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IN THIS ISSUE

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Poor customer service has significant impact on bottom-line results

Thinking outside the box can make huge difference

Not all factors that affect a hospital's bottom line relate directly to revenues and/or expenses. Although it may take months or sometimes even years to make its full effects known, poor customer service can be an albatross around the neck of the most well-meaning quality staff.

"Poor service with regard to patients obviously affects your market share and thus your bottom line," says **Kristin Baird**, RN, BSN, MSHA, vice president for business development at Watertown Area Health Services in Watertown, WI, and author of *Customer Service and Healthcare: A Grass-Roots Approach to Creating a Culture of Service Excellence.*[1] "While marketing and advertising can influence name

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Key Points

- Consider physicians, workers, payers as customers — not just patients.
- Bond rates, lawsuit claims can be impacted directly by customer service.
- One bad nurse in the emergency department can cost you as much as $250,000.

recognition and even preference, once a patient and [his or her] family use your facility, they will form opinions whether to return and talk positively about you, or to not return and talk negatively."

The cost of that negative experience can be considerable, Baird notes. "Let's imagine you lose a 35-year-old woman's support. She may not be making a decision just for herself but for her spouse, her children, and possibly her parents, so there's a ripple effect."

"It's been said that one nurse in the ED [emergency department] with a bad attitude can cost you $250,000 in lost revenues," notes **Liz Jazwiec**, RN, who heads up the Oak Lawn, IL-based consulting firm Liz inc. "The ED usually gets to see between one-third and one-half of all your patients. Whether the patient is admitted or not, [he or she] can go into the community and tell other people about the experience. A negative experience can hurt you on admissions for as many as five years."

And the impact can extend far beyond admissions, she notes. "I have seen situations like the one at Baptist Hospital in Pensacola, FL, where customer satisfaction scores have helped cause bond ratings to rise from B+ to A-," she says. "That probably saved them $500,000 in interest. They also saw a tremendous reduction in claims, so from a risk management standpoint, the money they had to put aside for possible lawsuits decreased significantly."

When we think of customer service, our thoughts gravitate immediately to the patient. That kind of limited thinking can cost you money, warns Baird. "Customer service has to do with patients, physicians, and co-workers/employees; it impacts them all," she asserts.

"There is definitely a relationship between employee satisfaction and patient satisfaction," adds **Kathleen Blandford**, vice president of quality improvement at VHA-East Coast in Cranbury, NJ. "If employees are happy, they are that much more committed to their work and to their patients. If you have an employee morale problem, that causes turnover and makes vacancies even worse than they would be in this current shortage."

As for physicians, "the last thing a doc wants is to have patients complain that something bad happened to them in the hospital," she notes.

"If some of your customers are physicians who have the latitude either to admit patients to your facility or to one of your competitors, you can lose again on the bottom line," adds Baird.

"Physician loyalty really adds up to dollars, and any quality manager should have access to the financial data that will show them which physician brings in what revenue and be cognizant of which physicians are 'splitters.' You can do the math yourself and figure out what it will cost you."

With regard to associates, Baird is big on creating what she calls "a culture of service excellence," which means having respect for your co-workers and the jobs they perform. "If you don't have a healthy culture and an open, healthy environment, you will lose associates, and in this day of shortages, nobody can afford to lose any good employees," she says. "What's more, with the aging baby boomers, we will need more medical care than we have ever seen, which magnifies the problem."

The hard-dollar costs can be considerable, she points out. "The Society for Health Strategy and Market Development (SHSMD) has created a formula for calculating what it costs to replace an employee. In our industry it costs around $16,000," she says. "That includes loss of productivity, advertising, recruiting, downtime, and so on."

Your customers even can include payers, says Baird. "If a managed care organization pays attention to how well you serve your patients, then it's an important part of the equation, too," she observes. "Look at who your largest managed care organizations are; can you afford to lose them?

COMING IN FUTURE MONTHS

- Quality issues relating to the care of the frail and the elderly
- The American Heart Association revisits its exercise standards
- Good news: Death rates are declining for patients hospitalized after stroke
- Drug therapy achieves remission for patients with aplastic anemia
- ACE inhibitors are shown to reduce heart enlargement

How can you show them that you take customer service very seriously?"

Her answer: "You have to create a culture of service excellence."

Creating a culture of service excellence has to begin from the top down as well as from the bottom up, says Baird; you can't have one without the other. "You need the support of your top administration as well as your middle management," she notes. "They have to not only believe it, but to walk the walk; they have to take an active role and work very hard at keeping the vision front and center."

Baird cites her CEO as an example of how to do it right. "He has made our vision statement distinct and memorable. He weaves it into important meetings, newsletters — wherever he has an audience," she says.

That vision statement is, indeed, distinct and memorable: "We strive to be a place where patients choose to come for care, where physicians choose to practice, and where associates choose to work. We know for a fact that 91.5% of our associates can quote that vision statement," says Baird.

Of course, different strategies must be used to address different customer groups. "With associates, the grass-roots formula is to go out and work with groups of employees to help them recognize what they can do," says Baird. "For example, we have a 'bright idea' program, a system put in place where employees can submit ideas. Little things like that make a difference."

Rewards and recognition also are important, she says. "One program we use is called 'Notable Names,' which encourages associates to catch each other in the act of being kind, or going above and beyond what is expected," she says. How does one go "above and beyond?"

"People expect good medical care and appropriate treatment," Baird says. "Beyond that, you should make sure to keep the family informed and involved, keep the patient informed about what to expect next, and respond promptly."

As one example, the nurses at Baird's hospital implemented a new policy that said everybody was responsible for answering the patient call light. "We're not all nurses, but the drapes in the patient's room might be opened too wide, or they may need the table closer, or want the door closed. This type of extra service can improve patient satisfaction scores significantly," she says.

"The way you deal with complaints — your recovery process when you react to complaints — can be very important," adds Blandford. "The more you can improve your responsiveness, the [greater the] likelihood you will reduce the number of complaints. A frustrated, angry, unhappy patient will press the issue forward all the way to a lawsuit, while one who has been treated well may not."

Blandford also recommends good, solid communication strategies — even "gimmicky stuff."

"Know if your patients are going to have a birthday while they're in the hospital and send them a card," she suggests.

Managing expectations is another critical issue in patient service, says Jazwiec. "If waiting time is going to be 45 minutes, tell the patients it will be an hour; they'll be happier," she suggests. "And acknowledge their inconvenience."

Improved efficiencies also can help boost satisfaction levels. "It used to be that when we lost something belonging to a patient, we would go through the process of filling out five or six forms, which would take four or five hours," she recalls. "Now, if we lose something worth, say, $50, we apologize for losing the article and pay the $50."

Using scripts also can be effective, says Jazwiec. These can includes lines such as, "Is there anything else I can do for you?" or "We are concerned about your privacy; should I pull the curtain closed?"

Anticipate doctors' needs

Addressing the needs of physicians requires a slightly different strategy. "What makes doctors happy is knowing they have a competent staff working for them," says Baird. "They look to the staff for '24/7' care, so when their patients are happy with their care, the physician is more confident in the hospital. When they hear the patient say, 'It takes me a half hour to get my call light answered,' that's bad. But if they hear, 'I've never seen such a warm, friendly, caring staff,' that makes them want to send all their patients there."

Doctors also want to feel appreciated. "They appreciate it when we understand what they need and want, and anticipate those needs," says Baird. "So, they should not surprise you every time they come on your unit and ask for a certain protocol. That way, we're augmenting their work."

It's critical that you not jump headfirst into a customer service improvement program; you've got to know where you stand. "It's absolutely imperative to have baseline information; you wouldn't call AAA and ask how to get to L.A. if you didn't know where you were beginning your trip," says Baird.

"I have some biases about measurement," adds

Need More Information?

For more information, contact:

- **Kristin Baird**, RN, BSN, MSHA, 509 Hillcrest Drive, Fort Atkinson, WI 53538. Telephone: (920) 262-4309. E-mail: kbaird@WAHS.com.
- **Kathleen Blandford**, VHA-East, 68-A S. Main St., Cranbury, NJ 08512. Telephone: (609) 395-8053. E-mail: kblandford@vha.com.
- **Liz Jazwiec**, RN, Liz inc. Telephone: (708) 422-7074. Fax: (708) 229-1730. E-mail: lizjaz@aol.com.

Jazwiec. "You need to be able to get mostly data. If you look at your budget, you need to look at it every month; to give people data four times a year and expect things to improve is very difficult. Your information has to be provided monthly, and it must be unit-specific. You also have to have something that allows you to benchmark nationally." Many companies provide survey instruments, but Jazwiec says she prefers Press, Ganey Associates in South Bend, IN, "mostly because of those issues." However, she adds, "I don't try to tell clients who to use; rather, I tell them, 'This is what you need.'"

Baird agrees that it's critical to know your facility's specific needs. "Whenever I do a presentation, I encourage people to go back to their own organization and review their own data," she says. "Nothing hits home like that. If you go to the financial data, talk about who your most active physicians are and what their piece of the business means to your bottom line. What if you lost 15% of your business? Or 20%?"

In terms of specific survey instruments, "We use Press, Ganey, and the main reason we do is it has a large database," says Baird. "It's not enough for us to conduct our own in-house survey; we end up comparing ourselves to ourselves. We didn't know how we stacked up against other hospitals our size. How can I incentivize our associates to improve if our consistent mean score is 90%? With Press, Ganey, you may find that compared to the database, 90% is average. When this process really gets thrilling is when you stand out from the crowd, and you won't get there without comparative data."

Human nature is competitive, which works to our advantage, adds Baird. "Focus on what's important to your organization, but recognize that it's not enough to be average. Nobody seeks out health care because it is average.

"When was the last time you heard a patient say, 'I'm looking for an average brain surgeon in an average hospital?'"

Reference

1. *Customer Service and Healthcare: A Grass-Roots Approach to Creating a Culture of Service Excellence.* San Francisco: Jossey-Bass; and Chicago: AHA Press; 2000. ■

New protocol can rule out MIs in 90 minutes

Triage combined with point-of-care blood test

Using a simple, inexpensive blood test and a critical pathway for triage, researchers at the U.S. Department of Veterans Affairs (VA) in San Diego have developed a protocol that can rule out heart attacks in 90 minutes, compared with six to 24 hours for existing methods.

The protocol combines a new, Food and Drug Administration-approved "point-of-care" blood test for three cardiac enzymes with an electrocardiogram and patient history.

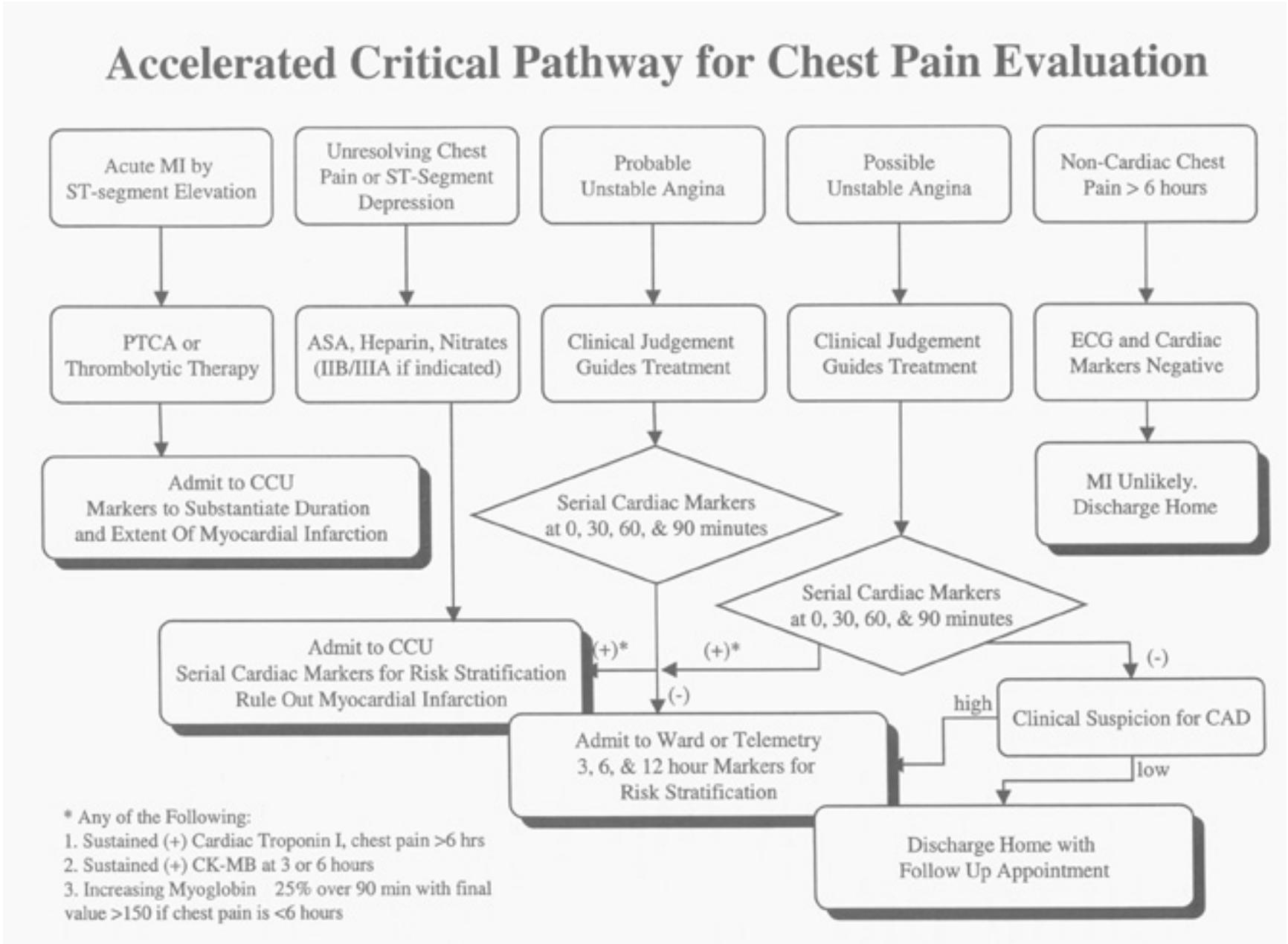
Over a period of nine months, from July 1998 to April 1999, the researchers analyzed the diagnoses, triage patterns, and medical outcomes of 1,285 patients. The critical pathway used the cardiac markers, as well as the clinical criteria, to triage patients either to the intensive care unit (ICU), the direct observation unit (DOU), the ward, or home. **(See pathway, p. 125.)**

"Patients who had chest pain were directed into one of five pathways based on history, electrocardiogram, and clinical suspicion of MI [myocardial infarction]," the authors explained. "A cardiac marker algorithm was incorporated into this pathway, which tested myoglobin, cTnI [cardiac troponin I], and CK-MB [creatine kinase-MB] at time of presentation (time 0), and at 30, 60, and 90 minutes to help determine patient diagnosis."[1] When

(Continued on page 126)

Key Points

- Previous methods to rule out myocardial infarction took anywhere from six hours to 24 hours.
- Method decreases critical care unit admissions by 40% for significant savings.
- Early rule-outs and rule-ins are seen as becoming mainstream in cardiac care.



Source: U.S. Department of Veterans Affairs, San Diego.

indicated, the researchers subsequently measured the cardiac enzymes at three and six hours to establish a final diagnosis of MI. In most cases, they report, the emergency department (ED) physicians were able to complete the evaluation process and determine patient triage destination within 90 minutes.

The researchers were seeking a balance between the "excessive and often unnecessary costs" created by admissions of patients who are at low risk for acute coronary syndromes and "strategies that are too liberal," which can lead to large numbers of patients released with undiagnosed MI.

"We began our research initially as part of a performance improvement project at our hospital," explains **Alan S. Maisel,** MD, director of the coronary care unit at the VA San Diego Health Care System, professor of medicine at the University of California at San Diego and one of the paper's co-authors.

"We didn't have enough beds and were actually sharing them. We had previously done research on the three markers. We got hold of this new point-of-care machine and decided to look at our earlier research and at sequential testing, using the algorithm and taking into account history or EKG findings. The marker elevation or lack thereof would then determine where the patients should go and what meds they should receive."

ED physician makes the call

Per the protocol, the ED physician, after consultation with the cardiac care unit (CCU) team, made the call as to whether the patients could be sent home. The critical pathway dictated that patients who were not sent to the CCU on admission or not sent home after the first negative set of markers would be re-evaluated after 90 minutes. The physicians were allowed to make triage decisions (CCU, DOU, ward, home, or further testing) at the 90-minute point. Of the 1,285 patients who presented with chest pain, 508, or 40%, were discharged home. Of this group, 13 returned to the ED within 30 days. One patient subsequently was diagnosed with MI, and 12 others were admitted for unstable angina.

"This critical pathway decreased CCU admissions by 40% while triaging the sickest patients to the CCU," the authors write. "This decrease, along with its likely associated cost savings with regard to intensive care unit costs, may even be underestimated, because at several time points during our study, a shortage of DOU beds may have falsely elevated the CCU admission rate."[1] They estimate that about 10% of the CCU patients would have been sent to the DOU had space been available.

Maisel notes that "Early rule-outs and rule-ins are becoming pretty mainstream," noting other recent examples in the literature where it was determined that MIs could be ruled out within 90 minutes.

"What we want to do is move people out of the ED as quickly as possible — not only to save space, but because we also know that with the myocardium involved, time is money," Maisel adds. "If we can start treatment with the newer meds within 90 minutes instead of six hours, it can do a lot of good. For example, the II-3 platelet inhibitors (i.e., aggrastat) are found to be very effective in acute coronary syndrome, and the earlier you give it the better."

The exact nature of a critical pathway for ruling MI in or out must of necessity vary from hospital to hospital, Maisel notes. "Some hospitals have chest pain observation units," he points out. "They could use the algorithm and quickly rule out MI to see if the patient should go there."

Need More Information?

For more information, contact:

❒ **Alan S. Maisel,** MD, VA Hospital, 3350 La Jolla Village Drive, San Diego, CA 92161. E-mail: amaisel@ucsd.edu.

Reference

1. Ng SM, Krishnaswamy P, Morissey R, et al. Ninety-minute accelerated critical pathway for chest pain evaluation. *Am J Cardiol* 2001; 88:611-617. ■

Guidelines cut lung surgery length of stay

Most patients go home after three or four days

A set of daily guidelines for patients undergoing lung surgery can significantly reduce their length of stay in the hospital while at the same time increasing quality of care and patient/family satisfaction, according to a study published in the August 2001, *Journal of Thoracic and Cardiovascular Surgery.*[1]

Key Points

- Keeping people out of the intensive care unit (ICU) helps boost patient, family satisfaction.
- Patients are extubated in the OR and sent directly to their hospitals rooms.
- Non-ICU setting aids early detection of arrhythmia or falling oxygen saturation levels.

In a study of 500 chest patients, **Robert Cerfolio**, MD, associate professor of surgery, division of cardio thoracic surgery at the University of Alabama at Birmingham (UAB), found that setting a very specific daily treatment regimen allowed most patients to go home within three to four days. "In studies at Mass General and Hopkins, they had lengths of stay of six and seven days," he notes.

Cerfolio performed 500 consecutive pulmonary resections through a thoracotomy over a period of two years and nine months at UAB. The patients were extubated in the operating room and sent directly to their hospital rooms.

Chest tubes were placed and — if there was no air leak and drainage was less than 400 mL / d — were removed on POD 2 (postoperative day two). Epidural catheters were used and also were removed POD 2. Each daily plan and discharge plans were reviewed with the patients and their families during rounds. The patients went home the day the last chest tube was removed; persistent air leaks were treated with Heimlich valves.

Of the 500 patients, 482 were extubated in the OR and 380 were sent to their hospital rooms. The remaining 120 were sent to the intensive care unit (ICU) for a median of one day. Complications occurred in 107 patients, and operative mortality was 2%. A total of 327 of the patients left the hospital on POD 4 or sooner. In response to a survey taken at discharge, 97% of the patients said they had excellent or good satisfaction with their care. In a two-week follow-up contact, 91% said they were "extremely happy" or satisfied.

These results led the researchers to conclude that "Most patients who undergo elective pulmonary resection can be extubated immediately after operation, go directly to their room and avoid the intensive care unit, be discharged on postoperative day three or four, and have minimal morbidity and mortality. . . ."[1]

Cerfolio notes this protocol deviates significantly from what he has seen in other institutions. "The main reason [for longer lengths of stay at other hospitals] is that they have more air leaks, and so the chest tubes have to stay in longer so the patient is in the hospital longer," he says. "Also, I get my pain catheter out of the back on POD 1 instead of POD 4 like they do at The Mayo Clinic, where I trained. This way, patients get controlled by pills so they can go home sooner on pills by mouth."

While clearly concerned with quality of care, Cerfolio says that satisfaction — for both patient and family — also were paramount in his mind. "I avoid the ICU; it's better for the family because they can be there at all times without limiting visiting hours," he notes.

The researchers addressed this issue in great detail as they discussed the results of the study.

"We believe the ICU could be avoided for most patients who undergo elective pulmonary resection," they asserted. "Moreover, the ICU seemed to decrease patient and family satisfaction because of the limitation of visiting hours and the lack of control the families experience in caring for their loved ones. We believe the family provides an important type of extra care for the patient, especially when they sleep in the room with the patient.

"Patients also seem less confused with their family members around," the researchers explained. "We therefore developed a postoperative protocol that highlighted the selected use of the ICU and targeted a four- to five-day length of stay after thoracotomy."[1]

They went on to note that this protocol in no way compromised patient safety. "Our study found the ICU could be safely avoided," they asserted. "There seemed to be no added morbidity or mortality with its elimination. When a patient has an arrhythmia or falling oxygen saturation levels, early recognition and treatment are crucial. This can only be accomplished in a non-ICU setting with proper monitoring."[1]

Cerfolio concedes, however, that the situation at UAB is perhaps unique. "I do more surgery than anybody in North America," he notes, "so we do quick, efficient surgery and have a protocol and

Need More Information?

For more information, contact:

❒ **Robert Cerfolio,** MD, Associate Professor of Surgery, Division of Cardio Thoracic Surgery, University of Alabama at Birmingham, 1900 University Blvd., Birmingham, AL 35294. Telephone: (205) 934-5937. E-mail: Robert.cerfolio@ccc.uab.edu.

team that is set up to handle seven or eight operations a day. The team makes a huge difference."

Reference

1. Cerfolio RJ, Pickens A, Bass C, et al. Fast-tracking pulmonary resections. *J Thorac Cardiovasc Surg* 2001; 122:318-324. ■

Post-op complications result from sleep apnea

OSAS patients also have longer lengths of stay

A group of patients with obstructive sleep apnea syndrome (OSAS) experienced a greater number of serious complications following elective knee or hip replacement surgery than patients without the syndrome, according to researchers at The Mayo Clinic in Rochester, MN. In addition, this same group had longer lengths of stay following surgery.

The study involved 101 patients diagnosed with OSAS and a like number of matched controls. Serious complications occurred in 24 patients in the OSAS group, compared with nine in the control group. Lengths of stay were significantly longer for the OSAS patients at a mean plus or minus standard deviation of 6.8/2.8 days compared with 5.1/4.1 days for patients in the control group.

The results of the study confirmed most of the intuitive concerns of the researchers, according to one of the authors, **Peter C. Gay**, MD, associate professor at The Mayo Clinic Graduate School of Medicine, and a consultant in pulmonary critical care and sleep medicine, a division of Mayo's department of internal medicine. "We certainly showed a marked increase in the number of complications and an increase in the length of stay by more than a day in patients who had obstructive sleep apnea," he notes.

Key Points

- Patients experience complications of heart rhythm and the need for additional airway support.
- Evaluation for obstructive sleep apnea syndrome is recommended before elective surgery.
- Lack of literature may contribute to underappreciation of condition's significance.

The Berlin Questionnaire

These simple questions can help prevent complications in patients with sleep apnea who are facing elective surgery:

✔ **Has your weight changed?**
- Increased ☐
- Decreased ☐
- No change ☐

✔ **Do you snore?**
- Yes ☐
- No ☐
- Do not know ☐

✔ **Snoring loudness**
- Loud as breathing ☐
- Loud as talking ☐
- Louder than talking ☐
- Very loud ☐

✔ **Snoring frequency**
- 3-4 times/week ☐
- 1-2 times/week ☐
- 1-2 times/month ☐
- Never or almost never ☐

✔ **Does your snoring bother other people?**
- Yes ☐
- No ☐

✔ **How often have your breathing pauses been noticed?**
- Almost every day ☐
- 3-4 times/week ☐
- 1-2 times/week ☐
- 1-2 times/month ☐
- Never or almost never ☐

✔ **Are you tired after sleeping?**
- Almost every day ☐
- 3-4 times/week ☐
- 1-2 times/week ☐
- 1-2 times/month ☐
- Never or almost never ☐

✔ **Are you tired during waketime?**
- Almost every day ☐
- 3-4 times/week ☐
- 1-2 times/week ☐
- 1-2 times/month ☐
- Never or almost never ☐

✔ **Have you ever fallen asleep while driving?**
- Yes ☐
- No ☐

✔ **Do you have high blood pressure?**
- Yes ☐
- No ☐
- Do not know ☐

Source: Netzer NC, Stoohs RA, Netzer CM, et al. Using the Berlin Questionnaire to identify patients at risk for the sleep apnea syndrome. *Ann Intern Med* 1999; 131:485-491.

The specific adverse outcomes also were anticipated, he says. "I think most of the ones you'd be concerned about in terms of the patients having breathing and lower oxygen problems should relate to complications of heart rhythm and the need for additional airway support, and that's what the study showed," he observes.

It was these post-op complications that led directly to the longer lengths of stay for these patients, Gay continues. "There's no reason to think they had additional medical problems, because they were matched for other complicating diseases," he explains. "There's no real reason to think something over and above the complications required them to be observed for a longer period of time."

Gay and his group felt it was important to study the issue of sleep apnea patients undergoing elective surgery, because OSAS often goes undiscovered during pre-op evaluation.

"There is very little scientific information available about what happens to patients with OSAS as they undergo elective surgery, although there are a few studies concerning such patients when they have upper airway operations," he notes.

"However, it is intuitively obvious that a patient who stops breathing at night may get into trouble when filled with narcotics and put on his back," Gay explains.

"When you look at this historically, however, when a patient comes in for surgery and is asked if he has a heart problem, he will be very thankful that condition was reviewed. But it doesn't impact on the patient that he should talk about snoring at night; he becomes disinterested and just wants that surgery done, so the issue gets pushed aside," he says.

In other words, Gay explains, not only do patients often fail to mention the condition, but physicians may underappreciate the necessity of evaluating this condition because of a lack of literature. "So we decided to look at it on an urgent care basis and get a fairly uniform group, and see what happens with OSAS patients if the condition is not carefully addressed," he says.

Gay and his colleagues plan to further explore this area by looking at evaluation and treatment before surgery. "This really is a mechanical problem — keeping the upper airway open when the muscles of the tongue and other structures are relaxed," he explains.

"If we utilize a masked system called CPAP [Continuous Positive Airway Pressure], there is every reason to believe it will take care of the situation, provided it is applied immediately after surgery and in two to three days following surgery." That's because patients often don't sleep at all on the first day following surgery, but then rebound on the second or third day, he explains.

In this next study, Gay and his colleagues will use what he calls "some fairly simple questions" before surgery that may be predictive of the likelihood of having sleep apnea.

"It's likely to be shown that we can capture these patients and intervene before there's a problem," he predicts. Gay will be using the Berlin questionnaire, first described in the 1990s in the *Annals of Internal Medicine* by Kingman Strohl. **(See box, p. 128.)** Gay adds the patients may also be given CPAP after surgery.

The bottom line, says Gay, is that elective surgery patients "ought to be evaluated beforehand for OSAS." He adds that patients and their families should be better educated about the potential risks associated with OSAS.

"What is needed is the recognition that the problem of sleep apnea, which is thought of in the lay community as just loud snoring, is much more than that," he says. "If your bed partner describes not breathing at night and is especially sleepy during the day or has high blood pressure, that all suggests there may be a significant risk." ■

Need More Information?

For more information, contact:

❑ **Peter C. Gay,** The Mayo Clinic, East 18B, Rochester, MN 55905. Telephone: (507) 284-7940.

Cooling vest improves symptoms for MS patients

Balance, muscle strength better after treatment

Balance improved by an average of 20% and strength by an average of 10% among multiple sclerosis (MS) patients who wore a cooling vest for one hour, according to an article in the Sept. 11, 2001, issue of *Neurology*, the scientific journal of the American Academy of Neurology.

Also of interest was the finding that the level

Key Points

- Nitric oxide levels decrease significantly, raising therapeutic possibilities.
- Many multiple sclerosis patients seek out air conditioning, or even take ice water baths.
- Active and passive cooling garments available for purchase by hospitals.

of nitric oxide (NO) decreased by 41% in patients receiving the active cooling, compared to a group of participants who received "sham" cooling.

"I don't think there were any surprises in this article other than the nitric oxide component," says **Nicholas G. La Rocca**, PhD, director of health care delivery and policy research organization for the National Multiple Sclerosis Society in New York City.

"It's well-known that most people with MS are heat-sensitive. Cooling is something that has been known about in MS for quite a long time, and many, many people with MS use various cooling strategies, including air conditioning, staying out of the sun, or wearing loose clothing, as well as using active or passive cooling vests. Some people I have spoken to have gone so far as to take cold showers and immerse themselves in ice water baths," he explains.

Pre- and post-testing conducted

The patients were separated into the two groups and clinical tests were performed before and three hours after the cooling sessions. Fatigue was assessed via questionnaire; sway data were measured via stabilometry, and muscle strength was measured through a calibrated hand-held dynamometer.

"This was a very small study, but somewhat different from anything done earlier," notes La Rocca. "In the treated group, they didn't actually observe any drop in core body temperature, which seemed a little bit odd. In addition, they looked at the nitric oxide levels, which to my knowledge no one had ever done before."

The reason the researchers wanted to study nitric oxide, La Rocca explains, is that it binds to sodium channels, which tend to increase or proliferate on the demyelinated axons in people who have MS.

"By reducing the amount of nitric oxide in the blood, it seems they were able to increase the speed of nerve conduction," he says.

This was addressed directly in the authors' discussion. "The improvement in muscle strength and proprioception may be explained by amelioration of conduction in demyelinated axons of corticospinal tracts and dorsal columns,"[1] they wrote.

"Active cooling with the cooling garment did not decrease tympanic temperature, which reflects core body temperature. Thus, contrary to popular belief, the beneficial effects of cooling garment treatment cannot simply be explained by a direct cooling of the CNS . . . Active cooling resulted in a significant decrease in leukocyte NO production, and this might provided an explanation for the clinical improvement,"[1] they added.

Two vests available

Two types of cooling vests are available for MS patients — active and passive, notes La Rocca. "The passive vest looks like the kind of nylon vest worn by fishermen. Instead of pockets on the outside, it has them on the inside. You put frozen gel strips in the pockets, as well as in the collar. Depending on the ambient temperature, they might provide some cooling for a few hours."

The active type vest, which was used in the study, has plastic tubing running through it, and a special cap as well. "A liquid is pumped through the tubes and chilled to a certain temperature," La Rocca explains.

"This requires a separate chilling unit, which makes it somewhat less practical." The unit, an offshoot of NASA technology, used to be the size of two golf bags but is now reasonably portable, he adds. "They have been used extensively in the nuclear industry and in other areas where protective clothing is required. They were also used quite a bit during the Gulf War."

Which type of vest is better? "It depends on who you ask," says La Rocca. "The advantage of the mechanical type is that once you switch it on you can use it pretty much indefinitely. With the

Need More Information?

For more information, contact:

❒ **Nicholas G. La Rocca**, PhD, director of healthcare delivery and policy research organization, The National Multiple Sclerosis Society, 733 Third Ave., New York, NY 10017. Telephone: (212) 476-0414. Web site: www.nationalmssociety.org.

passive vest, if the gel strips melt, you have to replace them."

The important point, says La Rocca, is that to his knowledge most hospitals don't keep these vests on hand as a matter of course — and they're not all that expensive. The active vests, manufactured by Life Enhancement Technologies of Santa Clara, CA, cost about $2,000 apiece. The passive vests (www.steelevest.com), cost about $300.

The authors indicated that more research is needed on the role nitric oxide plays in the symptoms of MS, as it could lead to efforts to mimic the effects of cooling through drugs or other means. "There are currently no drugs on the market that can impact the level of nitric oxide, but people are looking at this experimentally," says La Rocca.

Reference

1. Beenakker EAC, Oparina TI, Hartgring A, et al. Cooling garment treatment in MS: Clinical improvement and decrease in leukocyte NO production. *Neurology* 2001; 15:892-894. ■

NEWS BRIEF

ECRI issues MRI precautions

In the wake of the accidental death of a young boy during a routine MRI scan this summer, the nonprofit research agency ECRI of Plymouth Meeting, PA, has issued a hazard report and recommendations for MRI safety.

The incident at Westchester Medical Center, a Valhalla, NY, hospital, involved a metal oxygen cylinder that was drawn by the MRI device's magnetic force into the center of the machine, killing a 6-year-old boy.

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Vice President/Group Publisher: **Brenda Mooney**, (404) 262-5403, (brenda.mooney@ahcpub.com).
Editorial Group Head: **Coles McKagen**, (404) 262-5420, (coles.mckagen@ahcpub.com).
Managing Editor: **Russell Underwood**, (404) 262-5521, (russ.underwood@ahcpub.com).
Senior Production Editor: **Ann Duncan**.

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Editorial Questions

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PS Form **3526**, September 1999 *(Reverse)*

"There are a small number of instances of magnetic objects flying into MRI chambers each year," notes **Jim Keller**, director of the health devices group at ECRI. "We don't have a real good sense of how many actually occur, because they are not really reported effectively."

Objects drawn into MRIs have included IV poles, parts of a forklift, a helium cylinder, a mop bucket, a laundry cart, a chair, a ladder, a patient lift, a light fixture, a floor buffer, tools, scissors, and traction weights, according to ECRI. However, the incident at Westchester Medical Center is the first death that ECRI is aware of directly caused by an object being drawn into an MRI. These accidents result from a combination of the busy environment and staff carelessness, says Keller, adding that the most important recommendation is to make sure that someone is responsible for safety. "There needs to be someone who is checking on a regular basis and can establish policies and procedures to make sure that devices with magnetic components cannot get into the MRI room."

Among its 14 recommendations, ECRI advises that all personnel who enter the MRI room receive formal safety training and that they always assume that a magnetic field is present. ■