it also looked at telephone follow-up...
and documented some benefits. For example, when the researchers analyzed the 30-day hospital readmission rates based on who received a follow-up call from a pharmacist and who did not, Dr. Law and her colleagues discovered that 20% of those who were called were readmitted compared with nearly 30% of those who were not called (odds ratio, 0.60; 95% CI, 0.39-0.90). “Although counseling patients is important while they are in-house, it’s also important to follow up with them afterward to make sure everything [related to medications] went smoothly,” she said.

According to Dr. Burniske, it may be that patients are more comfortable asking questions once they are in their own home environment and are feeling more comfortable. In addition, they have already filled their prescription and have begun taking the medications, which could raise a whole new set of questions not apparent upon discharge. “I think patients, when they are in the hospital, are very overwhelmed,” Dr. Burniske said. “There is a lot of noise, people coming in and out.”

In an upcoming project through Project RED, researchers will assess the effectiveness of a computer kiosk in educating patients about their medical condition and some of the related medications, Dr. Burniske said. At year’s end, the details of the project were still being worked out, but the goal will be to assess how effective computerized counseling can be: The patients will work their way through a series of computer screens rather than interacting with a clinician.

In the end, the best approach for discharge medication counseling might depend on numerous factors, including the size and resources of the hospital involved as well as the socioeconomic levels of the patients themselves, Albany Medical Center’s Dr. Lesar said. But the Boston Medical Center researchers have provided rich data for clinicians who want to make their case for better discharge protocol elsewhere, he said.

“I congratulate them on their work,” he said. “This provides the pharmacoeconomic data that we need to go to our administrators and get more resources to do these types of things.”

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