AMERICAN HEALTH CONSULTANTS®

Rehab Continuum Report™

Outcomes
Reimbursement
Personnel Management
Quality Improvement

The essential monthly management advisor for rehabilitation professionals

INSIDE

JANUARY 2003

VOL. 12, NO. 1
(pages 1-12)

Cardiac rehab grows as population ages and treatment options expand

Exercise and medication can improve recovery

The prevailing school of thought on how to best treat heart-failure patients has changed considerably in recent years. While it was once believed that ACE inhibitors and beta-blockers were taboo, now they are a first line of treatment for the disease. The same is true with regard to exercise, which once was not recommended, but now is known to be safe and therapeutic.

"There still are people at good treatment centers who have old ideas of not referring patients to cardiac rehab because of concerns that exercise is deleterious for them, but it is known that exercise can help the heart," says **Ira G. Rashbaum**, MD, clinical associate professor of rehabilitation medicine at the New York University School of Medicine and an attending physiatrist at Rusk Institute of Rehabilitation Medicine in New York City. Rashbaum spoke about cardiac rehab at the 63rd Annual Assembly & Technical Exhibition of the Chicago-based American Academy of Physical Medicine & Rehabilitation, held Nov. 21-24 in Orlando.

"Cardiac rehab in general is an underutilized phenomenon in our country, and congestive heart failure patients are underutilized for this," Rashbaum says. "Hopefully, in the next 10 to 20 years you'll see more people referred to rehab for heart failure."

Rehab therapy is going to be an important political and economic issue, he points out, especially with Medicare, because heart failure patients are considered advisable for admission to inpatient units, but are not covered for outpatient treatment, he says.

"I think this will change," he adds. Eventually the federal government will realize that there are enough data on cardiac rehab's efficacy, as well as a growing population of cardiac patients, to warrant Medicare's coverage of these cardiac rehab services, Rashbaum adds.

With this in mind, it's probably a good idea for rehab facilities interested in cardiac rehab to establish some best-practices guidelines. Rashbaum offers these suggestions:

• **Pharmacological management:** Rehab professionals, including nurse practitioners and even physiatrists, should review cardiac rehab patients' medications with a cardiologist to make certain pharmacological management is individualized, Rashbaum suggests.

"Make sure there are enough eyes looking at the list of medications so that it's done the best way possible," Rashbaum says. "Keep the cardiologist involved."

It's also advisable for rehab professionals to keep up with the latest in cardiac pharmacological management. Not so long ago, the use of beta-blockers and ACE inhibitors was considered contraindicated in treatment of heart failure. Now they are front-line drugs, Rashbaum notes.

"There is a variety of medications that can be used to treat congestive heart failure," Rashbaum says. "Generally, rehab professionals and cardiologists are looking at using a combination of medications to get the best therapeutic effect."

While some medications previously shunned now are part of the treatment plan, other medications, such as diuretics and digoxin, are now used more judiciously, Rashbaum notes.

Diuretics, for example, can help rid the body of excess fluid and decrease the load on the heart; however, they could deplete the blood's potassium, which would make supplementation necessary. They also may worsen heart failure when used on a long-term basis, Rashbaum says.

"Digoxin is a medication that helps the heart to contract and pump somewhat better," Rashbaum explains. "While this also is a medication that is appropriate to use, you generally don't want to use it in a vacuum, but instead use it in concert with other drugs."

• **Phases of cardiac rehab:** Phase one occurs in an inpatient hospital setting and can be further broken down into phase 1-A at the acute care hospital and phase 1-B at the inpatient rehab hospital or department.

"So if someone has a heart attack and is in the coronary care unit, that's the medical hospital, and after the person is stable, they can be moved to the rehab hospital," Rashbaum says.

Phase two is the immediate cardiac rehab that occurs in an outpatient setting. It generally consists of about 36 outpatient sessions, Rashbaum says.

A patient typically stays in the cardiac rehab hospital for 10 to 14 days and then would be transferred to outpatient cardiac rehab.

Phase three is when a patient is referred to a community-based heart program, such as those held at a YMCA. This generally lasts from three to 12 months after the initial cardiac event or diagnosis, Rashbaum explains.

The fourth phase begins one year after the cardiac disease was diagnosed, and is directed at long-term lifestyle changes.

Unfortunately for heart failure patients, Medicare and many insurers will not cover phases two through four, Rashbaum says.

• **Exercise therapy:** "Exercise for heart failure patients is a combination of a whole variety of exercise modalities," Rashbaum says.

Inpatient cardiac rehab programs will have patients attached to portable cardiac monitors, called telemetry, to monitor their vital signs while they are assisted in exercise therapies. Some outpatient settings will also use these

Rehab Continuum Report™ (ISSN# 1094-558X) is published monthly by American Health Consultants®, 3525 Piedmont Road, Building Six, Suite 400, Atlanta, GA 30305. Telephone: (404) 262-7436. Periodical postage paid at Atlanta, GA 30304. POSTMASTER: Send address changes to **Rehab Continuum Report**™, P.O. Box 740059, Atlanta, GA 30374.

Subscriber Information

Customer Service: (800) 688-2421 or fax (800) 284-3291, (customerservice@ahcpub.com). Hours of operation: 8:30 a.m. -6 p.m. Monday-Thursday; 8:30 a.m.-4:30 p.m. Friday.

Subscription rates: U.S.A., one year (12 issues), $575. Outside U.S., add $30 per year, total prepaid in U.S. funds. Two to nine additional copies, $460 per year; 10 to 20 additional copies, $345 per year; for more than 20, call (800) 688-2421. Missing issues will be fulfilled by customer service free of charge when contacted within one month of the missing issue date. **Back issues**, when available, are $96 each.(GST registration number R128870672.)

Editor: **Melinda Young**, (828) 859-2066, (youngtryon@mindspring.com).
Vice President/Group Publisher: **Brenda Mooney**, (404) 262-5403, (brenda.mooney@ahcpub.com).
Editorial Group Head: **Lee Landenberger**, (404) 262-5483, (lee.landenberger@ahcpub.com).
Managing Editor: **Alison Allen**, (404) 262-5431, (alison.allen@ahcpub.com).
Production Editor: **Brent Winter**.

THOMSON
AMERICAN HEALTH CONSULTANTS

Editorial Questions
Questions or comments?
Call **Alison Allen**, (404) 262-5431.

Need More Information?

Ira G. Rashbaum, MD, Clinical Associate Professor of Rehabilitation Medicine, New York University School of Medicine; Attending Physiatrist, Rusk Institute of Rehabilitation Medicine, 400 East 34th St., New York, NY 10016. Telephone: (212) 263-6328. E-mail: rashbi01@endeavor.med.nyu.edu.

devices, Rashbaum says.

"Patients involved in exercise programs as inpatients or outpatients should be under the care of a physician who is familiar with cardiovascular diseases," Rashbaum says. "And they should have exercise stress tests to assess the safety of their being involved."

Stress tests will give physicians, nurses, therapists, and physiologists the parameters of how high or low the patient's blood pressure and heart rate should go, Rashbaum adds. ■

Pain management changes give doctors more options

Expert offers guide to best practices

A lot has changed in pain management in the past two years since the Joint Commission on Accreditation of Healthcare Organizations (JCAHO) of Oakbrook Terrace, IL, recommended that pain assessments be a part of every clinical exam.

For one thing, pain specialists no longer use the term "pain management," having switched to the descriptor "pain medicine."

Secondly, there continue to be new treatments and approaches championed each year, and rehab providers often adjust their practices to reflect the latest developments.

And, in 2000, physiatrists were invited to sit for the first board certification exam in pain medicine.

"In the next few years, if you don't have a fellowship, you won't be able to sit through the exam for physical medicine and rehabilitation," says **Marc R. Gerber**, MD, a partner with Florida Spine Care Center in Orlando. Gerber spoke about pain management at the 63rd Annual Assembly & Technical Exhibition of the Chicago-based American Academy of Physical Medicine & Rehabilitation, held Nov. 21-24 in Orlando.

All of these changes are necessary and timely as pain medicine becomes a bigger focus of rehabilitation care and general medicine due to the aging of the U.S. population, Gerber says.

"With the population aging and all of the musculoskeletal problems out there, physiatrists are in an excellent position to be leaders in musculoskeletal treatment, as well as pain management," Gerber says.

"There are opportunities to take over this area," Gerber adds. "It's a growing field, and as more and more patients are treated outside the acute care hospital, there's going to be a growing demand and more treatments for pain management with proper rehabilitative care and intervention."

Gerber and other physiatrists are seeing an increase in new pain medicine patients, including chronic back pain patients and patients whom other clinicians have given up on. This accentuates the need for a comprehensive approach to their treatment, Gerber says.

"I think it's important for doctors to use a comprehensive approach to pain management, using occupational and physical therapists, epidurals, selective spinal procedures, psychiatric intervention, and selections from an arsenal of 50 different medications," Gerber says.

Gerber offers these guidelines for physiatrist and rehab treatment of pain patients:

• **Occupational therapy:** Occupational therapists (OTs) can help patients with upper extremity pain, such as carpal tunnel syndrome, particularly if a patient has had surgery for the disorder and needs help afterward, Gerber says.

For typical carpal tunnel syndrome cases, a physiatrist might order wrist splints and let the patient continue to work, but when OT referral is necessary, it can be helpful to have an OT teach patients stretching exercises.

OTs may also help patients who have problems with shoulder impingement, rotator cuff problems, and injuries to the shoulder that don't require surgery but that impose functional limitations, Gerber says.

• **Physical therapy:** Patients who have neck pain, a herniated disk, or who were injured in a car accident often will benefit from treatment by a physical therapist (PT), Gerber says.

"I try to gear patients more toward an active approach and have them try exercises rather than

just lie on a table and get a massage," Gerber says. "We try to get patients to do the exercises themselves because having a massage and ultrasound is good, but it's only good for short-term improvement."

PTs can teach patients home stretching programs and encourage them to become involved in wellness and exercise programs.

• **Epidurals:** When patients have neck and lower back pain with radiating symptoms to arms and legs, they often will respond well to epidural injections using fluoroscopic guidance, Gerber says.

"That's where we use an X-ray camera that gives a live image to make sure the medication is delivered to the proper location," Gerber explains. "Years ago, they didn't use fluoroscopic guidance, and the medications would be delivered inappropriately and miss the right spots."

The injections can be done at an outpatient surgical center, taking less than an hour. Depending on the patient's response, one to three injections will provide patients with relief for several months or longer, Gerber says.

"It also will alleviate acute pain that occurs when people have disk or nerve root pathology," Gerber says.

• **Selective spinal procedures:** This involves facet injections, which are injections into the bony joint that stabilizes the spine. This is used in patients who have degenerative conditions that produce pain.

"We inject steroids and anesthetics in there," Gerber says. "Many physicians also will use other types of treatments, such as radio frequency, to burn the nerves using cryoablation or radio frequency to treat these kinds of conditions."

A new procedure, intradiscal electrothermoplasty, involves inserting a coil into the disk and heating the coil so that it burns disk fibers.

All of these techniques are controversial; some clinicians will swear by them, and others will call them bunk, Gerber notes.

"I use the nerve root injections, sacroiliac steroid injections, for back pain," Gerber says. "I will do hip injections for degenerative hips, and patients will derive several months of benefit from hip injections of steroids using fluoroscopic guidance."

These are alternative treatments for patients who are either waiting for surgery or who do not want to have surgery, Gerber says.

• **Psychiatric consultation:** Because an estimated 50% of patients with chronic back pain have clinical depression, clinicians also will need to treat their psychiatric symptoms, or else the outcomes will be less positive, Gerber says.

"Treat all aspects of pain, and not just the organic problem," Gerber advises.

Typically, a physiatrist will send such a patient to a psychiatric consultation or will prescribe antidepressants. Physiatrists also may work with psychologists to provide stress management and coping interventions, Gerber says.

Three goals of pain management are to decrease pain, improve the patient's quality of life, and increase the patient's function, Gerber says. "The fourth goal is to use treatments and approaches that minimize side effects, but the goal mostly isn't to cure pain or the problem, because someone with four back surgeries is not going to be cured of back pain."

Physiatrists mainly want to help patients not to be miserable all the time, Gerber says. "Many times, doctors don't want to take time to sit down and figure that out."

Use polypharmacy for pain management

• **Medications:** Most patients will do better on more than one class of medication, so clinicians need to use polypharmacy, Gerber says.

"These can be combinations of anti-inflammatories, muscle relaxers, antidepressants, and pain medications," Gerber says. "We have non-opioid pain medications with some anti-inflammatory pain properties, or we have opioid pain medications, including short- and long-acting medications."

Clinicians will prescribe certain medications for episodic pain that requires treatment occasionally, and then there are long-acting opioid medications that will alleviate pain in patients for whom the pain never subsides, Gerber notes.

"In our practice, when we put patients on long-term pain management with opioids, we have them sign an opioid agreement, like a contract, that lets us be the primary providers," Gerber says. "Patients agree to follow our rules and recommendations, and they know that any deviation from our rules will result in our no longer prescribing those medications."

Because of strict regulatory oversight of opioids, clinicians need to be fully aware of all state and local laws regarding controlled substances, but that doesn't mean physicians should be afraid to prescribe these drugs, Gerber says.

Clinicians simply need to be alert to the minority

Need More Information?

Marc R. Gerber, MD, Partner, Florida Spine Care Center, 25 W. Kaley St., Orlando, FL 32806. Telephone: (407) 481-2244.

of patients who will abuse these drugs, and set up policies preventing this kind of abuse, Gerber adds.

"We don't prescribe refills and changes after hours or over the weekend," Gerber says. "Patients are given a monthly supply, and they have to adhere to the schedule, including seeing us routinely every three to four months for a follow-up." ■

Computer technology improves operations

Making switch is slow, but worthwhile

Spaulding Rehabilitation Hospital in Boston first implemented its new electronic data system two years ago, solely to replace the existing hospital information system for business operations.

The initial focus was on implementing billing and accounts receivable replacement, medical records and admission data, and discharge and transfer system information. Completed Oct. 1, 2001, the first full year of implementation resulted in a $6 million yield in cash receipts, says **Rick Mason**, corporate director in information systems for Partners HealthCare Systems in Boston, an organization created when MassGeneral and Brigham and Women's Hospital merged, creating the parent company of Spaulding Rehab. Mason is the site chief information officer at Spaulding Rehab.

"The electronic system worked so effectively that the accounts receivable people have told me that our effective return on investment was six months, as the cost of the installation was $3 million," Mason says. "We brought in $6 million above and beyond what we would have expected from prior years' results."

Spaulding had used an electronic system created by Medical Information Technology Inc. (MEDITECH) of Westwood, MA. The MEDITECH software applications can be used for financial, clinical, data storage, and other needs of a health care system. After that initial success, the rehab hospital began a second phase and implemented an executive support system in March 2002, and a pharmacy system in June 2002, Mason says.

"Then on July 23, 2002, we went live with a number of clinical applications, including clinical labs, microbiology, radiology, order entry, and patient care inquiry," Mason says. "The system looks at an aggregate of patient data from all the ancillary departments I mentioned and puts them into a series of screens that a physician can access easily using nothing more than arrow keys."

The hospital also switched to a hospitalwide wireless system, which included 30 carts with battery-powered laptop computers that could run all of the applications of a typical desktop computer over the wireless infrastructure for 16 hours straight before the batteries needed recharging, Mason says.

"The driving force to install it was the fact that we were limited for space, so placing desktop computers on nursing stations was not an option," Mason says. "The secondary limitation is that our heating and air systems in the building are operating nearly at capacity."

Desktop computers generate significant heat, and adding the necessary number of these computers to the hospital would require the heat and air conditioning system to undergo a $1.5 million upgrade, Mason says.

"Because we were battery-powered, there was no power drain during critical hours, and laptops don't generate the heat that the typical monitor does, so the laptops were not straining the heating and air system," Mason explains.

The wireless alternative to desktop computers cost about $120,000 to install, Mason adds.

From the basement through the hospital's 10th floor there are several antenna access points on each floor, making it possible for clinicians to roll the laptop into each patient's room, the solarium, the therapy gym, and even the restroom, and still stay logged onto the network, Mason says.

"The added benefit is that physicians can use this system with laptops that are not cart-based, and they can walk floor to floor and in and out of patients' rooms without having to log in and log out each time," Mason adds.

"The wireless system paves the way for a handheld solution, which we plan on implementing

within the next 24 months," Mason says. "That will be tied into our wireless system."

Mason offers this description of some of the other features of the wireless electronic system, including some future clinical applications:

• **Clinical labs:** The computer system supports the diagnostic analyses of specimens from patients, and these can be entered into the system and viewed from any of the computers. This way, physicians easily can check the lab results as they enter patients' rooms.

• **Microbiology:** Again, clinicians can obtain information about blood, urine, and tissue specimens that has been entered by lab techs into the wireless system.

"Prior to implementation of MEDITECH, we did have a lab system that wasn't integrated and had a stand-alone microbiology system that wasn't integrated into a single result reviewer," Mason says. "Now the orders are entered into one system, and they're directly mapped into microbiology or labs, and the results all are viewable in a single area of the single application."

• **Patient data:** Patient demographics are completely integrated into the system, so whenever a particular patient's file is reviewed on the system, whether the information sought is clinical or financial, the patient's demographics are included.

"It provides you with a tremendous source of value, and the true benefit to this application is a single source of truth," Mason says.

Data integration improves communication

• **Data integration:** The electronic system provides greater efficiency and data integration, which in turn improves communication between departments, Mason says.

"Integration has a side benefit, as well," Mason adds. "Because when you start to develop interdisciplinary applications that reside with each other functionally, you start as a side benefit to force departments that have never worked closely with each other to understand how each works and to develop higher methodologies of communicating with each other."

For example, a physician was concerned that when a secretary was entering an order for him, a previous order had disappeared off the system, and he wanted to append the previous order but not delete it, Mason recalls.

The normal process is to call the lab to append the order, and if you want to change the order then you delete the series already in the system and create a new series.

However, due to the electronic system's data integration, this process wasn't necessary. And, as a result of the data integration and the physician's inquiry into it, what happened is that the physician, along with nurses, pharmacists, and others, gained a better understanding of how the lab functions. What they discovered was that the lab automatically does a complete blood test whenever a more limited blood test is ordered. So if a physician wants to ask for more information on the blood drawn from a patient, most of the time that information already is available within the lab, Mason explains.

"The lab simply needs to post additional results, and nobody really understood that before," Mason says.

• **Radiology:** The radiology department previously had no scheduling system, but with the electronic system changes, it now has a built-in scheduling system that permits radiologists to transcribe reports to the MEDITECH System, Mason says.

"We are working on a web-based imaging solution so physicians network-wide can view a patient's radiology results or images from anywhere on the system, including wireless networks," Mason says. "We're working on the imaging portion and expect to have that finished in a year."

• **Order entry:** When a physician wants to order a lab test, radiology test, or microbiology test for a patient, all that is necessary is to put the order into the electronic system, and the order can be reviewed by the appropriate ancillary departments, Mason says.

"As a result of that, the ancillary departments will work on processing those results and have a timely turnaround of putting the results into the system so physicians and nurses can access the data quickly and easily," Mason says.

"The system allows us to communicate more quickly with ancillary departments, and it allows us to have higher-level analytical skills in planning upgrades or new operational changes to our hospital's environment," Mason adds.

• **Pharmacy:** The pharmacists, like nurses and physicians, now use wireless laptops. This frees them from being stationed solely in the pharmacy, so the hospital now has clinical pharmacists operating on the floors, available to provide enhanced clinical support to nurses and physicians, Mason says.

Need More Information?

- **Medical Information Technology Inc.**, MEDITECH Circle, Westwood, MA 02090. Telephone: (781) 821-3080. Web site: www.meditech.com.
- **Rick Mason**, Corporate Director, Information Systems Department, Partners HealthCare systems; Site Chief Information Officer, Spaulding Rehabilitation Hospital, 125 Nashua St., Boston, MA 02114. Telephone: (617) 573-2555.

"The drug orders are placed the night before, and the pharmacist comes in early in the morning to work on them," Mason says.

Eventually, the system will permit physicians to place medication orders directly to the pharmacy through the electronic system.

Pharmacy techs prepare individual doses based on the orders, and the pharmacists check the orders before they're placed on carts that go directly to the patient floors, Mason explains.

Then the pharmacists are free to visit the floors, where they can answer questions by clinicians and handle any issues that might arise, such as adverse reactions or allergic reactions. Occasionally they'll even speak with patients, Mason says.

"The biggest advantage is safety, because of the fact that they're supporting care providers on the floors," Mason says.

Another safety feature is that the electronic system will provide checks and balances for physician medication orders. It will permit physicians to review their drug orders, and it will assess the order for safety and appropriateness according to the patient data. If the system detects something unusual, it will provide a prompt to the physician, asking, "Are you sure you want to recommend this medication, based on the following," Mason says. ■

Picture worth 1,000 words in ergo program

Workers see visuals of right and wrong practices

If you're an employee suffering discomfort at work, you can attend hours of detailed ergonomics presentations, but the most valuable time you spend could be the few minutes it takes to see pictures of yourself at work.

That's the contention of **Joe Esposito**, DC, LD, DABCO, DAAPM, president of the Health Plus Wellness Center in Marietta, GA. As part of his comprehensive workplace ergonomics program, Esposito takes photographs of employees at work and then reviews those photos with them, pointing out correct and incorrect postures and motions.

"The program has actually been in the process of development for the past 20 years," Esposito explains. "Patients would always come in with problems, but I noticed that since the advent of the computer age they'd present with a whole host of new problems — in the wrists, elbows, and shoulders."

When Esposito would help a given patient, their companies would often call him up and ask him if there were some way he could help the other workers. It was through this process that the program evolved.

After the initial referral, Esposito comes out to the work site. "First, I meet with the company and walk around the office with my camera," he notes. "I take pictures of the good things and bad things that are going on. For example, someone might be sitting at their desk and leaning on one hip instead of both hips, or the keyboard is too far away, or the air conditioning vent is blowing directly on the employee, which could cause muscles to spasm."

Esposito finds that when he does corporate workshops, the employees like to see themselves. "We also have a generic slide presentation that shows how the spine, muscles, bones, and ligaments work, and cartoon figures of how to set up a computer and a chair," says Esposito. "We talk about how to lift properly. Then, we put in slides of the company and compare what the workers are doing with what they should be doing." Esposito will do this for specific departments — for example, focusing on proper lifting techniques for shipping and receiving employees.

A holistic approach

Esposito takes a holistic approach to ergonomics. "Ergonomics is not just lifting," he explains. "It's air conditioning, it's drinking enough water, it's fresh air and lighting."

His program also incorporates nutrition.

Need More Information?

Joe Esposito, DC, LD, DABCO, DAAPM, Health Plus Wellness Center, 950 Cobb Parkway South, Suite 190, Marietta, GA 30062. Telephone: (770) 427-7387. Fax: (770) 426-1491. Web site: www.drjoeesposito.com.

"What you put in your body affects how it works," he asserts. Thus, his presentation includes pictures of soda machines. "I explain that when you eat certain things, there are specific reactions on the metabolic level," he says. "I show them some of the better choices available to them."

Exercise is another important component. "We cover the basics, and then we get into a bit of advanced neurological work, such as we do with athletes," he observes. This includes cross/crawl exercises, which, he says, "Reboot the brain, after which everything starts to work better."

Initially, many people cannot do the exercises, because their brains are "short-circuited," says Esposito. However, after showing them precisely what to do, "For 30 seconds of exercise you get three hours of good, clean energy."

Esposito has presented his program at pharmaceutical companies, schools, computer programming firms, and churches. He recently completed a program with an Atlanta law firm. "They loved it," he reports. "We were asked back two weeks later and doubled the number of people.

"Esposito says the employees reported having more energy and thinking more clearly. "They told me, 'No one ever told us how easy it was to correct the problem,'" he reports. ■

Managers are building bridges to leadership

Overall goal is patient and staff satisfaction

The latest segment of the University Hospital of Arkansas' comprehensive education program brings forward the themes of teamwork, communication, and conflict resolution, focusing on how those concepts can be used by the hospital's directors, managers, and supervisors.

"The whole goal is to improve patient and staff satisfaction through strong leaders," says **Becky Glover**, RN, MNSc, manager of staff education and computer training for the Little Rock-based facility.

The program, Building Bridges III, focuses on leadership competencies developed from focus groups made up of administrators, managers, and staff, she says. "They came together to decide on curriculum, what qualities they thought strong leaders should exhibit."

The Myers-Briggs Type Indicator personality inventory is used as a framework for personal development and to provide tools the managers can use in working with the employees they lead, Glover notes. Among other things, Myers-Briggs is used as "part of a bridge to talk about the ways that different types of people communicate."

The program, she adds, asks the question: "How do I, as a leader, get my team to work together more efficiently?"

Participants in the recently completed program pilot included a revenue integrity specialist and a point-of-service coordinator from the access department, as well as nurse managers, a pharmacy manager, and a respiratory therapy manager, among others, she says. The next session, scheduled for this month, already is overbooked.

Building Bridges I is designed for new employees, while Building Bridges II is for existing staff, Glover notes. "They're all really based on the same concepts and have evolved into these different [applications]," she adds. "The basis is teamwork, communication, and resolving conflict."

Learning about Maslow's hierarchy of needs

When participants look at how to motivate employees, they are introduced to Abraham Maslow's hierarchy of needs to help them determine where their employees are coming from, she explains.

"We all have the same basic needs, but some are at different levels," she adds. "To use an extreme example, if someone doesn't have enough money to buy food, that — rather than the thrill of the job — will motivate that person. We're looking at what motivates people and what creates job satisfaction — what needs to be in place before you even start talking about job satisfaction."

In the conflict resolution segment, Glover says, participants are given scenarios based on

situations that actually have occurred at the hospital and are asked to do a "force-field analysis."

In a force-field analysis, she says, one looks at the forces that are opposing and acting as barriers in a given situation and at those that are inclined toward resolution.

"They decide which to pay attention to and which not to," Glover adds. "We get them to look at conflicts in terms of defining what the true problem is and working toward a solution rather than affixing blame."

In another part of Building Bridges III, participants talk about organizational change and the role of the leader, she says. "We go over patient satisfaction reports, and we will be starting a staff satisfaction survey, which will be another indicator leaders can use."

Participants do case studies in workplace

At the beginning of the program, participants are told that they will be asked to use some of the skills they're learning to address a problem or issue in their job environment, she says. "On the last day, they do a case study and show something they've done in the workplace. We vote on the 'best in show' of the case studies."

The person selected receives a plaque inscribed with his or her name and the name of the department to keep until the next session, when it is passed on to the next winner, Glover adds.

Participants also take away some tools they can use in the workplace, including a work preference inventory that is based on Myers-Briggs concepts but focused more specifically on jobs, she says. "It gives the employees some feedback on where their strengths are and how they like to work."

The three-day program is scheduled every other Friday during a five-week program, Glover notes, because it's hard to lure managers away from their responsibilities for three days in a row. Because of its hands-on, interactive nature, the sessions are limited to 30 people, she adds.

Although attendance is voluntary at present, the program has received a great deal of support from the hospital's COO and CEO, who are strongly encouraging directors, department heads, managers, and supervisors to participate, Glover says. "We're hoping it will become mandatory."

There also is the possibility that Building Bridges III will be marketed outside University Hospital in the future. "We've had some requests already," she notes. ■

Hospital engineers should air on the side of caution

NIOSH urges preventing public access to intakes

Hospital engineers and safety officials should take measures to prevent public access to outdoor air intakes to make health care facilities a less attractive target for bioterrorism, public health officials recommend.

"You could see why someone might want to target a hospital — just to reduce your capability to respond to whatever other event may be created if there was a two-stage attack," says **Kenneth R. Mead**, MS, PE, a research mechanical engineer at the National Institute for Occupational Safety and Health (NIOSH) in Cincinnati. "If the goal of the terrorist was to strike fear and disrupt the community, that certainly would be [one facility] they could go after."

A branch of the Atlanta-based Centers for Disease Control and Prevention (CDC), NIOSH is the principal agency behind a recent report on securing public buildings to prevent bioterrorism attacks. In November 2001, following the discovery that letters containing *Bacillus anthracis* had been mailed to targeted locations in the United States, the Secretary of the U.S. Department of Health and Human Services requested site assessments of an array of public- and private-sector buildings by a team of engineers and scientists from NIOSH and CDC. In November 2001, the team assessed six buildings, including a large hospital and medical research facility, a museum, a transportation building, two large office buildings, and an office/laboratory building. In January 2002, more building assessments were conducted at CDC campuses in Atlanta and, in April 2002, at a large, urban transportation facility. A total of 59 buildings were evaluated during this five-month period.[1]

One of the prime vulnerabilities of hospitals and other institutional buildings is access to the air intake, giving bioterrorists a possible way to introduce an agent into the building ventilation system. The report states that "publicly accessible outdoor air intakes located at or below ground level are at most risk." That is due to their accessibility, ease of identification, and because most chemical or biological agents released near a building may remain close to ground level. "Securing the outdoor air intakes is a critical line of defense," the report states.

Relocating accessible air intakes to a publicly inaccessible location is preferable. Ideally, the intake should be located on a secure roof or high sidewall, NIOSH recommends. The lowest edge of the outdoor air intakes should be placed at the highest feasible level above the ground or above any nearby accessible level (i.e., adjacent retaining walls, loading docks, handrail). These measures are also beneficial in limiting the inadvertent introduction of other types of contaminants, such as landscaping chemicals, into the building.

"In terms of new construction, people are starting to think about this [air intake access] as a new issue, whereas in the past they wouldn't have thought it was a problem," Mead says. "Interestingly, people involved in the indoor air quality arena have been trying to get the air intakes up off the ground anyway, especially those that are below ground and tend to be done in window wells. There are a lot of reasons -— terrorism aside — why you would not want a ground-level intake."

If relocation of outdoor air intakes is not feasible, intake extensions can be constructed without creating adverse effects on heating-ventilation-air conditioning (HVAC) performance. Depending upon budget, time, or the perceived threat, the intake extensions may be temporary or constructed in a permanent, architecturally compatible design, NIOSH recommends. "The goal is to minimize public accessibility," the report states. "In general, this means the higher the extensions, the better — as long as other design constraints (excessive pressure loss, dynamic and static loads on structure) are appropriately considered." In addition to the air intake recommendations, NIOSH warned against doing any of the following:

1. Do not permanently seal outdoor air intakes. Buildings require a steady supply of outdoor air appropriate to their occupancy and function. This supply should be maintained during normal building operations. Closing off the outdoor air supply vents will adversely affect the building occupants and likely result in a decrease in indoor environmental quality and an increase in indoor environmental quality complaints.

2. Do not modify the HVAC system without first understanding the effects on the building systems or the occupants. This caution directly relates to the recommendation that building owners and managers should understand the operation of their building systems. If there is uncertainty about the effects of a proposed modification, a qualified professional should be consulted.

3. Do not interfere with fire protection and life safety systems. These systems provide protection in the event of fire or other types of events. They should not be altered without guidance from a professional specifically qualified in fire protection and life safety systems.

(Editor's note: The complete NIOSH report is available at www.cdc.gov/niosh/bldvent/2002-139.html.)

Reference

1. Centers for Disease Control and Prevention. Notice to readers: Protecting building environments from airborne chemical, biologic, or radiologic attacks. *MMWR* 2002; 51:789. ■

It's not theoretical: This disaster plan worked

Fire tests staff's plans and professionalism

Every facility has a plan to deal with emergencies such as fires, but no one wants to have to use them, especially when you have more than 100 people in your building. It is nice to know, however, that one such plan worked when it was needed.

It was 11:40 a.m. on a Thursday when **Teresa Craven**, RN, nurse administrator of Fayetteville (NC) Ambulatory Surgery Center, was walking through a back hallway between the surgery center and a space under construction for the center's expansion. She had just finished talking with the contractor about the renovation of space previously used by a diagnostic center.

"I just happened to see smoke coming out of a fluorescent light fixture in the hallway," Craven says. "I stepped into the scheduling area and pulled the fire alarm, then headed back to the construction crew to let them know that there was fire because they have no alarms in their area."

"When I went back into the surgery center, no one had moved!" Craven exclaims. "I said, 'This is not a drill, there is a fire,' then people began to do everything they were supposed to do," she says.

Although her staff does conduct fire drills during the workday, the drills usually are at the end of the day, when there are few people in the waiting room and no one in the operating rooms, she explains.

Within minutes, the business office staff had escorted waiting family members and patients in the waiting areas to a designated area outside the center. At the same time, Craven checked on the

Don't forget the little things

Overall, the emergency plan worked well during a May 2002 fire at Fayetteville (NC) Ambulatory Surgery Center, says **Teresa Craven**, RN, nurse administrator. All patients, family members, and staff members were evacuated safely. However, there were several small changes that Craven and her staff identified after the event that will improve the plan even more:

• Plan for communications.

In addition to identifying walkie-talkies as a necessity for staff members checking hallways and rooms after evacuation and helping the fire department, Craven also realized that plans need to include identifying certain employees to pick up cell phones to carry outside.

"Most of our staff members have cell phones, but the phones were in their purses in their lockers," she explains. Craven picked up her backpack from her office as she left the building, so staff members were able to call cabs to take family members and patients home, as well as order pizza and drinks for the evacuated people.

• Mark biohazard areas on evacuation floor plan.

"One of the first questions the fire department asked of me was to identify all biohazard areas," says Craven. "We have one place where all of our biohazard waste is placed, so it was easy to tell the fire personnel where it was, but we've now marked it on the evacuation floor plans posted around the center," she says.

• Plan for media coverage.

Obviously, there was a lot of media coverage, and Craven did not want inaccurate information given. "I just told all staff members to have members of the media find and talk to me," she says.

Designating one person to give up-to-date, accurate information is important, she adds. Because events are occurring quickly, not every staff member has the latest information, she explains. By directing media inquiries to one person who has the information, you can make sure that the media don't portray the situation as worse than it is, she adds.

• Label electrical closets and hose connections.

Whenever you have electrical fuses or control panels, label the doors clearly, suggests Craven. Even when a control panel is located in an open area just inside a door that opens to the outside, label the outside doors so the fire department can locate them quickly, she says. Another item to label is the fire hose connection valve on or in your building, she adds.

• Document everything during the clean-up.

One of the most frustrating aspects of cleaning up the surgery center following the fire, in addition to dozens of unsolicited calls from vendors offering to help, was the fact that not too many people were sure who had to inspect what, Craven says.

"I was working with the insurance company, the fire marshal, Medicare and Medicaid representatives, county building inspectors, and city building inspectors," she says. "I made notes of every conversation, including names, dates, and times," she points out. "I made sure that if any questions came up after we reopened, I knew who had given me the OK." ■

status of all patients in the operating rooms. She asked physicians to finish or get the patients to a point where they could be moved. At that point, five patients had just been sent to recovery, says Craven. Of the three remaining cases, two were completed and transferred to the hospital by ambulance, and the third was completed, with the patient sent to recover in the parking lot, she adds.

In the post anesthesia care unit (PACU), staff members collected portable oxygen tanks, blood pressure machines, and two crash carts to move outside along with the PACU patients, says Craven. "We had one orthopedic patient in our 23-hour stay unit, and we were able to transfer her to the nearby hospital," she adds.

Because her transfer agreements were in place and up to date, there was no delay getting ambulances to the hospitals with the three patients who were transferred, she says.

Once the evacuation was under way, Craven and her staff member who is designated as safety officer walked through the building to ensure that no one was left and to double-check that all gas lines in the rooms were turned off. "We walked down different hallways in order to cover the area more quickly, but I wish that we had walkie-talkies so that we could stay in touch," says Craven. The walkie-talkies also would have

COMING IN FUTURE MONTHS

- Look for more coverage of AAPM&R conference in Orlando
- Theme days give rehab staff and patients a fun therapy experience
- Performance-based alternatives to drug screening
- Recognizing depression in your patients

come in handy throughout the rest of day when Craven was needed by the fire department in one area when she was in another. The walkie-talkies are now part of the surgery program's equipment, she adds **(For other tips to improve efficiency during an emergency, see p. 11.)**

Firefighters were complimentary of Craven's efforts, and they praised the fact that her patients and staff moved to the parking lot of an adjacent building several hundred feet away from the surgery center, she says. "There were no people in our parking lot to block the fire engines, ambulances, or other emergency vehicles," she says.

Having everyone away from the building meant a little extra planning, she admits. "Our business office staff took chairs from offices and the lobby as they escorted family members out, so they could sit," she says. "We also took umbrellas that we keep on hand with us to provide shade," she adds.

One business office staff member grabbed the petty cash box so cabs could be called to take patients and family members home. "This was very important, since everyone's car was in our parking lot and blocked by the emergency vehicles," Craven points out.

The worst part was the clean-up, says Craven. "We had fire damage in only two hallways and our staff locker, but there was smoke throughout the entire building," she says. As a result of the smoke, every surface in the center had to be wiped with a biochemical agent (Microban QGC, manufactured by II-Rep Z, Braddock, PA), she explains.

"Walls, ceilings, and floors were cleaned, and all of the fabric on furniture and carpets were cleaned as well," she adds. "We also had to send out all of our curtains, blankets, and scrubs to be cleaned."

Kenny Strickland, vice president of Highland Construction in Fayetteville, NC, is the contractor who oversaw the cleanup. "It's important that the ductwork and interior cabinets of the air conditioning and heating systems be cleaned before any other clean-up occurs," Strickland says. "If it is not cleaned first, then you are continually blowing more smoke, dust, and dirt back into the [area] you've just cleaned."

A nearby hospital made the resterilization of every instrument go more quickly by making their facility available to handle steam and gas sterilization at night, says Craven. "We even wiped down all of our packaged instruments," she adds. The cost for the environmental clean-up was about $100,000, she says. The cost to repair the structural damage still hasn't been totaled, she says.

"We did close for a week to clean up, and we probably lost 250 to 275 cases that week to other facilities, but it was nice to learn that our preparations were well worth the effort," Craven says. "We also learned that the fire started with an electrical short in the ballast of the fluorescent light fixture from which I first noticed smoke."

Family members, physicians, and patients were very happy with the staff's handling of the emergency, says Craven. "Our staff members were so calm and professional during the entire event that no one felt afraid or panicked," she says.

In fact, one of the most satisfied patients was the one who went directly from surgery to the parking lot, Craven says. "He was quoted in the local paper saying that it was the most unusual procedure he had ever experienced, saying that he went to sleep in an operating room and woke up in a parking lot," she says. ■

Need More Information?

Teresa Craven, RN, Nursing Administrator, Fayetteville Ambulatory Surgery Center, 1781 Metromedical Drive, Fayetteville, NC 28304. Telephone: (910) 323-1647.