



# Management®

*The monthly update on Emergency Department Management*

Vol. 11, No. 9

## Inside

■ **Decrease overutilization of testing . . . . . 100**

Computerized system alerts physicians to costs of drugs and tests at point of care

■ **Counter marketing tactics of drug companies . . . . . 102**

Inform physicians of when not to use heavily marketed drugs

■ **Are your staff spreading flu to patients? . . . . . 103**

Here's the latest research on the effectiveness of flu vaccinations in health care workers

■ **Novel electronic medical record brings patient info together . . . . . 104**

System pulls together data from the ED, hospital mainframe, lab, X-ray, and billing to boost throughput time and improve care

■ **See how lab results can be brought to the ED the moment they become available . . . . 105**

Quick access to data has saved patients' lives

■ **Every nurse should practice risk management skills . . . 106**

Follow these tips to keep your ED out of the courtroom

**September 1999**

## Do your staff know the cost of pharmaceuticals and lab tests?

*Reduce overutilization, cut costs, or risk your ED's bottom line*

**T**hink your ED staff are informed about the cost of diagnostic tests and pharmaceuticals? Think again. Studies and anecdotal reports indicate that relying on physicians and other staff to keep down costs could leave your ED in the red. One hospital was able to reduce pharmacy costs by \$75,000 per year by encouraging ED physicians to use a cheaper yet equally effective drug, but this type of proactive cost-cutting isn't occurring in most EDs, say experts interviewed by *ED Management*.

"Physicians have an abysmally low level of understanding of costs," reports **Grant Innes, MD, CCFP, FRCP**, director of emergency medicine research at St. Paul's Hospital in Vancouver, British Columbia. In one study, 75 ED physicians were asked to estimate the cost of 60 drugs, imaging techniques, and laboratory tests. The results were dramatic: 19% underestimated the cost of pharmaceuticals, 26% underestimated the cost of lab tests, and 65% underestimated the cost of imaging tests.<sup>1</sup>

Physicians tend to overuse tests and treatments that don't improve patient outcomes, argues Innes, the study's principal investigator. "Part of the reason is that they have no concept of the costs. Cost awareness is not part of medical training," he says.

Educating staff about costs can reduce utilization without harming patients, he emphasizes. Many tests are ordered by reflex or habit and have little or no

### Executive Summary

ED physicians often are misinformed about the cost of diagnostic tests and drugs. Physicians tend to overuse tests and treatments that do not improve patient care, according to ED experts.

- Comparing test utilization with peers is a strong motivator for physicians.
- Listing costs of antibiotics on protocols can cut costs and improve consistency of care.
- Commonly overutilized lab tests in the ED are blood alcohols, urine cultures, electrolytes, and blood gases. Commonly overused X-rays are abdominal series, CT of the head, and lumbar spine series.

impact on patient care, says Innes. "These tests do not need to be done at all. Many new technologies are used on a progressively increasing basis, despite little or no evidence that they actually help patients."

In many cases, old drugs work as well as new drugs, but new ones are selected because they are heavily marketed, he notes. **(See story on how to counter marketing efforts by pharmaceutical companies, p. 102.)**

In Canada, the availability and utilization of "high-tech" diagnostic tests is much less than in the United States, Innes reports. "Yet in general, Canadian patients do just as well, with lower per-patient utilization costs." In many instances, physicians should depend on their own clinical judgment instead of tests, he says. "They should have a better understanding of research methods and evidence-based medicine. We have some responsibility to cut costs where it won't hurt patients."

Here are some ways to educate staff about costs and reduce unnecessary testing:

❑ **Compare physicians with peers.** An Emergency Department Information Tracking System (EDITS) software program profiles the number of tests ordered by every ED physician at San Gabriel Valley (CA) Medical Center. **(See box, below.)**

"The idea is to show them where they stand with regard to their peers," says **Richard Bukata, MD, FACEP**, medical director of the ED and associate

clinical professor in the department of emergency medicine at Los Angeles County/USC Medical Center.

The program is used to capture all the charges for the hospital, as well as to profile frequency of ordering tests for individual physicians. "Although these are all board-certified doctors, we have seen substantial variation in their use of tests," says Bukata.

Anonymously comparing test utilization with peers is a strong motivator, he stresses. "Doctors don't want to be outliers at either end of a bell-shaped curve. They want to be in the middle. Without that comparison, I don't think you can get any kind of meaningful change in physician behavior."

The software reveals which physicians are ordering the most tests or using expensive pharmaceuticals. Utilization of tests is compared per 100 patients seen. "For example, it can tell you how many CT scans were done per 100 patients for each doctor," says Bukata. "We can assume my patients in general are as sick as yours, but my utilization of CT scans may be much lower than yours."

Variability in practice was demonstrated to ED physicians to get buy-in. "Nobody will disagree that it's good medicine to start antibiotics in the ED for admitted patients or give aspirin to chest pain patients. So if you show physicians the variability in those things, you can move to areas where there is more likely to be some controversy, like ordering of lumbar spine X-rays," he says.

Without this kind of data, physicians may believe they are consistent with their peers when there are actually wide variations, Bukata notes.

❑ **Educate physicians about the appropriate use of tests.** Four commonly overused lab tests in the ED are blood alcohols, urine cultures, electrolytes, and blood gases, says Bukata. "Examples of overused X-rays are abdominal series, CT of the head, and lumbar spine series."

Educating physicians about when these tests are useful is key, stresses Innes. "Most health care providers know very little about diagnostic testing and wouldn't be able to identify a predictive value or likelihood ratio if it hit them in the face," he says.

Come to a consensus among physicians about what is appropriate utilization, he says. "If they don't buy into the concept from the start, you are doomed to failure."

## More on EDITS

The Emergency Department Information Tracking System (EDITS) software program is licensed to hospitals and emergency physician groups at a cost of 30 cents per chart. It allows for the rapid manual capture of all chargeable and significant clinical information into a computer database. It contains more than 140 data elements that can be permuted into a wide variety of clinical and profiling reports. For details, contact the Center for Medical Education, P.O. Box 600, Creamery, PA 19430. Phone: (800) 458-4779 or (610) 454-9660. Web: [www.emaonline.org](http://www.emaonline.org).

## COMING IN FUTURE MONTHS

■ Update on physicians' union

■ Resolve conflicts with other departments

■ Prepare for nuclear, chemical, biologic disasters

■ Report on HCFA's new documentation guidelines

## Sources

- **Richard Bukata**, MD, FACEP, 227 W. Orange Grove Ave., Sierra Madre, CA 91024. Phone: (626) 836-3700. Fax: (626) 836-3702. E-mail: rbukata@emaonline.org.
- **James Espinosa**, MD, FACEP, Department of Emergency Medicine, Overlook Hospital, 10 Oakwood Place, Voorhees, NJ 08043. Phone: (908) 522-5310. Fax: (609) 767-0430. E-mail: jim010@aol.com.
- **Grant Innes**, MD, FACEP, CCFP, FRCP, Department of Emergency Medicine, St. Paul's Hospital, 1081 Burrard St., Vancouver, British Columbia V6Z1Y6. Phone: (604) 806-8980. Fax: (604) 806-8424. E-mail: ginn@interchange.ubc.ca.
- **Todd B. Taylor**, MD, FACEP, 1323 E. El Parquet Drive, Tempe, AZ 85282-2649. Phone: (480) 731-4665. Fax: (480) 731-4727. E-mail: tbt@compuserve.com.

❑ **List costs of antibiotics on protocols.** At Overlook Hospital in Summit, NJ, costs of antibiotics are listed on ED clinical pathways for pneumonia and neutropenia with fever.

“We have costs listed for drugs which are all equally effective and first choice, so that helps physicians to select the antibiotic,” reports **James Espinosa**, MD, FACEP, medical director of the ED. In addition to reducing costs, the practice also improves consistency of care, he adds.

Unlike lab tests, antibiotics do offer a choice, notes Espinosa. “You don’t have a choice of three different [complete blood counts] to choose from, but you may have three equally good antibiotics,” he explains. “If an expert panel feels they are equally good, then the cost becomes the only differential. So you are not sacrificing other outcomes for cost.”

❑ **Have staff guess costs of tests.** At staff meetings, ED physicians at Overlook bid on the costs of various tests in a simulation of the game show “The Price is Right,” which features contestants trying to guess the price of an item without overestimating the cost. “For example, we ask, ‘What do you think a CBC is worth?’ I let people bid, and we spend a hilarious hour trying to see who could be the closest without going over,” says Espinosa.

❑ **Convince physicians to change the drugs they prescribe.** In the ED at Good Samaritan Regional Medical Center in Phoenix, antiemetics frequently are used to reduce the side effects of pain medications, notes **Todd Taylor**, MD, FACEP, an attending emergency physician.

The three most commonly used medications are Compazine (\$11/dose), Phenergan (\$3/dose), and Vistaril (70 cents/dose). However, a lesser-known drug Inapsine (droperidol) is only 40 to 80 cents/dose, Taylor notes. Here is his comparison of the three drugs (best at the top, worst at the bottom):

Effectiveness	Side effects	Cost
Inapsine	Vistaril	Inapsine
Compazine	Phenergan	Vistaril
Vistaril	Inapsine	Phenergan
Phenergan	Compazine	Compazine

Of the four drugs, Vistaril may appear to be the best choice, because Taylor rates it the best in terms of side effects and second best in terms of cost, but it can have problems being given by IV and is less effective, he notes. “Of the remaining drugs, Inapsine clearly comes out on top, including the fact it is ‘dirt cheap.’”

“After looking at the numbers of Compazine [the former drug of choice] use in our ED, we were able to reduce our pharmacy cost for this indication by about

\$75,000 per year by changing to a more effective drug with fewer effects, which was also less expensive drug: Inapsine,” Taylor reports.

The challenge of making this change is that it requires someone to identify the alternatives, perform the investigation, and then educate the staff into adopting the “better” drug, he says. “The most difficult part is the last, and [it] took me two years.”

### *Most physicians aren’t adventurous*

People by nature continue to use what they know and are comfortable with, notes Taylor. “While intelligent, most physicians are not very adventurous and often resist change. The Compazine change was assisted by the fact that our hospital was not able to get it for several months due to a national shortage.”

The doctors simply had no choice but to change, he reports. “Most of them never went back to using it.”

The best way to get doctors to change is to simply take away the alternatives and provide a reasonable (if not better) alternative to the more expensive drug, Taylor advises. “You have to be careful, though, that the alternative offered has reasonably good science behind the switch or you will lose credibility.”

❑ **Use a computerized system to display costs of tests.** A study showed that doctors who used a computerized order-writing system discharged patients on average one day earlier with medical bills \$900 less than patients whose doctors used traditional pen and paper, notes Taylor.<sup>2</sup>

“The computer system had the additional advantage of warning doctors of potential drug interactions, patient allergies, and ‘expensive’ treatments,” he says. (See related story on a unique computerized system, p. 100.)

## References

1. Grafstein E, Innes G, McGrogan J. Do emergency physicians lack knowledge of diagnostic and pharmaceutical costs? Abstract presented at the annual meeting of the Society for Academic Emergency Medicine. Chicago; May 1998.

2. Tierney WM, Miller ME, Overhage JM, et al. Physician inpatient order-writing on microcomputer workstations: Effects on resource utilization. *JAMA* 1993; 269:379-383. ■

## New technology

# Computerized system alerts docs to costs

It's critical that physicians are made aware of costs of tests at the moment when tests are actually being ordered, emphasizes **J. Marc Overhage, MD, PhD**, assistant professor of medicine at the Regenstrief Institute for Health Care and Indiana University School of Medicine, both in Indianapolis.

At Indiana University Medical Center, Overhage and other physicians developed an electronic medical record that alerts physicians to information about tests at the time of ordering.

"You need to bring that information to the clinician in a very compact, condensed format they don't have to seek out. Thinking that physicians are going to look up information on a Web site is fantasy. In reality, they are not going to do that," he says.

Physicians spend up to 25% of their time looking for information but fail to find the needed information as much as 10% of the time, he notes.<sup>1</sup> The electronic medical record can be read by providers anywhere in a system that includes eight hospitals and 40 sites throughout the city, including satellite clinics, neighborhood health centers, and physicians' offices.

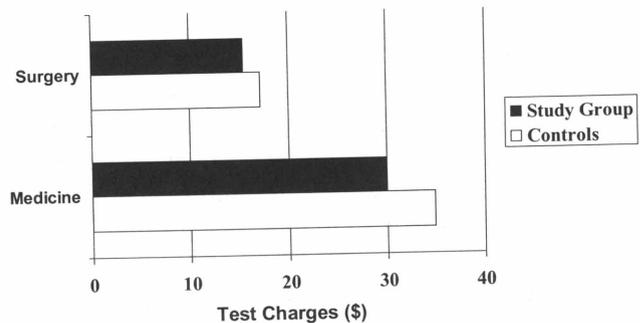
With the electronic medical record, use of testing was decreased by 10% to 15% without compromising quality of care received by patients, Overhage reports. "Eighty percent of health costs come off the doctors'

## Executive Summary

Computerized systems inform physicians of costs of tests at the point of care.

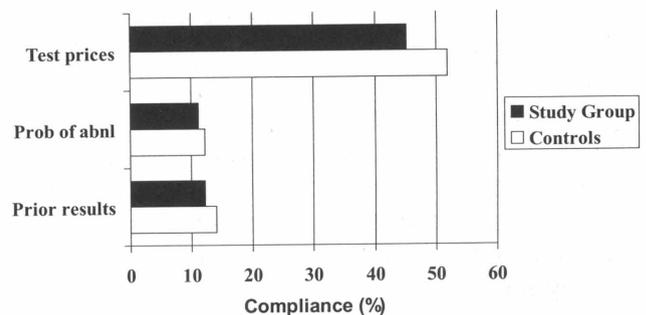
- The system decreases utilization of testing by 10% to 15% without compromising quality of care received by patients.
- Eighty percent of health costs come from diagnostic tests and pharmaceuticals ordered by physicians.

## Emergency Room Flowsheets



Printed flowsheets of patient data were given to ED physicians. The graph shows the effect on total test charges for the ED visit. The reduction was about 15% for internal medicine specialists practicing in the ED and somewhat smaller for general surgeons practicing in the ED.<sup>3</sup>

## Outpatient Test-Ordering



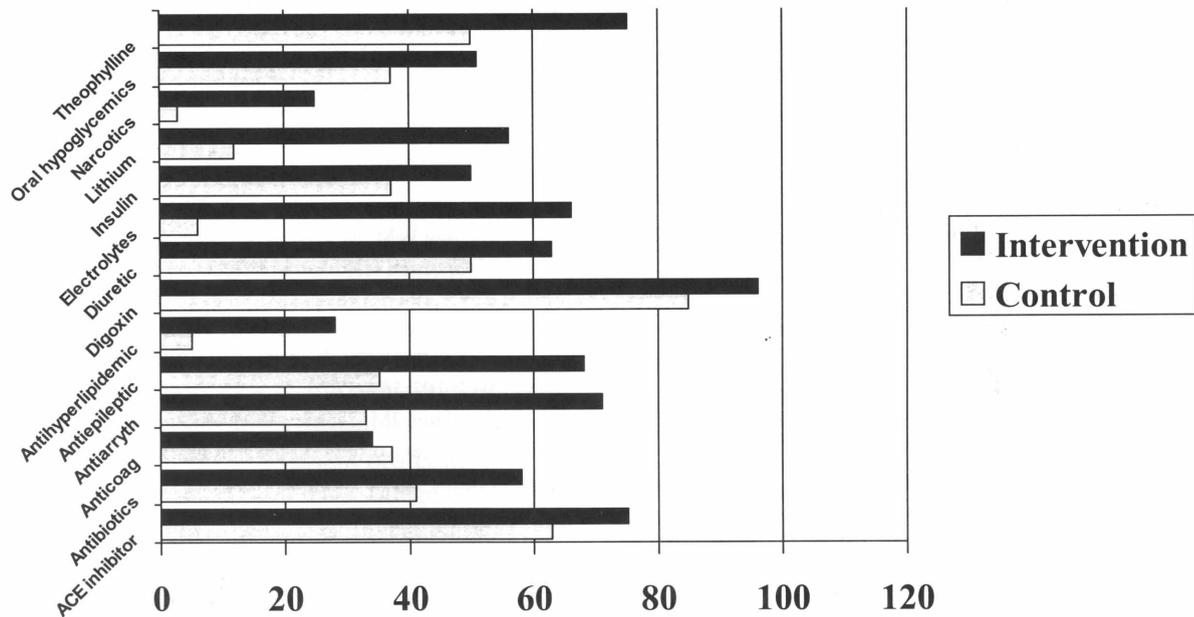
This chart summarizes data from three publications that illustrate how providing information at the point of test-ordering can change behavior. The figure shows the effect of showing, at the time of ordering, the charge for the test, the probability that the test will be abnormal, and the results of previous tests. All resulted in about a 15% reduction in test-ordering.<sup>4-6</sup>

pen. We drive costs by the orders we write. So changing what we think and do is critical, because it's such a huge chunk of the health care budget."<sup>2</sup>

The computerized system is effective in reducing ordering of tests because no effort is required on the physician's part.

"When you know people have been waiting two or three hours to see you, it's hard to pause and look up a bit of information you need," he says. "It may seem easier to just do the test over. Or physicians may not think too hard about the choice and just go ahead and order the test to be on the safe side."

## Inpatient Corollary Orders



This chart shows the effect of prompting clinicians to order appropriate follow-up testing and concomitant therapies when they're ordering primary therapies. For example, physicians ordered serum levels of anti-epileptic medications far more often when the computer reminded them than not.<sup>7</sup>

Among other benefits, the computerized record does the following:

### 1. Curtails use of inappropriate tests while encouraging ordering of appropriate tests.

"Cost and quality are two sides of the same coin. You can't manipulate one without manipulating the other," Overhage notes. "If we make the right clinical choices, that will save money in the long run."

The goal isn't just to reduce tests, but to order tests appropriately. This may mean increasing ordering of certain types of tests. "For example, ED visits in some settings are good places to get immunizations done. But that's not something most ED physicians will think of," he says.

### 2. Reduces patient anxiety.

When a physician orders a diagnostic test, there is a probability of about 5% that it will come back abnormal even though nothing is wrong. "There won't be needless anxiety for the patient if an unnecessary test is not ordered in the first place," he says.

### 3. Provides information about previous tests.

When a patient comes to the ED, the physician receives a one-page summary that lists recent lab data, including test results from other facilities in which the patient has received care. "That is in the clinician's hand when he goes to see the patient,"

Overhage says. "So instead of flipping through a chart or starting at ground zero, you already know a patient has had abnormal EKGs and previous MIs. That information may dramatically shift how you care for a patient."

Focusing on specific patient data is key, he says. "If you can bring things to the physician's attention, such as the fact that a patient had a CT of the head yesterday or that an MRI costs \$972 and has only a 3% probability of finding an abnormality, physicians will make better decisions," he explains.

### 4. Points out commonly overutilized tests.

The system presents physicians with data that suggest certain tests are unnecessary. Here are some examples:

— **Diagnostic tests for pancreatitis.** "There is good evidence that you don't need both tests for pancreatitis. The system reminds the physician that there is little value to the second test" says Overhage.

— **Differential CBCs.** These typically are ordered by habit but are often not necessary, he notes.

— **Urinalysis.** It's common practice in many EDs to order both a urinalysis and culture, but this is often a wasteful practice, Overhage says. "There are obviously cases where there is the right thing to do, and you

would never want a system to override the physician's judgment. But the system can point out, 'Do you really want to continue that practice, which costs \$60 and won't change what you do for this patient?'"

## References

1. Eisenberg JM, Williams SV. Cost containment and changing physicians' behavior. *JAMA* 1981; 246:2,195-2,201.
2. Mamlin JJ, Baker DH. Combined time-motion and work sampling study in a general medicine clinic. *Med Care* 1973; 11:449-456.
3. Wilson GA, McDonald CJ, McCabe GP Jr. The effect of immediate access to a computerized medical record on physician test ordering: A controlled clinical trial in the emergency room. *Am J Public Health* 1982; 72:698-702.
4. Tierney WM, Miller ME, McDonald CJ. The effect on test ordering of informing physicians of the charges for outpatient diagnostic tests. *N Engl J Med* 1990; 322:1,499-1,504.

## Source

- **J. Mark Overhage**, MD, PhD, Regenstrief Institute for Health Care, 1001 W. 10th St., Fifth Floor, Indianapolis, IN 46202. Phone: (317) 630-7626. Fax: (317) 630-6962. E-mail: overhage\_m@regenstrief.iupui.edu.

5. Tierney WM, McDonald CJ, Hui SL, et al. Computer predictions of abnormal test results: Effects on outpatient testing. *JAMA* 1988; 259:1,194-1,198.
6. Tierney WM, McDonald CJ, Martin DK, et al. Computerized display of past test results. Effect on outpatient testing. *Ann Intern Med* 1987; 107:569-574.
7. Overhage JM, Tierney WM, Zhou XH, et al. A randomized trial of 'corollary orders' to prevent errors of omission. *J Am Med Assoc* 1997; 4:364-375. ■

# System counters drug companies' sales tactics

## Computer program suggests alternatives

Pharmaceutical companies often bombard ED physicians with expensive marketing campaigns to get them to use new drugs, but the drugs they promote aren't always appropriate choices. To expand the amount of drug information available to physicians, a team of physicians in Indiana has developed a special computerized system.

"The drug industry has 'detail people' who bring clinicians pens and donuts and encourage them to use certain drugs," explains **J. Marc Overhage**, MD, PhD, assistant professor of medicine at the Regenstrief Institute for Health Care and Indiana University School of Medicine, both in Indianapolis.

The computerized system he developed along with other physicians provides "counter-detailing," he says. "The physician reads information on screen to counter the drug company's information, saying 'Don't use this drug except under this specific circumstance.'"

The idea is to get physicians to consider using other drugs by communicating a brief message at the time they are writing the prescription. "It's like a billboard the physicians are driving by, with a sentence to catch their attention," Overhage says.

At times, the information specifically instructs the physician not to use a drug. "You may need to

be more aggressive at times and put something in front of clinician that says, 'Don't use this drug in this patient,' if [the patient is] too young or [has] a contraindication. The system suggests some alternatives," he says.

Alternative drugs are suggested that are more appropriate and less expensive. "The system gives specific options to avoid use of expensive drugs when possible," he says. "For example, quinolones are a class of antibiotics which are very popular and very expensive. But there are often good alternatives, particularly with treatment of simple infections."

Specific costs of drugs are listed. "This is very eye-opening to physicians. We may have no idea that an antibiotic costs \$2.50 a pill because we don't buy them," says Overhage.

## Drugs listed by cost

The system notes whether a particular drug is on the health plan's formulary and lists the drugs that are approved in increasing order of cost. "You may see patients in 15 different health plans, and one will have an H<sub>2</sub> blocker as their preferred drug, and the other plan won't even have it on their formulary," he says.

If you give a prescription for a drug and it's not on the health plan's formulary, either the pharmacist calls to ask you to change the drug, or the patient winds up paying for it out of pocket. "And in fact, either of the H<sub>2</sub> blockers they would get are probably equally effective," notes Overhage. ■

# Are your staff spreading disease to patients?

*Flu vaccinations found to be effective*

Chances are, your ED has isolation rooms for patients with contagious diseases, but patients also are at risk for contracting illness from your staff. Researchers recently found that health care workers have a much lower rate of absence from work than of febrile respiratory illness.<sup>1</sup>

“What that means is that people are coming to work with not only respiratory symptoms, they’re coming to work with fever and full-blown flu symptoms,” says **James Wilde, MD, FACEP**, assistant professor of emergency medicine at the Medical College of Georgia in Augusta and the study’s principal investigator. “Then they are probably spreading it to patients and other personnel, which is not good.”

Your staff also are at high risk for contracting flu from patients. “Half the patients we see in the ED have respiratory illnesses, even in the summertime. So we are likely to get flu, which is a highly contagious disease,” he says. In turn, ED staff may come to work ill and spread flu to patients and colleagues, he adds.

## **Vaccine given to hospital staff**

Those findings were part of a study on the effectiveness of flu vaccine on health care workers, which was conducted at two large teaching hospitals in Baltimore. The study found that the influenza vaccine for health care workers was effective in cutting down on contracting flu and severe respiratory disease, which can be spread to colleagues and patients. “There is no strong data supporting the use of influenza vaccine in healthy adults, and even fewer studies in health care workers. That’s why we did the study,” says Wilde.

The flu vaccine was 88% effective in preventing influenza type A infection and 89% effective in preventing influenza type B infection, compared to the placebo group. Health care workers who were

vaccinated became infected at much lower rates than those who received a placebo vaccine.

According to the study, vaccinations could result in a significant reduction in staff absences. The flu vaccine reduced the number of days absent from work by 53% and reduced the number of days of respiratory illness accompanied by fever by 29%.

Influenza infection was linked with an additional 1.5 days of febrile respiratory illness and 0.5 days of absence from work.

“The numbers are relatively small, but they do show a trend which is important,” Wilde reports. “A staff member cutting down on one day of illness per winter

**“Most EDs are lean and mean, without a lot of fat. So if you have a couple of personnel out for influenza, it’s not a minor point.”**

doesn’t sound like that big a deal. But consider that you can cut down on that for a quarter of your personnel.”

Even a small number of absences can affect your ED significantly. “Most EDs are lean and mean, without a lot of fat. So if you have a couple of personnel

out for influenza, it’s not a minor point,” says Wilde.

EDs should consider a policy stating that all employees who come in contact with severely ill or debilitated patients should get an influenza vaccine, he suggests. “There are a lot of respiratory viruses that circulate during the flu season, beyond influenza itself. Those viruses in general are not necessarily as dangerous to a compromised patient as flu. If you can at least protect people from the most severe respiratory illnesses, you have done something.”

If ED staff stayed home every time they had a runny nose or cough, hospitals wouldn’t be staffed during the winter season, Wilde says. “But flu is much more severe and much more likely to cause fever. If you vaccinate your personnel with influenza vaccine, you can at least cut down significantly on the rate of that infection in those people. That will decrease the risk of spreading to patients or personnel.”

Liability risks are another concern. “I wonder sometimes about potential liability a hospital could face if a slick lawyer was able to prove his client had a bad outcome from nosocomial flu,” he says. “Especially if the hospital had no vaccination policy, it could be a problem.”

Revenues also may be affected if patients contract influenza in the hospital. “If somebody gets sick from a nosocomial infection, most third-party payers will not pay for that extended stay in the hospital. It is not covered, and the hospital has to eat the cost,” Wilde

## **Executive Summary**

Patients are at risk for contracting flu from ED staff.

- Vaccinations are effective in reducing flu and severe respiratory disease in health care workers.
- All staff who come in contact with severely ill or debilitated patients should consider getting an influenza vaccine to protect themselves and their patients.

## Source

- **James Wilde**, MD, FACEP, Medical College of Georgia, Department of Emergency Medicine, 1120 15th St., Augusta GA 30912. Phone: (706) 721-3258. Fax: (706) 721-7718. E-mail: [jwilde@mail.mcg.edu](mailto:jwilde@mail.mcg.edu).

says. "That's why most hospitals are taking great pains to prevent croup, influenza, chicken pox, and other highly contagious viral or bacterial infections."

Because the ED has such a high volume of patients compared with other departments, staff are exposed to people with influenza at a much higher rate. "It makes sense that ED staff should get vaccinated. Because even if we don't pass it on to a critically ill ICU patient, we may pass it on to any patient that comes through our doors," he says.

## Reference

1. Wilde JA, McMillan JA, Serwint J, et al. Effectiveness of influenza vaccine in health care professionals. *JAMA* 1999; 281: 908-913. ■



## New system brings all hospital databases to ED

How would you like to have the following questions answered instantly:

- Which patients are in the ED now?
- Which patients were seen this week with an elevated glucose level?
- How many patients with acute MIs were taken care of in the ED last year, and who were they?

A unique information system has been developed by ED physicians that allows users to access all existing patient information.

"It's an extremely dynamic way of answering any question you have about one patient or group of patients in a big hurry," explains **Craig Feied**, MD, FACEP, FAAEM, director of informatics for Washington (DC) Hospital Center, one of the EDs where the system is being used. Feied is co-developer of the system. (See

story on quick access to patient information, p. 105.)

The system is unique because it connects multiple departments into a single database. "We took all the existing data floating around the hospital and brought it together in one place," he says. That includes the hospital mainframe, lab and X-ray computers, the EKG system, radiology, quality improvement, the Pyxis medication dispensing system, and the billing system. Users can look at clinical, demographic, and billing data side by side on the same screen.

This is very different from traditional information systems used by EDs, Feied stresses. "Usually EDs either build a tracking system or they build what they think of as an electronic chart, which is built around a paper chart concept."

No training or inservicing is needed to use the system, he says. "We trained people by putting a machine out with a sign that says Beta Test, and showing them one or two little things, and encouraging them to play with it. Within a week, everybody knew how to do everything."

The following are some key components of the system:

### 1. Revenues increase.

"The system allowed us to find more than a million dollars of lost billing because it allows us to look at groups of patients instead of one patient at a time," says Feied.

The system brings billing and collection information into the light, so it lets you see what has been done wrong in the past. "This allows us to recapture billings we were previously losing," he says.

For example, often patients over 65 were labeled as uninsured/self pay when they had Medicare but were too ill to speak, he notes.

"Those cases were never being correctly billed or collected. Our system made it possible for us to recognize all patients over 65 were being registered as self-pay, and we can see what their previous insurance was.

## Executive Summary

A cutting-edge information system links patient data from the hospital mainframe, ED database, labs, the radiology department, and the billing department.

- With a single click, staff can access a patient's lab test results or X-rays from a current or previous ED visit
- The system has allowed the ED to absorb a 30% increase in volume without adding additional staff.
- The system provides a shortcut to obtaining lab results, which appear on the screen as soon as they are completed.

The problem solved itself overnight just by showing the clerks what was happening,” Feied explains.

## 2. **Quality improvement efforts are smoother.**

The system streamlines the ED’s quality improvement process, which regularly reviews groups of charts. “We query a certain group of patients we need — for example the acute MIs. Then we can pull those specific charts as opposed to a manual process where we literally look through 150 charts,” says **Therese Pearrell**, RN, MSN, director of the ED at Washington Hospital Center.

## 3. **The response time for callbacks is shorter.**

“As a director I get callbacks for patients who may have questions,” says Pearrell. “Or a physician may call to find out where their patient went to. The system gives us demographic information as well as the patient’s diagnosis or discharge. It’s very time-consuming to respond to many calls that come into the ED, so this is very helpful.”

For example, an HMO may want to know the disposition of eight patients who were all seen in the last five hours. “This way, you can pull up all the HMO’s patients and can immediately tell whether they were discharged or admitted and where they went,” she explains. “In the past, we’d have to find the patient’s chart, and the manual log may not have been up-to-date.”

## 4. **Nurses are prompted to give discharge instructions.**

The system reminds nurses to give specific discharge instructions and documents that patients received that information. Also, the instructions are printed out for the patient.

“This way, we don’t have forms all over the place for the multiple discharge instruction we give patients. This saves a lot of space, which we often are pressed for,” says Pearrell. ■

### Sources

- **Craig F. Feied**, MD, FACEP, FAAEM, Washington Hospital Center, Department of Emergency Medicine, 110 Irving St. N.W., Washington, DC 20010. Phone: (202) 877-7574. Fax: (202) 877 2468. E-mail: cfeied@ncemi.org.
- **Therese Pearrell**, RN, MSN, Washington Hospital Center, Department of Emergency Medicine, 110 Irving St. N.W., Washington, DC 20010. Phone: (202) 877-7699. Fax: (202) 877-2468. E-mail: ktp2@mhg.edu.

# System puts information at your fingertips

*Previous medical records available*

Thanks to a unique information system developed by ED physicians, staff can see a patient’s lab test results or X-rays from a current or previous ED visit with a single click, reports **Craig Feied**, MD, FACEP, FAAEM, director of informatics for Washington (DC) Hospital Center, one of the EDs where the system is used. Feied co-developed the system. “We can also see what medications were given, how long they were here, and what prescriptions were filled,” he says.

Here are three ways in which the system provides easy access to patient information:

## 1. **Patients’ previous medical records are available.**

One patient, who was intoxicated, came in with a seizure. His previous ED visits showed that he had been seen before for seizures and drug abuse. “The clinician normally would be tempted to assume it was a repeat seizure disorder and not give the patient a complete work-up,” says Feied. “However, with one click, we had access to every single diagnosis and procedure this patient had in our hospital since 1992.”

It turned out that the patient had a previous intercranial bleed and an aneurysm. “Suddenly the story was very different: The patient was having seizures because of an anatomical medical problem, and he also happens to drink. He had another CAT scan and recurrent bleeding in the brain and had brain surgery as a result. Without it, he most likely would have been sent home and died a couple days later,” Feied says.

## 2. **Lab results are available as soon as they are ready.**

The system offers a shortcut to obtaining lab results, which can cause significant delays. “Under the best of circumstances, stat labs take a half hour or an hour. And even when they do come back, they can get lost,” he says. “This is a shortcut because it bypasses everything and is a direct conduit between the doctor and the data.”

When lab results came back in two minutes for a patient being treated in the ED for congestive heart failure, they were flagged for extremely elevated potassium levels. “That was something that had not been suspected. The patient went into cardiac arrest just about the same moment the lab results came back,” he says.

Previously, the patient most likely would have died because the underlying cause would not have been

suspected, Feied notes. "The patient didn't have a history of renal failure or anything that would make you look for that. We would have thought he was having a heart attack. But because we knew the cardiac problem was coming from high potassium, we treated that

**The new system has allowed the ED to absorb a 30% increase in volume without adding additional staff.**

instead. In this case, the patient was resuscitated and did fine," he recalls.

With other systems, pulling up lab results requires bypassing multiple screens with other systems, notes **Therese Pearrell, RN, MSN**, director of the ED at

Washington Hospital Center. "You may need to go through several screens to get to the patient's lab result. But with this, you just click on the patient's name and can print a hard copy," she says.

Also, labs can be printed on a single sheet of paper. "So if a patient comes in who is hemodynamically unstable, I can marry it with the chart I'm sending with the patient upstairs to the cath lab, ICU, or wherever they're being transferred," she says. "Otherwise, you may have to print several screens from hematology or chemistry."

### 3. Delays in obtaining information are reduced.

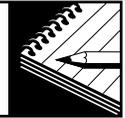
The system has allowed the ED to absorb a 30% increase in volume without adding additional staff, reports Feied. "It's cut our throughput time dramatically so that nearly 70% of our patients are seen and discharged within two hours."

When he and a colleague studied physician activity in the ED, they concluded that only a minority of physician time was spent in direct patient care activities. "About 60% of a clinician's time was actually spent seeking, acquiring, and recording information," he says.

Often, that information is difficult to obtain, he says. "It might be in the patient's old chart, or you may need to wait for lab results or go to a mainframe to look up. This way, all the information comes to one spot and is always there within 10 or 20 seconds of the time the information exists. Before the patient even comes back from X-ray, we have the image and the radiologist's reading on our screen."

Waits are shorter because ED staff have a better awareness of what's going on in other areas. "It used to be if we couldn't physically see something, we wouldn't be aware of it," he says. "We can now see that registration is getting behind, so a supervisor can come out and cover that." ■

## GUEST COLUMN



# Hot risk management tips: What you need to know

By **Sue Dill Calloway, RN, MSN, JD**  
Nurse Attorney  
Mount Carmel College of Nursing  
Columbus, OH

Most health care facilities have a designated person to perform risk management. However, every nurse also should practice good risk management skills.

This issue is so important that we were recently requested by our state's board of nursing to put together some educational material on this topic that could assist nurses in this area. We ended up making a videotape that listed 40 tips in risk management that every nurse should know. **(For videotape ordering information, see source box, p. 107.)**

Knowledge of legal and risk management issues can help minimize legal liability and can help keep nurses and their employees out of the courtroom.

Here are four of the recommendations discussed in the video:

### 1. Documentation.

Whenever I'm asked to speak to a group of nurses and physicians on liability issues, I'm often asked what is the best way to keep out of the courtroom. There are two issues that immediately come to mind; the first is optimal documentation.

When patients are upset about the care rendered, they will often seek the services of an attorney. The attorney will request a copy of the medical records and send them to an expert to review. That expert sitting in his or her office or home reading the medical records is where the decision is made to sue or not to sue.

### 2. Good public relations (PR).

The other recommendation that comes to mind is the importance of good PR and communication. The literature has consistently held that patient lawsuits result from bad PR. Patients get upset if billing mistakes are not corrected, call lights are not answered in a timely manner, and patients are not treated with dignity and respect.

### 3. Policies and procedures.

Many plaintiffs' attorneys subpoena the facility's policies and procedures. Every nurse should be familiar with them. The plaintiff's attorney will seek to use a policy to diminish the nurse's credibility if the plaintiff can establish that the nurse was not aware of a policy and did not follow his or her own institution's policy.

The policies should reflect the current standard of care. They should be reviewed periodically to make sure they are current. Policies should be clearly written and organized so they can be located easily if a nurse needs to review them. New policies should be posted along with policies that are changed.

### 4. Departmental communications.

Nurses should communicate optimally with other departments to avoid injuries. For example, consider that the nurse gives the patient morphine 5 mg IV and sends the patient to X-ray for an intravenous pyelography. The nurse needs to alert the radiology department of the medication so the staff can take appropriate precautions to avoid patient injuries such as falls. Critical lab values should be called to the nurse, who should communicate the results to the doctor.

Any canceled procedures also should be communicated to the physician. For example, a lawsuit was filed when a computed tomography's (CT) scanner was broken and the part was not going to be available for 24 hours. The patient had an order for a CT scan of the head. The next morning, the patient died from a cerebral bleed. The doctor would have sent the patient to another facility for the CT scan if he had known the machine was down.

Knowledge of legal and risk management issues can help reduce liability exposure for the nurse and his or her employer. Every nurse should practice effective risk management strategies to make the facility a safer place. ■

## Source

A videotape titled *Legal and Risk Management Issues in Nursing* addresses legal and risk management issues for nurses and lists 30 tips to help nurses stay out of the courtroom. Individual copies are available for \$91 plus \$5.23 sales tax and shipping charge of \$3.95. To order, contact:

- **Sue Dill Calloway**, RN, MSN, JD, Mount Carmel College of Nursing, 127 S. Davis Ave., Room 208, Columbus, OH 43222. Phone: (614) 234-5007. Fax: (614) 234-2892. E-mail: sdill@mchs.com.

## CE objectives

After reading this issue of *ED Management*, the continuing education participant should be able to:

1. Discuss and apply new information about various approaches to ED management. (See *Computerized system alerts docs to costs*, p. 100.)
2. Explain developments in the regulatory arena and how they apply to the ED setting.
3. Share acquired knowledge of these developments and advances with employees. (See *Do your staff know the cost of pharmaceuticals and lab tests?* cover story.)
4. Implement managerial procedures suggested in *ED Management* by your peers. (See *Are your staff spreading influenza to patients?* p. 103.) ■

**ED Management**® (ISSN 1044-9167) is published monthly by American Health Consultants®, 3525 Piedmont Road, N.E., Six Piedmont Center, Suite 400, Atlanta, GA 30305. Telephone: (404) 262-7436. Periodical postage paid at Atlanta, GA. POSTMASTER: Send address changes to **ED Management**®, P.O. Box 740059, Atlanta, GA 30374-9815.

**ED Management**® is approved for approximately 18 nursing contact hours. This offering is sponsored by American Health Consultants®, which 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. American Health Consultants® is accredited by the Accreditation Council for Continuing Medical Education to sponsor CME for physicians. American Health Consultants® designates this continuing medical education activity for 18 credit hours in Category 1 of the Physicians' Recognition Award of the American Medical Association. This activity was planned and produced in accordance with ACCME Essentials. **ED Management**® is also approved by the American College of Emergency Physicians for 18 hours of ACEP Category 1 credit. Physician members of American Health Consultants® 1999 Continuing Medical Education Council: Stephen A. Brunton, MD; Dan L. Longo, MD; Ken Noller, MD; Gregory Wise, MD and Fred Kauffman, MD, FACEP.

### Subscriber Information

**Customer Service:** (800) 688-2421 or fax (800) 284-3291 (customerservice@ahcpub.com). **Hours of operation:** 8:30 a.m.-6 p.m. M-Th; 8:30 a.m.-4:30 p.m. F, EST. Subscription rates: U.S.A., one year (12 issues), \$399. With 18 Category 1 CME hours, \$449. For 21 ANA hours, \$449. Outside U.S., add \$30 per year, total prepaid in U.S. funds. One to nine additional copies, \$319 per year; 10 or more additional copies, \$239 per year. Missing issues will be fulfilled by customer service free of charge when contacted within 1 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. Fax: (800) 284-3291. World Wide Web: <http://www.ahcpub.com>.

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.

**Editor:** Staci Bonner.  
**Group Publisher:** Brenda Mooney, (404) 262-5403, (brenda.mooney@medec.com).  
**Executive Editor:** Park Morgan, (404) 262-5460, (park.morgan@medec.com).  
**Managing Editor:** Joy Daughtery Dickinson, (912) 377-8044, (joy.daughtery@medec.com).  
**Production Editor:** Terri McIntosh.

### Editorial Questions

For questions or comments, call Joy Daughtery Dickinson, (912) 377-8044

Copyright © 1999 by American Health Consultants®. **ED Management**® is a registered trademark of American Health Consultants®. The trademark **ED Management**® is used herein under license. All rights reserved.

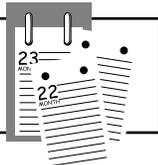
## Annual Compliance Institute comprehensive for all

Whether you are a veteran or new to health care corporate compliance, and whether you work in a hospital, home health agency, nursing home, or physician practice, the Health Care Compliance Association's 3rd Annual Compliance Institute will answer all your training needs.

This year's Institute, "Advanced Compliance: Discovering the Hallmarks of Effective Compliance Programs, a Critical Step in Compliance," scheduled for Oct. 24-27 at the Chicago Marriott, is designed to provide practical workshops for experienced compliance professionals. To assist those attending the Institute, HCCA has labeled all sessions as either basic, intermediate, or advanced. The Institute also will devote an entire track to case studies, offering specific examples on various aspects of compliance programs.

For the beginner, HCCA will offer Compliance 101, a three-hour compliance primer, during a pre-conference on Sunday, Oct. 24. To learn more about HCCA's Annual Compliance Institute or to register, call (888) 580-8373 or visit Conference Central on HCCA's Web site: [www.hcca-info.org](http://www.hcca-info.org) and register on-line. ■

## CALENDAR



• **Oct. 2: Emergency Observation Medicine, Cambridge, MA.** Sponsored by Harvard Medical School, Brigham and Women's Hospital, and Massachusetts General Hospital, all in Boston. For more information, contact: Harvard MED-CME, P.O. Box 825, Boston, MA 02117-0825. Phone: (617) 432-1525.

• **Oct. 3-6: Emergency Medicine into the 21st Century, Cambridge, MA.** Sponsored by Harvard Medical School, Brigham and Women's Hospital, and Massachusetts General Hospital, all in Boston. For more information, contact: Harvard MED-CME, P.O. Box 825, Boston, MA 02117-0825. Phone: (617) 432-1525.

• **Oct. 4-8: Medicolegal Death Investigator Training Course, St. Louis.** Sponsored by St. Louis University School of Medicine. For more information, contact: Julie Wiedemann, St. Louis University School

## EDITORIAL ADVISORY BOARD

**Executive Editor:**  
**Larry B. Mellick, MD, MS, FAAP, FACEP**  
 Chair and Professor  
 Department of Emergency Medicine  
 Director of Pediatric Emergency Medicine  
 Medical College of Georgia  
 Augusta, GA

**Nancy Auer, MD, FACEP**  
 Director of Emergency Services  
 Swedish Medical Center  
 Seattle

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

**Larry Bedard, MD, FACEP**  
 Director of Emergency Services  
 Doctors Medical Center  
 San Pablo and Pinole Campuses  
 San Pablo, CA  
 Pinole, CA

**William H. Cordell, MD, FACEP**  
 Director, Emergency Medicine  
 Research and Informatics  
 Methodist Hospital  
 Indiana University School of Medicine  
 Indianapolis

**Caral Edelberg, President**  
 Medical Management Resources  
 Jacksonville, FL

**James A. Espinosa, MD, FACEP, FFAFP**  
 Chairman, Emergency Department  
 Overlook Hospital, Summit, NJ  
 Director, Quality Improvement  
 Emergency Physicians Association

**Gregory L. Henry, MD, FACEP**  
 Clinical Professor  
 Section of Emergency Medicine,  
 Department of Surgery  
 University of Michigan Medical School  
 Vice President—Risk Management  
 Emergency Physicians Medical Group  
 Chief Executive Officer  
 Medical Practice Risk Assessment Inc.  
 Ann Arbor, MI  
 Past President, ACEP

**Maryfran Hughes, RN, MSN, CEN**  
 Nurse Manager  
 Emergency Department  
 Massachusetts General Hospital  
 Boston

**Tony Joseph, MD, MS, FACEP**  
 President  
 American Medical Consulting  
 Dublin, OH

**Marty Karpel, MPA**  
 Ambulatory Care Consultant  
 Karpel Consulting Group  
 Long Beach, CA

**Thom A. Mayer, MD, FACEP**  
 Chairman  
 Department of Emergency Medicine  
 Fairfax Hospital  
 Falls Church, VA

**Kathleen Michelle Regan-Donovan**  
 RN, BSN, CEN  
 Principal  
 Ambulatory Care Advisory Group  
 Chicago

**Richard Salluzzo, MD, FACEP**  
 Chief Medical Officer  
 Senior Vice President  
 for Medical Affairs  
 Conemaugh Health System  
 Johnstown, PA

**Norman J. Schneiderman, MD, FACEP**  
 Medical Director, Department  
 of Emergency Services  
 Trauma Center  
 Miami Valley Hospital  
 Associate Clinical Professor  
 Emergency Medicine  
 Wright State University  
 Dayton, OH

**Michael J. Williams, President**  
 The Abaris Group  
 Walnut Creek, CA

**Charlotte Yeh, MD, FACEP**  
 Medical Director, Medicare Policy  
 National Heritage Insurance Company  
 Hingham, MA

of Medicine, Forensic Pathology, 1402 S. Grand Blvd., St. Louis, MO 63104-1028. Phone: (314) 268-5970.

• **Oct. 4-8: Primary Training in Hyperbaric Medicine, Columbia, SC.** Sponsored by National Baromedical Services. For more information, contact: Tina Fernell, National Baromedical Services, 5 Richland Medical Park, Columbia SC 29203. Phone: (803) 434-7101.

• **Oct. 21: Emergency Management of AMI/Stroke 1999, Shrewsbury, MA.** Sponsored by the University of Massachusetts Medical School. For more information, contact: Continuing Medical Education Office, University of Massachusetts Medical School, 222 Maple Ave., Shrewsbury, MA 01545. Telephone: (508) 856-3041. ■