

HOSPITAL CASE MANAGEMENT™

the monthly update on hospital-based care planning and critical paths

IN THIS ISSUE

■ **Case management software:** Comparing what's available with your individual needs cover

■ **Dashboards:** Use report cards to keep a 'big picture' view of populations 69

■ **Valley Health System Case Management DRG Dashboard** 70

■ **Critical Path Network:** ACE unit improves older patients' functionality 71

■ **Patient Education Quarterly:** Better education results in shortened LOS 75

■ **Medication errors:** What case managers can do to make care safer — Part 2 77

■ **Tips on Preventing Errors** 77

MAY
2002

VOL. 10, NO. 5
(pages 65-80)

Case management software: How to decide what's right for you

It's not just about the product; it's about the fit

The market for case management software continues to experience significant changes as software vendors jockey to keep up with evolving practice patterns. At the same time, there aren't as many standard case management software packages as there once were, says **Diane Ward, RN, CCM**, market segment manager for IBM Healthcare Solutions in Atlanta. "At one time, I could put my hands on 25 or 30 at any given point of time," she says. "Many have consolidated, and many have gone out of business."

Some people may be reluctant to purchase case management software because they don't understand what the different products do. For example, some large firms try to sell large burdensome software systems with myriad functions, while some smaller firms market more specialized tools, such as a program to help stratify data on patient populations. "Everybody sells to a different practice setting or sells a different kind of tool, and it creates a lot of confusion," Ward asserts. "Nobody knows how to integrate it into their already existing systems."

Hospital case managers should begin the process of selecting software by asking themselves several questions, Ward says. For example: What do you have now? How is it working or not working for you? What might your facility be looking for?

Vicki Mahn, RN, MS, vice president at ACS MIDAS+, a large management software company in Tucson, AZ, takes a similar view. "Before you go shopping for software, you need to be clear about what your goals are and what kind of organizational incentives are driving your need to automate. Basically, you need to define what it is you are trying to do."

The first key consideration for case managers is whether they are trying to manage a clinical population and, therefore, require information to help manage patients along a continuum of care, Mahn says. Conversely, case managers may require only information such as readmission rates

NOW AVAILABLE ON-LINE! Go to www.ahcpub.com/online.html.
Call (800) 688-2421 for details.

and denial days to trend outcomes.

Many case management or care management plans in acute care environments are focused on improving quality of care, reducing readmissions, and shortening length of stay, while implementing best practice guidelines, she says. On the other hand, some case managers will be performing a more traditional utilization review (UR) management approach that focuses on authorization, tracking denials, and using criteria sets, she explains.

That UR approach is markedly different from a care management focus where clinical staff are assigned to follow patients across the continuum of care, whether that runs from the critical care unit to the telemetry unit or from the hospital to the nursing home and other community-based continuum, Mahn says.

“The bottom line is that the shopper of case management software must clearly know who they are and what their organizational incentives are,” she asserts. “That is critical for a vendor to know in order to determine if they are a good fit.”

Here are some of the latest trends in this area that case managers should be aware of.

Care management

Not long ago, the buzzword in health care was “disease management,” with the aim of keeping patients out of the hospital largely through preventative medicine. Today, increasing attention is being paid to “care management.” Health care professionals at provider organizations across the country now support the “care-based management of cost” approach of CareScience, an on-line care management services company in San Francisco.

“There is a fine line between care management and case management,” says **Barbara Doyle**, MSN, CRNP, CareScience product manager. “But there is also a lot of overlap between those two worlds.” According to Doyle, the biggest difference is that case management is focused on individual patients are financially focused on areas such as denied days and reimbursement, while care management takes a more population-based

perspective with an aim to improve processes, outcomes, and patient care.

Even though both practices look at an individual patient with an eye toward improving care and reducing the number of days in the hospital, with care management, the individual patient is part of a population that can influence outcomes if care is rendered appropriately, she says.

Doyle, who is trained as an oncology nurse practitioner, says one difficulty in clinical care management today is that health care is largely divided into two camps. On one side are clinicians who resist the idea of controlling costs because they are focused primarily on patient needs. On the other side is management, which often notices patients who receive expensive tests.

As a result, hospitals increasingly are looking not only at individual costs but the productivity and the process behind them, Doyle says. For example, the most common complication in hospitalized patients is anemia, which is caused by routine blood draws. “Not only is that expensive, they often don’t really need it,” she asserts. “You are putting them at risk for infection because you are puncturing their skin, as well as anemia because they are losing blood.”

To solve this and similar problems, CareScience developed the Care Management System, an Internet-based care management solution that’s based on a proprietary model, based on research performed at the Wharton School of Business in Philadelphia, that identifies the complications patients experience. The product looks at resource utilization within the subpopulation of patients to determine what factors may be leading to complications. “One case study we did was fascinating,” Doyle reports. That study looked at patients with intestinal obstruction and found that one of the major complications was congestive heart failure. When CareScience looked at resource utilization, it discovered that patients were receiving 2.0 to 3.0 liters of IV fluid a day for more than a week.

According to Doyle, patients were having fluid shifts during this postoperative period. “It was very clear that many of the patients who came in with intestinal obstruction were developing

COMING IN FUTURE MONTHS

■ What to consider when redesigning a case management department

■ Developing your case management report card

■ The value of credentialing competence

■ Measuring the impact of case management interventions

■ How to cultivate physician champions for case management

congestive heart failure from IV fluids.”

The ability to identify problems and drill down to determine what is driving negative outcomes is critical for case management directors, Doyle says. “What we describe it as is a ‘care-based management of costs’ approach as opposed to a ‘cost-based management of care.’” She underlines the fact that clinicians respond to changes in their practice only when they have data.

Most of the more than 250 provider-based organizations that now support CareScience’s care-based management of costs approach are acute-care inpatient hospitals. Within each hospital, there typically are about six people using the software. Because it is Internet-based, the product can be accessed anywhere, Doyle says. “It is not hidden in the information technology department where a special request for data is required. People who need access to data are given access to data via the product.” Access is being expanded because case managers and others require data regularly and on a real-time basis at the point of care, she says.

CareScience also offers a benchmarking product, which takes publicly available Medicare data at the facility level for different disease classes. As an adjunct to its care management system, it also offers National Comparatives, which allows hospitals to compare both their performance and resource utilization to a national sample.

Configuration

One of the major challenges facing case managers is that their needs are constantly changing. That often makes for expensive updates to the software they purchase. **Mary Ellen Gay**, vice president of IMA Technologies in Sacramento, CA, says her firm has several products that automate the care coordination for case managers while maintaining maximum flexibility and integration.

Notably, the company’s case management software program, called Casetrakker, is a platform rather than a content provider, she says. “What that means is that we tailor the software to each client’s needs without programming. We have our program tailored around their needs, including their ‘pick list,’ their screens, and how many fields they have.”

According to Gay, Casetrakker’s configurable design allows the customer to determine workflow and data definition of the system. All database modification is accomplished through configuration, not custom programming. This means existing data fields may be easily modified. “We change

our software to meet their processes,” Gay says. That can be accomplished rapidly. She notes that one health plan with 300,000 members configured its system and went live in less than 30 days.

Even though it is a completely custom application, Casetrakker can automate the process for clients and help monitor its appropriate use. For example, UR may show that length of stay exceeds authorization. “We can stop them from making mistakes such as that, even though all the fields are defined by the processes,” Gay says.

The software performs care planning and assessments and tracks episodes of care. It also interfaces with Interqual and Milliman & Robertson on the criteria side and includes a built-in module where hospitals can create their own criteria. That has become a popular feature, Gay says. The software also does letters and reporting.

Casetrakker has a report-writer application that works alongside the program so it knows the structure of the database, Gay says.

Hospitals can design the reports themselves, or Casetrakker can do that during the implementation phase. That lets hospitals add reports as their requirements change in areas such as Medicaid. “They can update the reports themselves, and they do not have to pay for custom programming,” she adds.

Discharge automation

Information system requirements span the continuum of care. But to date, there still is very little software available in the area of discharge planning. In fact, **Mike Diamond**, senior vice president for sales at Extended Care Information Network (ECIN) in Northbrook, IL, reports that 98% of hospitals do not have discharge management applications.

ECIN is seeking to remedy that by automating the discharge planning process. The firm was founded in 1995 by two physicians from Loyola University Medical Center in Chicago who realized there was a functional gap within automation pertaining to discharge planning, he says.

He points out that discharge planners operate in a very manual environment. That forces them to collect portions of the chart on paper along with certain demographic information from their information systems and disparate clinical information. Once they compile that information, they fax it to as many as a dozen providers to facilitate the discharge. “It is a laborious, tedious, and

time-consuming process,” Diamond asserts.

The ECIN process automates that process and compiles an electronic discharge profile of the patient, including demographic information and clinical information.

“We bring that all together in a profile within the application, and at the click of a button, we send out that information to subscribers,” he explains.

The ECIN system then connects the acute care organization with the extended care providers in the marketplace through an ASP (application service provider) application. The firm uses a database and search engine to search extended care providers including nursing homes, home health, assisted living, and durable medical equipment (DME).

That database now includes more than 80,000 extended care providers nationally. ECIN connects the acute-care organization with any one of the extended care providers in a given marketplace. For example, a patient with a hip fracture may require DME, transportation, and a skilled nursing facility.

According to Diamond, ECIN has a research department that does nothing but research any given market to determine the number of extended care providers that exist in that market. When a new hospital contracts with ECIN, it starts to put an emphasis around that database beginning with the hospital’s list of preferred providers, he says.

Once a hospital is operational, the database is roughly 99% accurate, he says. Extended care providers that become subscribers to the application get the benefit of receiving that referral on-line.

That streamlines the process for case managers internally, Diamond says. It also allows them to distribute the information in an automated fashion even if the extended care provider is not a subscriber.

This process redesign has been accompanied by significant staff efficiencies. In fact, Diamond says some hospitals have seen more than 4,000 staff hours regained annually. A process that may take 50 minutes to identify an extended care provider and place the patient can be reduced to 10 to 15 minutes, he says.

Facilitating a more rapid discharge also creates a revenue opportunity for the hospital by reducing the “avoidable days” component of length of stay, Diamond says.

“They are typically looked at as a cost center,”

Diamond says. “But if they can help reduce ‘avoidable days,’ now you are talking about real revenue for the hospital.”

Integration

According to Mahn, any case management system that attempts to be a stand-alone product and operate in a “silo” from an information systems perspective is going to fail. “Case managers don’t need only their own data anymore,” she asserts. “They need data from finance, surgery, quality, and infection control.”

They especially require information from quality to learn if they are making things better or worse, she asserts. “Most case managers ultimately have to defend their value to their sponsoring organizations,” she explains. If case managers are not able to demonstrate improvement in quality of care, cost, or patient satisfaction, their program will be perceived as “nonvalue added.”

According to Mahn, case managers must acquire software that not only helps them to take care of patients but helps them access the kind of outcome information and process-of-care information they require for outcomes and evaluation.

That makes it critical to have a case management system that is integrated to the other parts of their delivery system. “It can’t just live on a little stand-alone server someplace and not talk to any of these other rich databases,” she says.

That may explain why some of the smaller case management software companies failed, Mahn says. In many cases, they were not really information systems and they did not interface and leverage the data in other parts of the hospital, she says.

According to Mahn, successful software applications of the future will be those that can work within a rich repository of data. While they may not have fields to collect all the data, they will be able to accumulate it so that it is manageable and reportable. She says that will allow case managers to look at specific categories, such as pneumonia patients who may have been readmitted within 15 days, and determine their admission source, cost of care, how many may have been cared for by hospitalists as opposed to attending physicians, and similar questions. As these types of questions arise, and as case managers try to find their leverage points for managing care, they will need quick answers to those types of questions. “They don’t have time to go to a report writer and pose a question,” she argues.

Case managers are not typically trained in

informatics, which makes it difficult for them to phrase their question precisely and identify the population they are looking for, she adds. By the time they receive the report, it is often a week or two later, and frequently, they are forced to pose another question and wait for another report.

“That takes weeks, and that is going to kill case managers,” Mahn asserts. “They must have a user-friendly way to get answers to those questions.”

The effective case management systems of the future will be those that not only have fields to enter the patient’s discharge plan, destination, and criteria but also allow case managers to look at patterns in the larger population in order to focus resources, she says. “I think that is the kind of information that is going to be demanded by case managers in the future.”

[For more information, contact:

- **Mike Diamond**, Senior Vice President for Sales, Extended Care Information Network, Northbrook, IL. Telephone: (847) 790-8665. E-mail: mdiamond@ecin.com.

- **Barbara Doyle**, Product Manager, CareScience, San Francisco. Telephone: (415) 371-8055. E-mail: mkrasner@carescience.com.

- **Mary Ellen Gay**, Vice President, IMA Technologies, Sacramento, CA. Telephone: (800) 458-1114. E-mail: MaryEllen@casetracker.com.

- **Vicki Mahn**, Vice President, ACS Midas+, Tucson, AZ. Telephone: (520) 296-7398. E-mail: vivki.mahn@midsinc.com.

- **Diane Ward**, Market Segment Manager, IBM Healthcare Solutions, Atlanta. E-mail: Wardd1@us.ibm.com. ■

Health system designs tool for DRG-specific report

Keep an eye on the big picture

Case managers often are so busy with the immediate demands they face that they can lose sight of what types of information they may be receiving from a population standpoint about high-risk, high-volume, and high-cost services, warns **Lisa Zerull**, MS, RN, program director at Valley Health System in Winchester, VA.

Zerull says that when she talks to case managers around the country, she finds that many of them are so focused on individual patients during a shift

that they miss the big picture. Hospitals are selling themselves short when they fail to have case managers look at patient populations along with ways to improve quality of life, quality of care, or cost reductions, she says.

“My sense is that most acute-care hospitals focus on the day-to-day activities for individual patients and do not take the time to request necessary information in a useful tool to help them in modifying practices and pathways,” Zerull says.

To remedy that problem at Valley Health, she worked with the process-design and finance departments to develop a one-page report referred to as a dashboard that includes items such as average length of stay, primary ICD-9 codes, and primary demographics. **(See sample dashboard with hypothetical data, p. 70.)**

In addition, Zerull’s facility developed a list of questions in areas such as length of stay. “It may have been one patient who stayed the whole month, a change in medical procedure, or something else,” she says. The three-page question set for case managers helps encourage the case manager for a given population to think critically about what is taking place with that population from one month to the next.

In addition to patient demographics, report cards also are useful for analyzing resource utilization and cost for specific case types, says **Toni Cesta**, PhD, RN, director of case management at Saint Vincents-Manhattan Hospital in New York City. “The report card outlines the expected cost of a typical patient with that diagnosis and the projected cost as indicated on the clinical guideline or pathway. The organization can then monitor the actual cost against these projected costs.”

According to Cesta, when cost is outside the expected (usually by at least two standard deviations), then the data warrant further analysis. The team might identify where the additional dollars are being spent and whether this excess cost is appropriate, she says. If it is found to be appropriate, the benchmark costs may need to be adjusted up, she says. Conversely, if the excess costs are not found to be clinically justified, specific patterns of overuse need to be identified. These may be by product line, by practitioner, or by category such as radiology, pharmacy, or laboratory. Other indicators may be bed days such as critical-care bed usage.

Cesta says report cards also may identify under-utilization, or areas in which a particular patient

(Continued on page 77)

Source: Valley Health System, Winchester, VA.

Note: All data shown are hypothetical.

CRITICAL PATH NETWORK™

ACE unit seeks to reduce elderly functional decline

Interdisciplinary team determines interventions

An ACE (acute care of elders) unit at DeKalb Medical Center in Decatur, GA, has helped maintain functionality while reducing average length of stay, thus achieving its overriding goal of reducing the incidence of functional decline in its elderly patients. The 12-bed unit, soon to expand to 24, has been operating for about 2½ years.

Why acute care for elders? “We know from experience and from the literature that older patients in hospitals are beset with complications associated with longer stays and nursing home stays,” says **Robert A. Zorowitz, MD, MBA, FACP, AGSF, CMD**, medical director for senior services at DeKalb Regional Healthcare System.

Build upon ‘the cornerstone’

“The cornerstone of geriatric medicine is to assess the patient’s function in terms of activities of daily living and to try to maintain that level of functionality,” he adds.

The loss of function during hospital stays is associated with prolonged stay, nursing home placement, mortality, and progression or persistence of functional decline.

The complications of hospitalization can include:

- **Muscle strength and aerobic capacity.**

Decreased muscle strength; muscle shortening and changes in joint structure; and diminished aerobic capacity occur.

- **Vasomotor stability.**

Loss of plasma volume averaging about 600 ml; postural hypotension and syncope take place.

- **Respiratory function.**

Supine position increases closing volume.

- **Demineralization.**

Vertebral bone loss accelerated; loss incurred with 10 days’ bed rest requires four months to restore; increased risk of falls plus demineralization increase the risk of fracture.

Changing the environment

The typical primary care approach to elderly patients, Zorowitz explains, is “to get them back to where they were.”

He offers this hypothetical example: “Mrs. Jones, 90 years old, is hospitalized for pneumonia and given antibiotics. Her fever and white count go down, and she is switched to oral medication. The doctor says she’s well enough to go home, but there’s one problem: She can’t walk anymore. Too often, we treat the disease, but we forget about function.”

The first recommendations to change the hospital environment for elderly patients were outlined by Morton C. Creditor, MD, in the *Annals of Internal Medicine* in 1993. They covered four major areas:

- ambulation;
- reality orientation;
- increased sensory stimulation;
- functional change.

(For a more detailed outline of these recommended changes, see box, p. 72.)

Zorowitz says the concept for his own unit was inspired by this and other studies. For example, the original description of an ACE unit appeared in 1994 in the *Journal of the American Geriatrics Society*.¹ The model it described was at the University Hospitals of Cleveland.

Hospital Environment for Elderly Patients

1. Ambulation

- low beds without rails
- carpeting
- encouragement and assistance
- minimization of “tethers”

2. Reality orientation

- clocks
- calendars
- dressing and undressing
- communal dining

3. Increased sensory stimulation

- proper lighting and decorating
- attention to glasses and hearing aids
- newspapers and books
- available recreation

4. Functional change

- primary care concept
- team management
- interdisciplinary rounds
- sharing of objectives
- family participation
- early discharge planning

Source: Creditor M. Hazards of hospitalization of the elderly. *Ann Intern Med* 1993; 118:219-223.

An article describing the improved functional outcomes achieved by that model appeared in 1995 in the *New England Journal of Medicine*.² One of the authors of that article, Seth Landefeld, MD, later recreated the same model at Summa Health System in Akron, OH.

“When we decided to create an ACE unit at DeKalb Medical Center, a group of us spent a couple of days in Akron studying their system and their protocols,” Zorowitz relates.

While DeKalb Medical Center draws upon previous models, there are distinct differences, he notes.

“First, there are not that many ACE units in the country, and those that exist are in teaching hospitals,” he observes. “To my knowledge, we are the first and only nonteaching hospital to have an ACE unit.”

Second, most existing ACE units are led by clinical nurse specialists. The unit at DeKalb is run by a gerontological nurse practitioner. “This

happened almost by accident, as we broadened our search,” Zorowitz recalls.

“But a nurse practitioner is trained to give hands-on care; she functions under my license and those of our hospitalists. They love having someone specifically trained to do what she does; it sort of flattens out the organizational structure, placing the decisions as close to the patient as they can possibly be,” he says.

Interdisciplinary team rounds

Zorowitz notes that the other unique aspects of his ACE unit are cross-training of the nursing staff and daily interdisciplinary team meetings. “The team members actually talk to each other every day,” he explains.

At these daily meetings, the team discusses interventions and therapies. Interdisciplinary team rounds include Zorowitz, the nurse practitioner, physical and occupational therapists, the nurses, the nutritionist, the social worker, and case managers.

“We discuss every patient, particularly the new ones,” Zorowitz says. “We discuss home planning — after all, our goal is to get them home — and the pathways for most of the common complications of hospitalization.”

The nurse practitioner, with the assistance of the team, makes decisions about intervention. “The physicians see patients once a day as a general rule, and they write a series of orders,” he notes.

“Under normal circumstances, if a patient has trouble walking and needs therapy, the nurse would have to call the physicians, and it may be another day before the therapy is ordered. So we asked ourselves, ‘What if we trained our nurses to be able to determine when patients needed these interventions?’ We designed our protocols so that, under certain conditions, the nurse could initiate interventions. We have pre-printed orders the physicians sign and agree to. This way, things like physical therapy can be called that same day,” Zorowitz says.

Training staff to spot potential problems

A key to this system working properly is training nurses to be able to recognize the most common issues that may lead to the need for additional intervention. “For example, they are trained to assess the patient’s home situation. They know when a social worker is needed, and they can call

ACE Unit Patient Criteria

ADMISSION CRITERIA

- ✓ > 65 living at home or assisted living
- ✓ Admitted as inpatient or observation with medical diagnosis
- ✓ Direct admits through emergency department, day treatment center, or office

EXCLUSION CRITERIA

- ✓ Requiring specialty care: intensive care unit, oncology, etc.
- ✓ Patients from nursing home or terminally ill patients
- ✓ Transfers from other units

Source: DeKalb Medical Center, Decatur, GA.

one right away," he says.

The ACE team reports also are unique, he says. "In reports like these, you usually get nothing about the patient himself," Zorowitz notes.

"The typical report is task-oriented; what do we have to do for this patient today? It's not patient-centered. We ask ourselves questions like, 'Who is this patient, why is he here, and what can we do to facilitate his stay?' These are very different orientations," he explains.

Admission criteria are based on who will benefit from the program, Zorowitz notes. (See **criteria, above.**) "We want transfers from day one," he asserts.

Results to date encouraging

Zorowitz is pleased with what his team has accomplished. "We have addressed problems often not recognized in the hospitalized elderly," he asserts. "We believe the ACE unit has reduced length of stay by an average of at least 0.5 to 0.9 days."

In addition, surveys have shown a high level of patient and nursing satisfaction. "We have had very little turnover," Zorowitz asserts.

In addition, he says, the attending physicians like the new approach.

"It results in fewer phone calls, and they know their patients are getting the appropriate care." The ACE unit also has created an opportunity for multidisciplinary education at DeKalb, "because we have provided a model for hospitalization that others can come to us to learn," Zorowitz points out.

Outcomes measures have been most difficult, although he notes such data are available from previous studies. "They show, for example, that an ACE unit is probably cost-neutral," Zorowitz observes.

In fact, the authors of one study wrote, "Caring for patients on an intervention ward designed to improve functional outcomes in older patients was not more expensive to the hospital than caring for patients on a usual-care ward, even though the intervention ward required commitment of hospital resources."²

The cost analysis was based on the work done at the University Hospitals of Cleveland.

[For more information, contact:

• **Robert A. Zorowitz, MD, MBA, FACP, AGSF, CMD, Senior Health Center, 1045 Sycamore Drive, Decatur, GA 30030. Telephone: (404) 501-1900. E-mail: zorowitz@dkmc.org.]**

References

1. Palmer RM, Landefeld CS, Kresevic D, Kowal J. Medical unit for the acute care of the elderly. *J Am Geriatr Soc* 1994; 42:545-552.
2. Covinsky KE, King JT, Quinn LM, et. al. Do acute care for elder units increase hospital costs? A cost analysis using the hospital perspective. *J Am Geriatr Soc* 1997; 45:729-734. ■

NEWS BRIEFS

'Improper payments' declined, OIG says

What the Office of the Inspector General (OIG) characterizes as improper payments under the Medicare program declined for the sixth straight year in 2001, according to a report from the Department of Health and Human Services.

The improper payments declined to 6.3%, or \$12.1 billion of the \$191.8 billion of Medicare payments last year. That's down from a 6.8% rate, or \$11.9 billion, in 2000, and less than half

the 13.8% rate estimated in 1996, according to the report.

The OIG began estimating in 1996 the percentage of fee-for-service Medicare payments involving medically unnecessary services, documentation deficiencies, or miscoding.

For 2001, the OIG randomly examined the medical records for 6,594 claims filed for 600 beneficiaries, out of 931 million claims filed for 34 million fee-for-service enrollees.

For more information, go to <http://oig.hhs.gov/oas/reports/cms/a0102002.htm>. ▼

Report outlines planning by hospitals for bioterror

Financial and capacity shortfalls have hospitals concerned about being overwhelmed by a major bioterrorism attack, even though they are devoting significant resources to prepare for possible attacks.

That's the conclusion of a white paper from the La Jolla, CA-based Governance Institute, an organization of health care executives and trustees. The report describes how hospitals are reconfiguring their triage areas, ambulance bays, ventilation systems, and even surgical masks to prepare for incidents that could produce many more casualties than the Sept. 11 and anthrax attacks.

A supplement to the paper contains a checklist for action related to bioterrorism. The report is available for \$7 by calling (858) 551-0144. ▼

AHA pushes for change in EMTALA regulations

Emergency Medical Treatment and Active Labor Act (EMTALA) screening regulations should be changed to differentiate between critical and noncritical patients, according to a hospital administrator testifying on behalf of the American Hospital Association (AHA).

The change would allow caregivers to provide other options to noncritical patients during times of severe emergency (ED) department overcrowding, Jody Lehman, corporate vice president for Baptist Health South Florida, said in testimony before the Department of Health

and Human Services' Task Force on Regulatory Reform.

In the first of five hearings held by the task force, Lehman suggested additional reforms, including the formation of an EMTALA Advisory Committee, providing an administrator-level review in the complaint process, and excluding ED services from local medical review policies. ▼

Patient satisfaction rates dropped in Sept. 11 week

Patient satisfaction with health care services fell sharply during the week of the Sept. 11 attacks, according to a recent study by Press, Ganey Associates of South Bend, IN.

However, patient evaluations returned to normal levels the following week. Overnight patients were significantly less satisfied with the care they received immediately following the attacks, compared with patients who were discharged in the proceeding weeks.

Press, Ganey said the drop in patient satisfaction was likely due to stress among staff that manifested itself in a drop in productivity and attention to detail. The stress caused patients to be more demanding about their medical care and more sensitive to service breakdowns in the hospital, the study found.

For more information, go to www.pressganey.com. ■

Share your hospital's pathway successes

Hospital Case Management welcomes guest columns about clinical path development and use.

Articles should include any results (length of stay, cost, or process improvements) that use of your pathway has helped achieve and should be from 800 to 1,200 words long.

Send your article submissions to:

Russ Underwood, Managing Editor,
Hospital Case Management, P.O. Box 740056,
Atlanta, GA 30374. Telephone: (404) 262-5521.
Fax: (404) 262-5447. ■

PATIENT EDUCATION

QUARTERLY

Shortened LOS proves beneficial to teaching

As length of hospital stay for total-hip and total-knee surgery got shorter and shorter, there was no longer enough time to provide all the necessary education on the inpatient setting at Sacred Heart Medical Center in Spokane, WA.

As a curriculum for outpatient teaching was developed, however, it became evident that some information delivered in advance could make for a better recovery.

To have any results from pre-op strengthening exercises, patients must learn and perform them several weeks in advance, explains **Kristine Becker**, RN, MHA, ONC, director of orthopedics at Sacred Heart. Also, it's better for patients to learn how to adapt their home so they have gotten rid of throw rugs and installed handrails where necessary and can be discharged to a safe environment.

During a two-year study, Becker discovered that total-hip surgery patients who attended the class were discharged a half-day sooner than those who did not. Also, 70% of those patients went home rather than to an interim facility, while only 54% of patients who did not attend the total-hip class were able to go home after their discharge. Total-knee surgery patients attending the class had a 0.4 day shorter discharge than those who did not, which was close to half a day.

Staff on the units prefer to be assigned to patients who attend the class because they participate more fully in their recovery process, Becker says. In class, patients are given a rundown of what happens on the day of surgery from where they park when they arrive at the hospital to the sights and sounds they might expect when they awake following surgery. They also are told about the role they have in their care, such as communicating to the care team about pain so it can be effectively managed.

Physical therapy teaches patients pre-op strengthening exercises and about precautions

they need to take during their recovery process. All the information taught in the class also is given to patients in a three-ring binder, and they are asked to bring it with them to the hospital. "We distributed these booklets throughout the continuum, so everyone is talking from the same booklet," says Becker. That includes the surgeon's office, home health, and the nursing homes.

For patients who have been to a class, much of the inpatient teaching is review. Also, they are in a better position to ask good questions because they have been thinking about the information they have been given, says Becker. Yet teaching during the hospital stay is tailored to meet the needs of every patient. For example, if patients have a lot of stairs in their home, the staff will work with them on climbing stairs.

There are some hospitals that cancel the surgery if patients don't attend the pre-op class, but Sacred Heart Medical Center is not one of them, says Becker. Instead, the orthopedic department has worked hard at trying to get patients to the class in a timely manner before surgery. At first, the scheduler at the surgeon's office was asked to do it, but time constraints caused the patients to fall through the cracks.

The orthopedic department took over the process. When a patient is scheduled for surgery, his or her name, address, and phone number is placed in the internal data system. This contact information is used to send a letter four weeks prior to the surgery letting the patient know a place in the class is reserved for him or her.

"We let them know their surgeon recommends they attend the class and that and other patients have found it very valuable. We ask them to call and confirm so we can put them on the valet parking list," Becker says.

How successful this method will be has yet to be determined because it was recently implemented. The prior method of telephoning patients was not successful because they often could not be reached, or when they returned the call the appropriate person in the orthopedic department was not available. Patients who miss the reserved class are given

a call to see if they can be scheduled for a class at another date.

The total-hip-surgery class lasts about 1½ hours on Mondays while the total-knee-surgery class held on Tuesdays lasts about an hour. “It is free to the patient and is time-efficient. We have arranged free valet parking for convenience,” says Becker. The class helps decrease the anxiety patients often have prior to surgery, she says.

Another challenge has been reaching patients who live 40-100 miles away and don’t want to drive to Spokane for the class. Sacred Heart Medical Center produced a total-knee-surgery video to support patients in outlying areas. While it follows the content of the notebook, it is best for people to be in the class interacting with other patients who might have questions they had not thought of yet.

In the future, Becker hopes to be able to use interactive technology to connect patients in remote areas with the teachers and students in the classroom at Sacred Heart so that they can participate in the classes. ■

Reader Question

Educational resources they can’t refuse

Question: “How do you alert staff across the continuum of care to the patient education resources your health care facility has available and, more importantly, how do you get them to use those resources? What problems have you had in the past with lack of use, and what specifically have you done to overcome those problems? What problems are you now having in getting staff to make use of the resources available and what are you doing to address them?”

Answer: Like many health care facilities, Hamot Medical Center in Erie, PA, is in the process of placing its patient education materials on-line so staff will have easy access to it via an intranet site. This should make it easier for staff in all patient areas to access materials and ensure that the most current copy is in use. Also, the use of the intranet should provide savings in costs related to copying, storage, and distribution, says **Barbara Magee**, BSN, RN, patient education coordinator.

“In the past, we listed our educational materials on the computer system and placed copies of

appropriate topics in hanging files on patient education carts in each department,” explains Magee. However, the cart has proven to be inconvenient. When staff members need materials for teaching, the cart is often down the hall or in the conference room; they don’t take the time to go find it. If they do take the time, in their haste, materials often are scattered and misplaced.

In addition, each time patient education materials are revised, the new editions must be added to the cart and the old copies removed. Many outpatient areas only have room for a small selection of materials because of limited storage space.

While staff aren’t able to download patient education materials from the intranet at Southeast Missouri Hospital in Cape Girardeau, they can access a database that lists all educational resources, including booklets, videos, and hospital-produced handouts. Staff learn about new materials approved for use from their department’s patient education committee representative. Each department keeps an inventory of the approved materials they routinely use. “We feel accessibility to materials is the key to staff utilization,” explains **Gwen Thoma**, EdD, RN, CNA, director of educational services. To increase use of educational materials, chart audits are conducted twice a year during patient education committee meetings. “This gives the group a better realization of underutilization and makes them aware of the materials they might have used,” she says.

The learning center, which is part of the staff and patient education department at The Medical Center of Central Georgia in Macon, provides a centralized location for patient and family educational resources in all clinical areas. To make sure staff are aware of these resources, a patient education catalog is issued continuumwide yearly and also posted on the intranet, says **Clarissa Mercer**, RN, patient education coordinator. Educational resources and their access during and after learning center hours are also discussed at monthly nursing orientation and leadership meetings. Reminders about available resources are periodically sent to leadership such as directors, assistant directors, and department-based educators.

“We try to encourage staff use of the resources by accepting telephone and e-mail material requests and delivering materials to patient care areas when time permits,” Mercer says. In addition, the department selects educational materials to support the institutions clinical pathways and develops population appropriate materials. ■

(Continued from page 69)

type is not being managed consistent with the organization's guidelines.

The same process outlined earlier would be used to investigate and correct the problem. In addition, actual reimbursement can be compared to expected reimbursement, factoring in the rate of third-party denials, she says.

Finally, report cards can be a useful tool during managed care contract negotiations. "This information can give the organization significant leverage when negotiating rates," Cesta says. "If the organization has a good sense of its true cost for a case type, then it can negotiate appropriate rates which reflect actual cost, not charges."

[For more information, contact:

• **Lisa Zerull**, Program Director, Valley Health System, Winchester, VA. Telephone: (540) 536-5344. E-mail: lzerull@valleyhealthlink.com.

• **Toni Cesta**, Director of Case Management, Saint Vincent's-Manhattan, New York City. E-mail: tcesta@saintvincentsnyc.org.] ■

Part 2 of 2

Medication errors: What case managers can do

Strategies to prevent medication errors

By **Ruth Davidhizar**, RN, DNS, CS, FAAN
Dean of Nursing
Bethel College, Mishawaka, IN
Giny Lonser, RNC, BA, MSNc
Andrews University, Berrien Springs, MI

When the causes of medication errors are examined, a number of strategies to prevent errors can be identified. Adherence to these strategies can cause medication errors to be avoided:

1. Report all incidents, regardless of actual harm. In 1993, the Food and Drug Administration (FDA) established the MedWatch program, a voluntary program encouraging health care professionals to report when a medication, product, or medical error causes serious harm to patients. MedWatch allows medication error information to be collected nationally. Many of the errors reported in the 1999 United States Pharmacopeia (USP) study did not cause patient harm and are not part of the national data related to serious harm.

It is important for agencies to have information

Tips on Preventing Errors

- ✓ Read medication labels carefully.
- ✓ Question administration of multiple tablets or vials from single doses.
- ✓ Be aware of medications with similar names.
- ✓ Check decimal points.
- ✓ Question abrupt and excessive increases in dosages.
- ✓ When new or unfamiliar medication is ordered, consult resource.
- ✓ Do not administer medication ordered by nickname or unofficial abbreviations.
- ✓ Do not attempt to decipher illegible writing.
- ✓ Know clients with same last names. Ask clients to state their full names. Check name bands carefully.
- ✓ Do not confuse equivalents.

about the causes of potential errors as well as those that cause actual harm if the work environment is to be made safer. By analysis of actual and potential errors, a comprehensive plan can be made to address causes of errors, which may involve computer software, the medication administration environment, policies and procedures, staffing practice and policy, and use of a drug formulary.

The data collected in the 1999 USP study prompted changes in staff education and other factors related to potential errors. When information concerning potential errors is collected, health care agencies will capture the causes of errors and provide a safety net to deter serious adverse events from occurring.

2. Utilize information from incident reports to establish safe care practices. Using a system such as MedMarx can provide the health care community with substantially more information on which to base safe care practices. Data enable research and hypothesis testing. The data can support both agency study and changes in policy and procedures. While this study revealed omissions to be the most common cause of error, further investigation into patterns of behavior at individual agencies is needed to determine the reasons omissions occur at the individual institution. It may be that omissions actually are caused by a part of the system such as the turnaround time in dispensing that involve systems outside of the case manager's control.

3. Involve a team approach in eliminating medication errors. While case managers are not primarily responsible for medication administration, the

process involves a team: the prescriber, pharmacy, computer technology, the distribution system, and the patient record. Errors may be eliminated by making changes in any of these systems. Intervention must be collaborative and involve all team members to be most effective.

4. Evaluate adequacy of numbers and type of staff. An assessment of the qualifications of available personnel is important in determining if adequate numbers and types of staff are present to provide a safe medication administration process. Distractions and workload can contribute to performance deficits. When staff are working in unfamiliar surroundings, which occurs as staff are shifted off their primary unit to another, more errors occur. The case manager needs to be aware of this factor and promote stability in staffing patterns.

5. Provide education and updating regarding the medication procedure. Inexperienced staff, such as new graduates or staff detailed to an unfamiliar unit, are more prone to medication errors. Case managers can contribute to assisting new staff by having preceptors who can monitor for competency and training in the medication administration procedure for the unit and agency where they are assigned. Initial training and periodic review of the medication administration procedures assist staff to stay proficient with the procedure. New staff may be apprehensive with their new environment and forget basic procedures to maintain safe technique. Drug calculation also contributes to errors. A total of 81% of nurses studied by Bindler and Bayne (1991) were unable to correctly calculate medications 90% of the time, and 43.6% of test scores requiring calculations were below 70% accuracy. Case managers can promote initiation of processes to monitor nurse medication calculation abilities.

6. Evaluate medication policies/procedures for compatibility with client safety. Federal, state, and local regulations provide direction for medication policies and procedures. Federal law controls medication sales and distribution; medication testing, naming, and labeling; and the regulations of controlled substances. The *National Formulary* sets standards for medication strength, quality, purity, packaging, safety, labeling, and dose form. In addition, each agency may set institution policies and practices, which staff are expected to adhere to. The size of the institution, type of service provided, and the number of personnel employed influence policy. In some cases, the agency may be more restrictive than federal regulations.

CE questions

Save your monthly issues with the CE questions in order to take the two semester tests in the June and December issues. A Scantron sheet will be inserted in those issues, but the questions will not be repeated.

17. Which company developed an Internet-based care management solution that is based on a proprietary model based on researched performed at the Wharton School of Business in Philadelphia?
 - A. IBM Healthcare Solutions
 - B. CareScience
 - C. ACS MIDAS+
 - D. IMA Technologies
18. The database used by Extended Care Information Network in Northbrook, IL, includes how many extended care providers nationally?
 - A. 45,000
 - B. 60,000
 - C. 75,000
 - D. more than 80,000
19. Which of the following was not one of the four major areas covered by Morton C. Creditor, MD, in "Hazards of hospitalization of the elderly"?
 - A. comorbidities
 - B. ambulation
 - C. reality orientation
 - D. functional change
20. List the second strategy for avoiding medication errors recommended by Ruth Davidhizar, RN, DNS, CS, FAAN, and Giny Lonser, RNC, BA, MSNc.
 - A. Utilize information from incident reports to establish safe care practices.
 - B. Evaluate adequacy of numbers and type of staff.
 - C. Evaluate medication policies/procedures for compatibility with client safety.
 - D. Encourage patient-centered care.

To increase safety, policies and procedures must be in place and have built-in safeguards. Case managers should be aware of methods they can use to prevent medication errors with their clients. In the *Fundamentals of Nursing*, P. Potter and A. Perry provide tips on preventing errors. **(See recommended reading, at the end of this article.)**

7. Increase sensitivity of staff regarding medication errors. Safe practice is primarily based on

attention to detail. Staff can avoid mistakes by taking time to confirm accuracy. Omissions and improper dosage are the most common cause of errors and can be avoided by actions related to alert and conscientious behavior.

Informing staff of errors as they occur can reduce medication errors by increasing awareness. Posted notices about common and uncommon errors can remind staff to be more attentive.

Recognition of staff who intercept potential errors can encourage others to participate in error-prevention activities. For example, a unit clerk checking medication while restocking noticed that, although drug packaging was identical, the medication was different.

By catching this mistake, errors in administration were prevented. The head nurse reported this astute behavior in every change of shift "report" for the next 24 hours; thus encouraging all staff to be more attentive. Recognition of the

unit clerk illustrated that all members of the unit team are important in preventing medication errors. In addition, hospital staff worked with the pharmaceutical company regarding packaging of medication to diminish product confusion.

8 Encourage patient-centered care. When staff are familiar with patients, errors are decreased. Staff covering lunch relief or breaks are more prone to errors since they are unfamiliar with the patients or the unit's routines. Also, they are more easily distracted, since surroundings are not familiar.

The publisher of *Hospital Case Management*, *Hospital Peer Review*, *Healthcare Risk Management*, *Hospital Access Management*, *Compliance Hotline*, *ED Management*, and *Same-Day Surgery*

A New Audio Conference:

Put It in Writing: Keys to Effective Documentation

Tuesday, May 21, 2002, 2:30 to 3:30 p.m. ET

Presented by *Deborah Hale, CCS*
and *Beverly Cunningham, RN, MS*

Nearly every profession involves paperwork, but in health care, the need for thorough and accurate documentation is especially great. After all, poorly documented care can result in claims denials, lawsuits, and even criminal investigations. In this session, documentation experts will share the ins and outs of effective documentation and how it can benefit your facility.

You may invite your entire staff to hear this audio conference for the low facility fee of \$249 for AHC subscribers and \$299 for nonsubscribers. Every participant will be eligible to receive approximately 1 free nursing contact hour.

Accreditation Statement

American Health Consultant is accredited as a provider of continuing education in nursing by the American Nurses Credentialing Center's Commission on Accreditation. Provider approved by the California Board of Registered Nursing, Provider Number CEP10864 for approximately 1 contact hour. At the conclusion of this audio conference, the participant will be able to list strategies for improving physician and staff documentation efforts.

Call (800) 688-2421 to register today!

Hospital Case Management™ (ISSN# 1087-0652), including **Critical Path Network™**, is published monthly by American Health Consultants®, 3525 Piedmont Road, N.E., Building Six, Suite 400, Atlanta, GA 30305. Telephone: (404) 262-7436. Periodical postage paid at Atlanta, GA 30304. POSTMASTER: Send address changes to **Hospital Case Management™**, P.O. Box 740059, Atlanta, GA 30374.

Subscriber Information

Customer Service: (800) 688-2421 or fax (800) 284-3291.
Hours of operation: 8:30-6 Mon.-Thurs.; 8:30-4:30 Fri.
EST. E-mail: customerservice@ahcpub.com. **World Wide Web:** www.ahcpub.com.

Subscription rates: U.S.A., one year (12 issues), \$399. Outside U.S., add \$30 per year, total prepaid in U.S. funds. Two to nine additional copies, \$319 per year; 10-20 additional copies, \$239 per year. For more than 20 copies, contact customer service for special handling. 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 \$67 each. (GST registration number R128870672.)

Photocopying: No part of this newsletter may be reproduced in any form or incorporated into any information retrieval system without the written permission of the copyright owner. For reprint permission, please contact American Health Consultants®. Address: P.O. Box 740056, Atlanta, GA 30374. Telephone: (800) 688-2421.

Editorial Questions

For questions or comments, call **Russ Underwood** at (404) 262-5521.

American Health Consultants® is accredited as a provider of continuing education in nursing by the American Nurses Credentialing Center's Commission on Accreditation. Provider approved by the California Board of Registered

Nursing, provider number CEP 10864, for approximately 18 contact hours.

Opinions expressed are not necessarily those of this publication. Mention of products or services does not constitute endorsement. Clinical, legal, tax, and other comments are offered for general guidance only; professional counsel should be sought for specific situations.

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: **Russ Underwood**, (404) 262-5521, (russ.underwood@ahcpub.com).

Senior Production Editor: **Ann Duncan**.

Copyright © 2002 by American Health Consultants®. **Hospital Case Management™** and **Critical Path Network™** are trademarks of American Health Consultants®. The trademarks **Hospital Case Management™** and **Critical Path Network™** are used herein under license. All rights reserved.

THOMSON
AMERICAN HEALTH
CONSULTANTS

Practices such as rotating patient assignments to give staff and patients variety can contribute to errors. The medication administration process should focus on the patient and the patient's response in terms of signs and symptoms indicating adverse reactions or lack of a therapeutic response. Focus on the patient also involves follow up to ensure the desired outcome was achieved.

9. Evaluate staff competency in relation to performance. Providing pay raises for persons who have not made errors can discourage self-reporting of medication errors. Reinforcement should be provided in a way that enhances carefulness while not reinforcing dishonesty. Raises for not making errors can be seen as punitive for persons who have made errors and reported them.

10. Attention to staff stress can decrease errors. In a study by O. Brown, "Effects of a stress management program on nurse absenteeism," a stress management program was implemented consisting of 12 two-hour sessions. In collecting pretest anxiety and medication error rates, results revealed the experimental group who had intervention for their anxiety had 62.5% fewer errors as compared to 44.5% percent fewer errors in the control group. Thus, attention to staff stress was a significant deterrent to medication errors.

Case managers need to contribute to the safety of the therapeutic environment in order to achieve excellent patient outcomes. The 1999 USP study provided significant findings related to causes of medication errors. Openness in providing information about errors is a critical first step in learning how to avoid them. The 10 strategies presented here can assist in designing safe medication administration practices.

Recommended reading

- Bindler R, Bayne T. Medication calculation ability of registered nurses. *Journal of Nursing Scholarship* 1991; 23(4), 221-224.
- Brown O. Effects of a stress management program on nurse absenteeism, medication errors, and anxiety. Doctoral dissertation, University of New Mexico 1990. *Dissertation Abstracts International*.
- Kohn L, Corrigan J, Donaldson M. (Eds.) *To Err is Human: Building a Safer Health System*. Washington, DC: National Academy Press; 1999.
- National Coordinating Council. National council focuses on coordinating error reduction efforts. *USP Quality Review* Jan 1997; 57.
- Potter P, Perry A. *Fundamentals of Nursing*. St. Louis: Mosby; 2001.
- U.S. Pharmacopeia. *Summary of the 1999 Information Submitted to MedMARX*. Rockville, MD; 2000. ■

EDITORIAL ADVISORY BOARD

Consulting Editor: Toni Cesta, PhD, RN, FAAN
Director of Case Management
Saint Vincents Hospital and Medical Center
New York City

Kay Ball,
RN, MSA, CNOR, FAAN
Perioperative Consultant/Educator
K & D Medical
Lewis Center, OH

John H. Borg, RN, MS
Senior Vice President, Clinical
and Community Services
Valley Health System
Winchester, VA

Richard Bringewatt
President & CEO
National Chronic Care Consortium
Bloomington, MN

Elaine L. Cohen, EdD, RN, FAAN
Director of Case Management,
Utilization Review, Quality
and Outcomes
University of Colorado Hospital
Denver

Beverly Cunningham, RN, MS
Director of Case Management
Medical City Dallas Hospital
Dallas

Kimberly S. Glassman,
RN, MA, PhD
Director of Case Management
and Clinical Pathways
New York University/Mt. Sinai
Medical Center
New York City

Judy Homa-Lowry,
RN, MS, CPHQ
Director
Patient Care Services
Brighton Hospital
Brighton, MI

Cheryl May, MBA, RN
Policy Analyst
American Accreditation
HealthCare Commission/URAC
Washington, DC

Cathy Michaels, RN, PhD
Associate Director
Community Health Services
Carondelet Health Care
Tucson, AZ

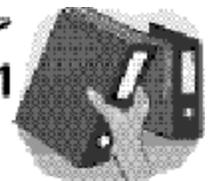
Larry Strassner, MS, RN
Manager, Health Care Consulting
Ernst & Young LLP
Philadelphia

CE objectives

After reading each issue of *Hospital Case Management*, the nurse will be able to do the following:

- identify particular clinical, administrative, or regulatory issues related to the profession of case management;
- describe how those issues affect patients, case managers, hospitals, or the health care industry in general;
- cite practical solutions to problems associated with the issue, based on independent recommendations from clinicians at individual institutions or other authorities. ■

Newsletter binder full?
Call 1-800-688-2421
for a complimentary
replacement.



BIOTERRORISM WATCH

Preparing for and responding to biological, chemical and nuclear disasters

Traumatized health care providers may need stress counseling in horrific aftermath of bioterror attack

A severe test for a mentally tough profession

In a finding that is likely relevant to many other states, a recent tabletop exercise in Columbus, OH, found that the health care system may be better prepared to deal with bioterrorism victims than the traumatized frontline providers who give them care.

The exercise was conducted by the Ohio Senior Interagency Coordinating Group in Columbus.

After running a scenario involving intentional release of pneumonic plague at a rock concert, emergency preparedness officials discovered there was little in place to address the mental health needs of doctors and nurses in the horrific aftermath. In the exercise, an attack with *Yersinia pestis* resulted in 332 fatalities, 720 hospitalizations, and 4,300 people who were examined and released.

“How do you handle all of the nurses and doctors who have seen many, many deaths, who have tried to decrease panic by remaining calm, and who have survived this huge confusion and turmoil?” asks **Kay Ball**, RN, MSA, CNOR, FAAN, a participant in the exercise and perioperative consultant and educator at K & D Medical in Lewis Center, OH. “What about their mental health? That is something that we found that we are weak in. We really have to develop that better.”

The hypothetical event began Friday, March 15, when a popular regional band performed at Shawnee State University in Portsmouth, OH. Approximately 2,000 students and community members went to see the band, which is known for its use of smoke and visual enhancements,

according to the scenario. **(See tabletop timeline, p. 3.)**

“[The terrorists] aerosolized the agent in a fogging system and that is how it was spread throughout the building,” says **Darren Price**, exercise training officer with the state of Ohio Emergency Management Agency in Columbus.

The players take their seats

The exercise had four groups of about nine people, each working at different tables as the events unfolded. The groups were health/medical, law enforcement, fire/emergency medical services, and government. An audience of about 150 people was on hand to observe and evaluate the exercise.

“The whole purpose was to determine our strengths and weaknesses through the disaster that happened,” says Ball, who served as facilitator and discussion leader of the health/medical group. “The planning committee will meet and analyze what we learned from this, and then we will bring back everybody who participated.”

The scenario was divided into three phases: incubation, response, and recovery. Each phase received about an hour of discussion at the tables, and all players received updated information at the same time. **(See tabletop tips, p. 2.)** The scenario was necessarily arbitrary but designed to

This supplement was written by Gary Evans, editor of *Hospital Infection Control*. Telephone: (706) 742-2515. E-mail: gary.evans@ahcpub.com.

test the state's resources at many levels, Price notes.

"Anytime, you are dealing with tabletop exercises there are a lot of assumptions and artificialities built in just to make it flow," he says. "We ask [participants] to bring their emergency operations procedures and plans, and to actually react based upon their plan."

While the exercise is still being analyzed, the mental health needs for medical providers became apparent in playing out the scenario. Part of the problem is the historic perception that health care workers must not succumb to the emotional toll of patient care, Ball says.

"Even in surgery today, if we lose a patient on the table, there is nothing really in place to talk about the trauma the practitioners are going through," she says. "We just think that we are these stalwart people and we can't crumble under emotional strains. That was one of the [identified] weaknesses."

In contrast, firefighters and emergency medical service workers had a more thorough stress debriefing process than their hospital-based counterparts.

"Within the hospitals themselves we really don't have the mental and spiritual health that we need," she says.

Moreover, the scenario projected widespread "psychological manifestations" in the affected area, with students withdrawing from school and residents reluctant to return to their homes. Bioterrorism response planners brainstormed about how to fight the problem, including bringing in celebrities and public officials to show it was safe to return to the stricken area.

The scenario included a short delay in determining the etiological agent, with chaos building before plague was confirmed as the infecting pathogen. Even with the new emphasis on bioterror education, that scenario is fairly realistic because so few clinicians have seen infections caused by the potential bioterrorism pathogens.

"The first problem was what kind of a bug was it?" Ball says. "Where do we send the cultures, and how fast can we get them back?"

The scenario also had many students leaving on spring break. Given the anticipated exodus of people from the community — particularly into the neighboring states of Kentucky and West Virginia — there was no attempt to set up mass quarantine areas, Price says. Instead the national stockpile of antibiotics was called up and confirmed or suspect cases were treated and isolated.

"We looked at the issue of quarantine and determined it was not really feasible," he says. "You would have these large [quarantine] circles everywhere. We moved more toward isolation [of patients] at that point."

While identifying a weakness in mental health care, the planners found communications were strong between groups, there were no turf battles, and additional resources became available quickly.

"One of the strengths that we found was that we were able to get supplies in and to call in extra people," Ball says. "We were able to pull in lots of people very rapidly. We are learning how to work more with all of the other diverse factions."

Indeed, the exercise was set in a rural area so that resources would be taxed, reaching thresholds that would trigger state response, Price adds.

"We're better prepared today than we were yesterday," he says. ■

Bioterror tips for running a tabletop

Planners of a recent bioterrorism tabletop exercise in Columbus, OH, (**see cover story for more information**) offered the following tips for participants in the exercise:

- The scenario is plausible, and events occur as they are presented.
- There are no hidden agendas or trick questions.
- All players receive information at the same time.
- There is not a "textbook" solution. Varying viewpoints and possible disagreements are anticipated.
- Respond based on your knowledge or current plans and capabilities.
- Current agency or department policies and procedures should not limit discussion and development of key decisions.
- The outcome is neither intended to set precedents or reflect an organization's final position on specific issues.
- Assume cooperation and support from other responders and agencies.
- Speak up! Talk to your colleagues and ask questions. This is your chance to learn how other agencies in your community would respond in an emergency. ■

Dire straits: Plague released at concert

Tabletop scenario from first case to aftermath

Highlights of a recent bioterrorism tabletop exercise run by planners in Ohio (**see cover story for more information**) included the following timeline of events:

Sunday, March 17, 2002, Portsmouth, OH

8:00 a.m.: At the emergency department (ED) of Southern Ohio Medical Center (SOMC), a doctor has just come on duty and sees her first patient, a 22-year-old woman. The patient's sister says the woman has been complaining of chest pain and has a temperature of 102 degrees F. The sister worries that the patient may have caught the "bug" through her position at the Shawnee State University (SSU) dormitory mailroom where she works part time. A rapid flu test shows a negative result.

The physician is suspicious in light of the national anthrax cases five months earlier and orders a sputum and blood culture. Transport assistance is requested for sending the cultures to the Ohio Department of Health (ODH) laboratory for anthrax testing. The woman is admitted. The Portsmouth City Health Department and Scioto County District Board of Health are notified of the situation. In turn, the ODH and Ohio Emergency Management Agency (EMA) duty officer are called.

2:00 p.m.: The 22-year-old woman admitted to SOMC earlier this morning develops severe respiratory complications and dies. A full autopsy is ordered, and the physician awaits the preliminary results of the sputum and blood cultures. As the day progresses, local emergency medical services (EMS) become overwhelmed with patients presenting with flu-like symptoms. People presenting with the most severe symptoms, including high fever and difficulty breathing, are hospitalized; however, with many more sick waiting in the ED, the hospital beds and wards are filling rapidly.

5:00 p.m.: Traffic around SOMC becomes impassible, and several ambulances are severely hindered. Medical facilities request security assistance from local law enforcement agencies.

10:00 p.m.: Six patients admitted during the day with the severe flu-like symptoms also die. New cases continue to arrive at SOMC with an increase in the number of patients reporting each hour.

Monday, March 18

8:00 a.m.: Overnight, a public health emergency was declared in Scioto County. A request was made

by Scioto County Health, via the Scioto County EMA and elected officials for state support in the growing crisis.

A Level 2 emergency status is reached in Scioto County. The state assessment room is activated to support the events in Scioto County.

10:00 a.m.: The preliminary tests of clinical specimens taken from the 22-year-old woman who died Sunday are complete. The ODH Lab notifies the local health departments that the specimens have tested negative for *Bacillus anthracis*. The laboratory begins rule-out testing for other pathogens.

3:00 p.m.: Epidemiological evidence points to an event three days earlier as a common activity of the majority of new patients. On Friday, March 15, a popular regional band performed at SSU in Portsmouth. The band is well known for use of visual enhancements. Approximately 2,000 students and community members attended the concert.

4:00 p.m.: Hospital supplies are insufficient to meet demand. Fifteen additional patients have died, and 111 are listed in critical condition. Reports now include similar symptoms among several health care workers and first responders. SOMC hospital beds are full.

5:30 p.m.: ODH Lab staff notifies Scioto County local health officials that the 22-year-old patient's cultures are preliminarily positive for *Yersinia pestis*. Local health officials inform local health care professionals and EMS personnel that, in order to prevent the spread of disease, patients having confirmed pneumonic plague should be isolated until sputum cultures are negative for *Y. pestis* bacilli.

Those suspected of having pneumonic plague should be isolated for 48 hours after antibiotic treatment begins.

Wednesday, March 27

It has been 10 days since the first victims arrived at SOMC and local clinics. There have been no further cases of illness identified in Scioto County in the past seven days.

Waiting for signs of recovery

Resources begin to flow into the area as a result of national public outreach. Visitors, however, avoid the area and the impact of the event on the local economy becomes apparent as local businesses are slow to reopen.

The psychological manifestations associated with this event are widespread. Although school reopens, many students withdraw from classes for the quarter. Local residents, still frightened and shocked, look to local and state officials for guidance as they attempt to return to normalcy. ■

Winds of war: Researchers track airborne anthrax

A strikingly rapid and wide dispersion

Struck by the surprising level of aerosolization after merely opening an envelope, Canadian researchers are now using a spore surrogate to study how airborne anthrax silently spreads within an office building, *Bioterrorism Watch* has learned.

Researchers are using *Bacillus globigii* spores to simulate the movements of *Bacillus anthracis* in a one-story research building at the Defence Research Establishment Suffield (DRES) at the Canadian Forces Base in Suffield, Alberta, says **Kent Harding**, chief scientist at DRES. “We will be looking at movement between actual offices along corridors using the *B. globigii* as a simulant. It is a spore-like material that is a well-accepted simulant used to assess and challenge biological detection apparatus.” The DRES is on the cutting edge of bioterrorism research; scientists there were studying the dispersion of anthrax from envelopes prior to Sept. 11 and its aftermath. In response to an anthrax hoax mailing in Canada in February 2001, the DRES conducted a study last year using an 1,800 cubic foot test chamber to represent an office space. “We had a hoax letter in this country that closed down a major federal office building,” he says. “We were interested in [determining] had it been a real infectious material in the envelope, what was the extent of the risk? We went to the scientific literature and really didn’t find anything.”

It was hypothesized that opening an envelope constituted a “passive form of dissemination” that would produce minimum aerosolization of spores unless additional energy was added via panic behavior or strong airflows, the researchers stated.¹

“Our scenario was in a chamber, which was conducive to studying the movement of materials on air currents,” Harding says. “An individual was given a stack of envelopes and told to keep opening them until powder fell out. When that happened, [he or she] stood quietly by the desk and didn’t move for 10 minutes. We just looked at the movement of material around the room, just simply as a consequence of opening the envelope and pulling out a piece of standard 8½ by 11 paper folded in three.” Almost immediately upon opening the envelope, a significant aerosol concentration was observed in the area of the “desk.” It

declined slowly over the 10-minute sampling period, but the high-resolution slit sampler plates used to measure the release became densely packed with bacterial colonies. In the study, significant numbers of respirable aerosol particles were released upon opening envelopes containing 0.1 g or 1.0 g of *B. globigii* spores. A potentially deadly dose could be inhaled within seconds of opening an anthrax spore-filled envelope. Also, the aerosol quickly spread throughout the room so that other workers, depending on their exact locations and the directional airflow within the office, would likely inhale doses. There was very heavy contamination on the back and front of clothing worn by the test subject.

“There was a large dose presented to the person opening the envelope, which was not unexpected,” Harding says. “But what was surprising was the very rapid and extensive movement around that room simply as consequence of the movement of normal air currents. It distributed around the room very quickly and in fairly high quantity.”

The researchers also found that the spores could escape from a sealed envelope, a phenomenon that caught U.S. investigators off-guard during the 2001 attacks. “We did note that in a standard envelope sealed in the usual way — just with licking the glue on the back of — that there are substantial openings on the back of the envelope,” he says. “In fact, the ‘envelope people’ design them that way so you can get a letter opener inside. Spores did escape from those openings, but we never quantified that and never referred to it to anything more than an anecdotal manner.”

The Centers for Disease Control and Prevention (CDC) in Atlanta was apparently unaware of the study during the initial stages of the U.S. anthrax attacks. Whether it would have made any difference is impossible to say, though some wonder if it would have resulted in more aggressive treatment of postal workers.² Regardless, the CDC decision to administer antibiotics to a broad range of people, not just those in the immediate exposure area, is reinforced by the study, Hawkins says. The Canadian researchers have now fully briefed the CDC about the study and their ongoing research.

References

1. Defence Research Establishment Suffield. Kournikakis B, Armour SJ, Boulet CA, et al. Risk assessment of anthrax threat letters. September 2001. *Technical Report DRES TR-2001-048*.
2. Brown D. Agency with most need didn’t get anthrax data. *Washington Post*, Feb. 11, 2002:A/03. ■