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Covering Case Management Across The Entire Care Continuum

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Why aren't patients in compliance? Top issue may be misunderstanding

Low health literacy leads to poor outcomes

When patients don't follow their discharge plan and end up back in the hospital or fail to keep their chronic disease under control, resulting in complications, it could be that they simply don't understand what they're expected to do.

Patients have to understand what their health care providers are telling them. If case managers can't communicate effectively, it doesn't matter how much time you spend teaching patients about their condition and how to manage it. They're not going to follow their treatment plan if they don't understand it, says **Helen Osborne**, MEd, OTR/L, president of Health Literacy Consulting, a Natick, MA, firm.

"There's often a big gap between what the healthcare professional thinks was explained and what the patient and family members understand. Healthcare can be complicated with so many diagnoses, medications taken many different ways, and so many levels of care that people who are literate, savvy, and interested may still be confused," Osborne adds.

Low health literacy is a problem that leads to poor medical outcomes for millions of Americans and adds millions of dollars in costs to the healthcare system. People with low functional health literacy have higher rates of healthcare utilization and $50 billion to $73 billion in addi-

EXECUTIVE SUMMARY

Many times when patients don't adhere to their discharge instructions, it's because they don't understand them. Case managers need to make sure they communicate effectively to keep patients safe at home and out of the hospital.

- Use everyday language, not medical terms.
- Don't overwhelm patients with too much information at a time.
- Make sure your written materials are simple and easy to read.
- Use the "teach-back" method to make sure patients understand.

AHC Media

tional healthcare expenditures, according to the Partnership for Clear Health Communications at the National Patient Safety Foundation.

A new report by the U.S. Department of Health and Human Services' Agency for Healthcare Research and Quality (AHRQ) found that low health literacy in older Americans is linked to poorer health status and a greater risk of death. The report also found an association between low health literacy in all adults and more frequent use of hospital emergency rooms and inpatient care, compared with other adults. The report updated a 2004 literature review and included findings from more than 100 new studies.

The inability of many Americans to read, combined with the use of medical jargon that even people who can read have difficulty understanding, creates a tremendous healthcare literacy problem, adds **Gloria Mayer**, RN, EdD, chief executive officer for the Institute for Healthcare Advancement based in LaHabra, CA.

"When patients aren't familiar with the terminology the case manager uses, they miss the message and they don't understand what they need to do so that translates into non-adherence," she says. About 90 million adults Americans can't read above the fifth grade reading level, Mayer says, pointing out that most health education materials are written between the eighth grade and college level.

Don't confuse health literacy and literacy, Osborne warns. "Being a struggling reader is just one reason why some people have trouble understanding healthcare instructions," she says. There's no way to determine a patient's healthcare literacy just by looking at them or talking to them. "Somebody may be well educated and have a good job but doesn't understand medical terminology," Mayer adds.

As people age, health literacy levels often decline just at the time they may be experiencing more chronic conditions, taking multiple medications, and dealing with the stresses of life. "Older people may also have diminished hearing, vision, or memory, making it even harder for them to understand," Osborne says. "When people are in pain, afraid, or sick, they're often overwhelmed and at least for a while, nothing they are told sinks in," she says.

Understanding medical terms and instructions can be particularly difficult for people for whom English is not their first language, Osborne says. "A person may have the words to talk about the weather or food but they may not have the fluency needed to understand their health conditions and ask questions," she says.

Be aware of the subtle differences in languages, Osborne says. For example, when native English speakers are told to take medication once a day, they take it one time. But in Spanish, the world "once" means 11 times. "People may be taking 11 times the right amount of medication because of the word choice," she says.

"When patients transition from the emergency department or the inpatient hospital to home, or the hospital to a post-acute facility, the patients and caregivers assume a great deal of responsibil-

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ity for seeing that the patient follows the treatment plan and avoids readmissions," Osborne says. "Often, it involves mastering new concepts, learning unfamiliar terms, and having expectations placed on them that are hard to meet."

Mayer advises healthcare professionals to speak in 'living room language' and avoid medical jargon when talking to patients. Instead of using terms such as "myocardial infarction" use "heart attack." Substitute "pee" for "urine," and use "X-ray" instead of "radiology," Mayer suggests.

Remember that patients can absorb only two or three things at the time. Even if you have 20 items on their chart that need discussing, break it into small portions. "If people are sick, they are even less likely to understand everything you are telling them," Mayer adds.

Instead of telling patients to take medication with food, be more specific: Advise them to take it after a meal or with a cracker, depending on the medication, she says. If you tell patients to take a medication twice a day, they may take it an hour apart. "Instead, say take one pill at breakfast and one at dinner," Mayer recommends.

Know your audience, Osborne advises. Look at where they are along the continuum of care, and gear your educational efforts to that. "Someone who is newly diagnosed with a serious illness looks at things very differently from someone who has been living with the condition for years," she says.

"Case managers who work with patients over the telephone have an added challenge because they can't see the other person's expression or know if they are distracted," Osborne says. "If you're not communicating face-to-face, ask the patient if now is a good time to talk, and listen carefully for cues that they may not understand."

Mayer says, "Make sure that any written materials you give patients are in simple language. Avoid giving patients brochures from pharmaceutical companies because they tend to use medical jargon." Instead, rewrite the information on the brochures using easy-to-understand language.

Materials you give your patients should be written on a fifth grade level. If the material is describing how to do something, like giving yourself an insulin injection, pictures can be invaluable.

"Some people argue that college-educated patients would be insulted by easy-to-read materials but in fact, nobody ever complains that something is too easy to understand. That's why we should make it easy for everyone to read, regardless of their literacy level," she says. ■

Make sure patients understand what you say

Ask them to repeat what they should do

As a case manager, your job isn't done just because you told a patient something. Your job is done when the other person understands it, says **Helen Osborne**, MEd, OTR/L, president of Health Literacy Consulting, a Natick, MA, firm.

"As you talk to patients, take a moment after teaching a key point to confirm that the patient understands," Osborne suggests. Use the "teach-back method," and ask the patient to tell you in his or her own words what you just discussed. This helps demonstrate understanding in functional ways. "But don't just ask patients if they understand. They may say yes because they want to be agreeable, or they may be embarrassed to say they don't understand," she says. When you use the "teach-back method," put the responsibility for clear communication on yourself by saying something like, "I want to make sure I explained this clearly. Tell me again which medication you will be taking and when." Also, "don't pause after every sentence. That is repetitive, and the patient will get bored. Pause only after the key points," she says.

"If the other person doesn't quite get it right, try to communicate in a different way rather than just saying the same thing louder or slower," Osborne says. If you still don't think the patient understands, ask to meet with a family member or have someone else on the team talk to the patient.

The Partnership for Clear Health Communication suggests using its "Ask Me 3" program to improve communication with patients.

Providers should promote patient understanding of three essential questions:

- What is my main problem?
- What do I need to do?
- Why is it important for me to do this?

SOURCES/RESOURCES

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• For more information on health literacy in general, see **www.healthliteracy.com** and the **Institute for Healthcare Advancement** at www.iha4health.org. Click on "Health Literacy Rewrite/Redesign Series," then select "Links/Resources" or "IHA's HELP Curriculum."
• For information on health literacy in general, including a white paper on health literacy, a health literacy kit, and other materials, visit the **National Patient Safety Foundation** at http://www.npsf.org/pchc/health-literacy.php and click on "Download Material"
• To download free podcasts about health literacy, see **www.healthliteracyoutloud.com**. Click on "About HLOL Podcasts" and "Home: HLOL Episodes."
• To download the free guide, **"Health Literacy and Plain Language"** or to find out more about health literacy products, go to www.healthliteracyinnovations.com and click on "Products."
• For materials about the **Ask Me 3** program, see www.npsf.org/askme3.
• The Department of Health and Human Services ***2010 National Action Plan to Improve Health Literacy*** is available at http://www.health.gov/communication/hlactionplan.
• The 2011 report, ***Health Literacy Interventions and Outcomes: An Update of the Literacy and Health Outcomes Systematic Review of the Literature*** is available on the AHRQ website at www.ahrq.gov/clinic/tp/lituptp.htm. ■

Readmissions reduced for heart failure patients

Health coaches, home health provides support

A proactive approach to hospital readmissions by Health Alliance Plan (HAP) resulted in a 14% decline in readmissions for heart failure in the Medicare population when compared to the previous year.

The program includes phone calls from nurse health coaches, visits from home health nurses who work on medication adherence, and tele-monitoring for patients at the highest risk for readmission.

"Our population is aging, and chronic health conditions are increasing," says **Pat Slone**, RN, CCM, manager of clinical care management for the Detroit-based insurer. "We take a high tech, high-touch approach to providing care transitions for members who have gone from the outpatient clinic setting to the emergency department to the inpatient setting, and are discharged back home. Rather than waiting for claims to come in, we use our authorization software program to identify patients who are being discharged with heart failure."

HAP continuously assesses the population with chronic health conditions and then assigns patients at high risk to a nurse health coach who evaluates the patient's eligibility for a tele-monitoring device. "We send a self-management plan of care to all our heart failure patients and encourage them to take it to their physician's office so the doctor can go over the medications and outline what symptoms indicate the patient should call," Slone says. "We give them an educational tool that shows the signs and symptoms of heart failure, self management activities, and has a place for the patient to enter his or her laboratory values."

The health plan calls the case managers who work in this program "nurse health coaches" and provides comprehensive training on helping patients manage their chronic conditions. The nurses are notified when patients are discharged and call patients within 48 hours after discharge to discuss their discharge plan. "Patients are still pretty ill when they're just gotten out of the hospital, so we make this a very focused phone call. The health coach reconciles the medication the patient is reporting at home with what the physician prescribed during the hospital stay, ensures that the member has a follow-up appointment with a primary care physician or cardiologist, and makes sure home health services are in place," she says.

If the patient hasn't scheduled a follow-up visit with a primary care physician or cardiologist or hasn't filled his or her prescriptions, the nurse finds out why and works to overcome the barrier. If they don't have home care ordered, the nurse finds out why. If the patient has refused home care, the nurse tries to convince the patient to accept it.

EXECUTIVE SUMMARY

A combination of phone calls, home health visits, and tele-monitoring has reduced readmissions for heart failure among members of the Health Alliance Plan (HAP).
• Nurse health coaches call high-risk patients within 48 hours of discharge.
• A home health nurses visit patient homes to teach patients how to take their medication correctly.
• Participants are screened for depression and anxiety.
• Nurse health coaches receive extensive training on motivational interviewing and health coaching.

HAP arranges for in-person medication consultation by Henry Ford Home Health Care nurses. During the visits to the patients' homes, the home health nurses explain their prescriptions, check for duplication, and consult with doctors if there are questions. HAP has found that it typically takes 5-10 sessions, a combination of in-home and telephone interventions, to ensure that patients are taking their medication correctly. "Heart failure patients have multiple prescriptions, and sometimes when they are confused about what to take [and] when, they take nothing and end up back in the hospital. The home care nurses conduct face-to-face medication reconciliation, teach patients how to take their medication, and even help the patient organize the medications," Slone says.

Once the patients are stabilized, the nurse health coaches complete a lengthy telephonic assessment. "Most of the time they're too ill for a lengthy initial call, and we don't want to take so long when we call them the first time that they won't take another call from us," Slone says.

The nurse health coaches call the patients regularly and reinforce their discharge plan. They educate them on the importance of a low sodium diet, the reasons for weighing themselves daily, their exercise plan, and signs and symptoms of an exacerbation. "Sometimes they are so ill, they can't stay on the phone very long, but the nurse starts teaching them to recognize the early warning signs," Slone says. "Nobody wants to be readmitted to the hospital. The nurse health coaches start emphasizing that patients can stay out of the emergency department if they start self-monitoring and call their doctor when they start to gain weight or experience swelling."

The health plan uses an in-home tele-monitoring device for appropriate at-risk patients. Patients have to be able to stand on the scale and be able to read it, and they must have a telephone land line to hook up to the device. The device is delivered to their home, and a technician talks them through installing it.

Patients enter their weight and any symptoms they are experiencing into the monitor and answer a series of question. The HAP nurse is alerted when symptoms show that a patient is at risk. "By accessing the information supplied by patients, the tele-monitoring nurse can see at a glance who is high risk and get their diuretic adjusted before their symptoms get so bad they end up in the emergency room," Slone says.

The health plan takes an interdisciplinary approach to managing chronic disease and integrates the program with behavioral medicine care managers and pharmacy care managers. HAP offers every member in the program the opportunity to have a conversation with a behavioral health case manager. "Many people with chronic health conditions experience depression and anxiety. The nurses screen the patients for depression and anxiety and provide some education over the phone. We offer them a referral to a specialist if their scores are high," she says.

The behavioral health case managers and nurse health coaches work on the same floor and often consult with each other on care for the patients. "It takes a team to manage patients with chronic conditions. We collaborate to make sure patients get what they need to keep their chronic conditions under control," Slone says.

When they transitioned from case manager to health coach, the nurses underwent three days of intensive education that included training on motivational interviewing, workshops by certified health coaches, a practicum exam, and a written exam. "Our nurses are very skilled at assessing patients' readiness to change, finding what motivates patients to change, and weaving that into a care plan," Slone says. For example, a woman with heart failure was very resistant to weighing herself daily. After several sessions, the nurse health coach found that the woman was obese as a child and her mother forced her to weight herself.

"Once the nurse health coach got to the core of the problem, the woman began to move beyond her aversion to weighing herself and began to self monitor her condition," Slone says. ■

Case managers reduce pre-term deliveries

Nurses provide support, hormone injections

A program that provides face-to-face case management and hormone injection services for women at risk for pre-term birth has reduced the spontaneous pre-term birth rate by 8% among the Medicaid population served by the program.

Nurse case managers with obstetrical experience visit at-risk women in their home once a week during the last half of pregnancy providing education, support, and administration of injections of 17 alpha-hydroxy progesterone (17P), a hormone that keeps the uterus from contracting during preg-

nancy. Women in the program have had previous pre-term births, putting them at risk for another early delivery, says **Jean Schmitz**, BSN, RNC, CDE, CCE, West Region Area clinical director for Alere Health, a health management services business with headquarters in Atlanta.

"Pre-term births are very costly and are on the rise in this country. We estimate this program saves payers an average of $6,000 per pregnancy," Schmitz says. "About 99.5% of women in the 17P administration program complete it. We believe that the support the nurses give these women is as important as giving the injection and providing improved access to care."

Patients are referred to the program through their obstetrician. Many insurers, including Medicaid, cover the injections. A large portion of the patients in the pre-term labor program are Medicaid beneficiaries. However, Schmitz points out, "pre-term labor affects women of all races and socio-economic levels."

"The populations of people who have the most difficult time accessing quality medical care are those who receive Medicaid benefits. Many pregnant women on Medicaid haven't had exposure to routine medical care, and they often have barriers to receiving care like transportation issues," she says.

The company manages a national network of obstetrical nurses who go to the patients' homes once a week to provide nursing services. Nurses from the company's clinical operations center make regular calls to the patients in between face-to-face visits. "This is a nationally based program with the benefit of having nurses in the participant's community to go into the homes," Schmitz says. The community-based nurses share information with nurses in the company's clinical operations center who also have access to patient information when they talk to them.

When women are referred to the program, an obstetrical nurse case manager reviews the clinical information to determine if the women meet criteria for the program. The nurse case managers help them understand that their physician has indicated that they are at risk for a premature birth, and they schedule an appointment at the home. (*For what the nurses do during each visit, see story below*).

The clinical operations center nurses make outbound calls to the patients between visits to assess how they are doing and intervene using the treatment plan from the patient's physician. For example, if the woman is at risk for pre-term labor and is hypertensive, the nurse follows the doctor's guidelines on how to manage the problem.

The nurses in the clinical operations center are RNs with labor and delivery experience. The company operates clinical operations centers throughout the company and has a large center that takes after-hours calls. The nurses at the clinical operations centers have access to all patient data, the physician orders, and the patient chart, which allows them to provide seamless assistance to the patients regardless of when patients call.

The company operates similar programs for women with chronic hypertension, gestational diabetes, severe nausea and vomiting, and other conditions that put them at risk for a premature birth. ■

EXECUTIVE SUMMARY

A program that provides support to at-risk mothers-to-be has reduced spontaneous pre-term births by 8% among Medicaid beneficiaries in the program.
- Nurse case managers visit women in their homes once a week, providing education and administering hormone injections.
- Women are educated on signs and symptoms of premature labor.
- Nurses in the program's clinical operations center call the women between visits.
- Nurse case managers make sure the patients' social needs are met.

Nurses help with more than just the pregnancy

In-home visit is key to success

When the nurse case managers in the high risk pregnancy program at Alere Health visit mothers-to-be in their homes, they do more than just provide hormone injections and educate women about pre-term labor. They also help the family with other needs.

"Our program is not just providing an administration nursing service. It is a system of care coordination and support. People will participate in their care if someone shows that they care about them. We are doing this by bringing this service into the home of Medicaid beneficiaries," says **Jean Schmitz**, BSN, RNC, CDE, CCE, West Region Area clinical director of Alere Health, a health management services business with headquarters in Atlanta.

"When nurses visit women in their homes, they

often can assess at a glance what their needs may be," Schmitz says. If the family can't pay the rent or the electric bill, they work with local churches and social service agencies to provide assistance. "We see situations all the time where people need help. Because our nurses live in the community, they know the resources available to help. If not, they reach out to the physician's office, the hospital, or social service agencies in the area. We are showing the moms that we care in helping them understand the resources that are available to them and their families," she says.

When the nurse case manager visits, she assesses the home situation, performs a maternal and fetal assessment, and starts the educational process about the signs and symptoms of pre-term labor. For example, women might experience dull pain in the lower back or tired legs. They feel like something isn't right, but they don't realize the symptoms indicate labor until they experience a true contraction. "We teach the women in the program to recognize the signs and symptoms of premature labor early on rather than waiting until they experience the pain of a true contraction. At that point, it's more difficult to stop the labor," Schmitz says.

On each visit, the nurses administer injections of 17 alpha-hydroxy progesterone (17P), a hormone that keeps the uterus from contracting during pregnancy, and they review the signs and symptoms of premature labor. "The mothers have the phone number of a nurse they can contact 24/7. They don't have to wait until their doctor's appointment if they sense that they are having problems," Schmitz says.

The nurse remains in the home for 30 minutes after the injection to make sure the woman doesn't have an adverse reaction to the medication. She makes sure the woman has a telephone number to reach a nurse 24 hours a day.

The case managers go over educational materials geared to the woman's needs, such as information on diabetes, hypertension, smoking cessation, and alcohol use. They educate the mothers-to-be on how to stay healthy during pregnancy, the importance of good nutrition and fluid intake, and exercises to keep her healthy. They discuss what to expect during pregnancy, show the woman pictures of what is going on with the baby at each point in the pregnancy, and explain any medical terms the mother might hear from her physician.

A large group of the women in the program do not have telephone service. In those cases, Alere has the telephone installed and pays for service through the delivery so the participant can call if she has questions or concerns.

The nurses visit the mothers at least once a week to provide the administration nursing service, including the P17 injection and continue educating them about signs and symptoms to watch for. They work closely with the patients' physicians, follow the physician's treatment plan, and keep the physician informed about what is happening with the patient.

"We look on ourselves as an extension of the physician's office in helping manage patients with complications of pregnancy," Schmitz says. "We offer home-based solutions when the doctor doesn't have any other option but to put the woman in the hospital." ■

Re-engineering project reduces hospital trips

Discharge process evaluated

The last place patients want to end up after a hospital stay is right back in the hospital. But millions of patients each year are readmitted to hospitals, and many of those stays could have been prevented. In fact, 4.4 million hospital stays each year are due to potentially preventable readmissions, according to Agency for Healthcare Research and Quality (AHRQ) estimates.

In 2006, Boston University Medical Center's **Brian Jack**, MD, an AHRQ grantee, decided to tackle the problem of these preventable readmissions. His focus was the hospital discharge process. By applying engineering methods such as probabilistic risk assessment, process mapping, failure mode and effects analysis (FMEA), qualitative analysis, and root cause analysis, he and his colleagues were able to get a clear picture of discharges.

It wasn't pretty. In fact, Jack calls the discharge process a "perfect storm" where adverse events can coalesce into patient safety problems. "There are loose ends, there are communication problems, there is poor quality information, there is poor preparation, there is fragmentation of care, and there is great variability," Jack said. "It is no surprise that there are many adverse events post discharge."

At the heart of many preventable readmissions lie poorly coordinated care, including unreconciled medications, still-pending test results and still-needed tests, poorly communicated discharge instructions, and rushed staff who don't have adequate time to spend with the patients who are leaving the hospital.

"The discharge process receives low priority in the work schedules of inpatient clinicians, and that is understandable in the sense that nurses and doctors are worried about the sick patients coming out from the emergency room, not so much about the relatively healthy ones who are going home that day," Jack said. His solution was to standardize the discharge process.

Funded by an AHRQ Partnerships in Implementing Patient Safety grant, his Re-Engineered Discharge Project, or Project RED, is based on basic principles that ensure patients are well prepared to leave the hospital: explicit delineation of roles and responsibilities among staff, patient education throughout the hospital stay, easy information flow from the community primary care physician (PCP) to the hospital team and back to the PCP, and an easy-to-read printed discharge plan for the patient. As part of the discharge plan, the patient receives contact information for staff members who can assist after the hospital stay ends. Hospital staff also take the additional step of following up with a phone call within three days after the patient is discharged to ensure he or she is able to comply with the personalized discharge plan.

When Project RED was put to the test in a randomized trial of 750 adult patients at Boston University Medical Center, Jack documented a 30% decrease in readmissions at the end of 30 days for the patients who received the standardized discharge process compared with patients in the control group who underwent a typical discharge. In fact, the National Quality Forum adopted the re-engineered discharge in 2007 as one of the national "Safe Practices for Better Healthcare." These safe practices are evidence-based, ready-to-use tools to improve safety that have been evaluated, assessed, and endorsed to guide health care systems in providing the safest care possible. Furthermore, of the 14 Safe Transition grants the Centers for Medicare & Medicaid Services awarded to quality improvement organizations around the country in 2008, many are using the re-engineered discharge methodology.

Discharge checklist

To help hospital staff stay on course for preparing patients for discharge, Jack created a checklist, much like the ones pilots and co-pilots work through before each flight. "They [pilots] don't go through that checklist only if it is a rainy day or a snowy day. It is done each and every time," Jack said.

The checklist ensures that the 11 components of Project RED are consistently applied for every patient. For example, it prompts staff to check if the patient's medications have been reconciled, treatment conforms to accepted guidelines, follow-up appointments are made, outstanding tests are tracked, and post-discharge services, such as physical therapy or nutritional counseling, are arranged.

The discharge advocate

The job of ensuring all these moving parts seamlessly come together falls to a staff member called the Discharge Advocate, or DA. "It became clear to us that preparing the patient for discharge wasn't clearly the responsibility of any one group within the hospital," Jack said. "In general, when responsibility is not clearly assigned, then it is nobody's responsibility, resulting in gaps and redundancies."

The DA is the central person responsible for coordinating the patient's discharge from the moment the patient is admitted. The DA's duties include educating the patient throughout the hospital stay, reconciling medications with the treatment team, and coordinating follow-up care with community-based providers, which includes ensuring the patient's primary care physician, receives the discharge summary.

Ultimately, the role of the DA is to reduce information gaps and redundancies that typically occur during discharge and can adversely affect patient care. In Jack's study, a nurse was designated the role of DA, but the duties can be filled by a trained patient advocate, social worker, or other support personnel. The DA or pharmacist calls the patient shortly after discharge to see how the patient is faring with new medications or to remind the patient of upcoming appointments.

The culmination of the DA's work is a document named the *After Hospital Care Plan* that the patient receives at discharge. The plan contains a wealth of information, in plain language, including the diagnosis, telephone numbers to call with questions, a detailed medication list and schedule, and a list of follow-up appointments that are plotted on a 30-day calendar. Before the patient leaves the hospital, the DA walks the patient through the document, asks the patient questions to ensure he or she knows where to find information, and provides any additional patient education material that may be useful. "Overall, patients really love it when you give them an After Hospital Care Plan that they can understand," Jack said. "They feel more ready and more prepared to go home."

Having all the information in one document also helps family members participate in the patient's care. Additionally, patients are encouraged to bring the plan to all follow-up appointments so it can serve as a companion to the discharge summary the patient's community physicians are supposed to receive.

Putting RED into practice

In late 2009, AHRQ contracted with Joint Commission Resources to provide technical assistance for hospitals that want to implement Project RED. More than 135 hospitals across the United States have signed up for the opportunity to learn how to improve their discharge process.

Because this initiative isn't a research study, hospitals are free to implement Project RED however it best fits their needs. After completing three online training modules, the hospitals can choose to implement Project RED, for instance, in a certain unit or for a specific group of patients at high risk for readmission. Hospitals also have the flexibility to adapt Project RED to fit their systems. For example, some have had their information technology teams program computer prompts for different departments to remind them to perform tasks. Others use colored binders in the patient room to let team members communicate what's been done and by whom.

What quickly becomes evident to all of the hospitals is that re-engineering discharge is a team effort. The research study found that it is not only important for the providers, nurses, and other hospital staff to support the new process, but also that they significantly commit to making the process successful.

Nancy Carrier of Tift Regional Medical Center in Tifton, GA, says, "It's been a huge learning curve for all of us. We do quite an extensive discharge process…but the communication could be much improved." Carrier adds that team communication has improved since implementing Project RED.

Before deploying Project RED, Tift staff members underwent a team-building session to help them better understand each other's roles. "We stepped back and decided we need to bring the team together to make it more cohesive," Carrier said. "I don't think any of us could have pulled this together without pulling together as a team." Participating in patient rounds, a Project RED principle for improving team communication can also help DAs get to know their patients early on.

Katie Hall, a DA who works in an oncology unit at Rose Medical Center in Denver., said, "It provides an opportunity for me to get to know the patient, to identify what the learning needs are, and to start working on the care plan from day one. I can sit down and spend the time with the patient and review the new diagnosis, if that's the case, or review chemotherapy."

The experience has been enlightening for some of the hospitals. Leaders at one hospital discovered that although they thought they communicated well with their patients' community physicians, that wasn't necessarily the case. They also learned that their medication reconciliation process wasn't running as smoothly as they'd believed.

The follow-up phone calls have also reaped benefits for patients. These calls can serve to remind patients of appointments that might have slipped their minds, or they can pinpoint a larger problem. For example, during one call, **Linda Hollan**, a DA from Integris Baptist Regional Hospital in Miami, OK, learned that although a patient filled her prescription, she couldn't open the pill bottle. "I called the pharmacy, and they actually sent someone to her home to open the bottle for her," she said.

Future steps

Because teaching the After-Hospital Care Plan can be time- and resource-intensive, **Tim Bickmore**, PhD, of Northeastern University worked with Jack to create a virtual DA named Louise that can review the *After Hospital Care Plan* at the patient's bedside. With a paper copy of the plan in hand and a touch-screen computer in front of them, the patient walks through the plan in about 40 minutes at Louise's prompts. When it is the patient's turn to speak to or ask a question of Louise, he or she touches one of the on-screen options. "We find that patients can very readily use the system, even if they have no computer experience whatsoever, and they seem to have high levels of satisfaction with it," Bickmore said.

Louise also checks the patient's comprehension of key information, such as information about medications. If the patient doesn't understand something, Louise reviews the information again, alerting a human DA if the second attempt at relaying the information is unsuccessful. "The information [Louise provides] is tailored to each patient's particular discharge information and to their particular needs," Bickmore said. "It takes as much time as the patient needs."

Additional AHRQ grants are being used to test Louise with medically underserved patients in an urban safety-net hospital and to create and test a

culturally competent version of the *After Hospital Care Plan* for varied patient populations. With one in five Medicare patients returning for a hospital stay within one month of being released, Project RED is certain to continue gaining traction in hospitals across the nation, sources said. Jack said, "When you think about it, a lot of complex things are happening during the hospitalization in terms of pharmacology and medications and treatment and discussions. Then we send patients home with maybe eight minutes of discussion about how to care for themselves when they go home, so it is no surprise that patients are having a lot of trouble caring for themselves once they go home." Through Project RED, "we transition that information from the hospital environment to home where the patient cares for themselves and then to the community environment where the primary care physician knows about what happened."

[For more information on improving patient discharge, visit http://www.ahrq.gov/qual/imppt-dis.htm. Hospitals interested in learning about the AHRQ project for re-engineering hospital discharge can contact Deborah Morris Nadzam, PhD, FAAN, Joint Commission Resources, at 630-261-5048 or dnadzam@jcrinc.com.] ■

Blood test reduces hospital readmissions

Inexpensive, routine blood test could hold key

In a study reported online by the *American Journal of Cardiology*, **Henry J. Michtalik,** MD, MPH, and his colleagues tested heart failure patients on admission and discharge for levels of a protein that's considered a marker for heart stress. In previous studies, the levels of this protein, N-terminal pro-B-type natriuretic peptide, or NT-proBNP, have been correlated with heart failure symptoms and have been associated with an increase in adverse outcomes.

They found that patients whose protein levels dropped by less than 50% over the course of their hospital stay were 57% more likely to be readmitted or die within a year than those whose levels dropped by a greater percentage.

Testing for NT-proBNP at the beginning and end of hospitalization could help doctors and hospitals make better decisions about which patients are ready to be released and which ones are at higher risk for relapse, readmission, or worse, Michtalik says. Typically, he adds, patients already are tested for this heart failure marker upon admission. "These patients feel better. They look better. But this study suggests many of them may not be completely better," says Michtalik, a research and clinical fellow in The Johns Hopkins University School of Medicine's Division of General Internal Medicine in Baltimore. "Even though a doctor has determined the patient is ready to go home, a change in this biological marker of less than 50% means the patients are at much higher risk and would likely benefit from more intensive treatment, monitoring, or outpatient follow up."

Congestive heart failure occurs when the heart can't pump enough blood to meet the demands of the body, which results in heart enlargement and fluid swelling. It is most often caused by coronary artery disease, high blood pressure, heart valve disease, and alcohol abuse. Roughly 5.7 million people in the United States have heart failure, which kills about 300,000 each year and results in repeat hospitalizations for many patients. Readmission rates are a focus of efforts to reduce health care costs, Michtalik notes.

Michtalik and his colleagues studied 241 heart failure patients admitted to The Johns Hopkins Hospital in Baltimore between June 2006 and April 2007 who were treated with intravenous diuretics to remove fluid from the body. Within the first 24 hours, blood was drawn from the patients and tested for NT-proBNP, and patients were treated for their symptoms by their individual doctors. Though the patients' NT-proBNP levels were tested again at discharge, the decision for or against discharge was determined by clinical judgment alone, and the treating physicians were not aware of the protein's level at discharge.

Analysis showed that patients whose protein levels decreased by less than 50% over the several days to a week that they were in the hospital were at the highest risk for readmission or death. "Our research suggests that maybe clinical judgment isn't enough to decide whether a heart failure patient is ready to be discharged," Michtalik says. "These patients may benefit from being treated until the heart failure marker, NT-proBNP, decreases by a certain percentage, something that is not considered now."

Michtalik says a good next step would be a prospective randomized trial that examines whether hospitalized heart failure patients do better when their doctors work intensively to decrease the heart failure marker over the course of their hospital

stays. [*To access the abstract, go to http://www.ajconline.org/article/S0002-9149(10)02722-0/abstract.*] ■

'Prehabilitation' prepares for knee replacements

A comprehensive "prehabilitation" exercise program for patients with severe knee arthritis can improve strength and functional ability before knee replacement surgery, reports a study in the February issue of *The Journal of Strength and Conditioning Research*, official research journal of the National Strength and Conditioning Association.

The physical gains from exercise before knee replacement might translate into improved recovery after surgery, suggests the new study by **Ann M. Swank**, PhD, CSCS, and colleagues of University of Louisville, KY. The study included 71 patients scheduled for knee replacement surgery because of severe osteoarthritis that could not be managed with pain medications. One group was randomly assigned to a comprehensive prehabilitation program, consisting of light resistance training, flexibility and step exercise, and light walking.

Patients in this "pre-rehab" group exercised three times per week, in the clinic and at home, for four to eight weeks before knee replacement surgery. Patients in the comparison group received standard preoperative care, with instructions to continue their usual activities. The two groups were compared for knee strength and performance on standard functional tests.

When tested one week before surgery, patients who went through the prehabilitation program showed improvements in several key outcomes. In particular, they had a significant 10% increase in extension strength in the leg scheduled for knee replacement. In contrast, the comparison group had a 10% decrease in extension strength.

Prehabilitation also was associated with improvement in some functional tests, including the ability to get up from a chair and to climb a set of stairs. Other functional tests, such as walking speed and going downstairs, showed no significant improvement.

In addition, patients in the prehabilitation group also had less pain when performing the functional tests. For patients receiving standard care, performance on some functional tests actually decreased in the weeks before surgery, which possibly reflected increased pain scores.

Previous studies have evaluated exercise programs to improve leg strength and functional ability before knee replacement surgery, but with limited success. For the new study, Swank and colleagues developed a comprehensive, progressive short-term exercise program specifically designed to increase leg strength and functional ability. The results show significant improvements in strength and functioning in the weeks before knee replacement surgery. Strengthening of the leg undergoing knee replacement might be a particularly important factor; exercise might reduce the strength imbalance between legs, thus contributing to the functional improvement. Although even with exercise, the surgical leg remains significantly weaker

COMING IN FUTURE MONTHS

- How technology is changing case management
- Are you providing culturally competent care?
- Tips for helping patients cope with chronic disease
- New opportunities for case managers

than the other leg.

Swank and colleagues outline a recommended routine for progressive exercise in patients scheduled for knee replacement surgery. They note that the prehabilitation program was designed to be "easily accessible" and "easily transferred to a home environment." Although their study didn't compare postoperative recovery, the researchers note, "Increases in leg strength and performance of functional tasks before [knee replacement] surgery may result in improved postoperative recovery because preoperative performance of functional tasks has been shown to be a predictor of postoperative performance of functional tasks." ■

CNE QUESTIONS

17. According to Gloria Mayer, RN, EdD, chief executive officer for the Institute for Healthcare Advancement, patient education materials should be written on what grade level?
A. Fifth grade level
B. Eighth grade level
C. 10th grade level
D. College level

18. Health Plan Alliance's (HAP's) nurse health coaches call at-risk patients with heart failure how soon after discharge from the hospital?
A. 24 hours
B. 48 hours
C. 72 hours
D. One week

19. HAP has found that it takes an average of how many sessions, including in-home and telephonic interventions for heart failure patients to learn to take their medication correctly?
A. 4-8
B. 5-10
C. 10-12
D. 15 or more

20. In Alere Health's program to prevent pre-term births, how often do nurse case managers visit the patients in their homes?
A. Once a month
B. Once every two months
C. Once a week
D. Once every two weeks

Answers: 17. A; 18. B; 19. B; 20. C

CNE OBJECTIVES

After reading this issue, continuing education participants will be able to:
1. Identify clinical, legal, legislative, regulatory, financial, and social issues relevant to case management.
2. Explain how the clinical, legal, legislative, regulatory, financial, and social issues relevant to case management affect case managers and clients.
3. Describe practical ways to solve problems that case managers encounter in their daily case management activities.

CNE INSTRUCTIONS

Nurses participate in this continuing education program by reading the issue, using the provided references for further research, and studying the questions at the end of the issue. Participants should select what they believe to be the correct answers, then refer to the list of correct answers to test their knowledge. To clarify confusion surrounding any questions answered incorrectly, please consult the source material. After completing this semester's activity with the June issue, you must complete the evaluation form provided in that issue and return it in the reply envelope provided to receive a credit letter. ■