



# Management

The monthly update on Emergency Department Management

Vol. 12, No. 2

## Inside

- **Vaccinate minorities and the uninsured:** The result could be a significant reduction of costs. . . 16
- **Starting a vaccine program?** How to get nurse buy-in . . . . . 16
- **HCFA's switch to APCs:** You'll need to work with other departments to get ready. . . . . 17
- **Guest column:** Know the difference between current reimbursement and APCs. . . . 18
- **Journal reviews:** Ketamine overdoses; elderly ED patients; follow-up care . . . . . 20
- **Update on JCAHO:** New report on high-risk medications. . . . . 21
- **Timepieces in the trauma room:** Synchronize the clocks in your ED. . . . . 23

**In this issue:** Nurse order form and screening guidelines for vaccine program

February 2000

## Should you vaccinate patients in your ED? Check out these unique protocols

*ED vaccinations are controversial, but some hospitals report success*

When a patient comes to the ED, giving a flu vaccine may be the last thing on your mind, but successful ED vaccine programs suggest that skeptics should consider changing their way of thinking. However, ED immunization is controversial, says **David Slobodkin MD, MPH, FACEP**, assistant professor of health policy and administration at the school of public health at the University of Illinois at Chicago and an ED physician at Freeport (IL) Memorial Hospital.

"As a specialty, we feel that our first responsibility is to the minority of hyperacute, severely ill patients who 'belong' in the ED, such as myocardial infarctions and major trauma," says Slobodkin, who was the principal investigator for a study that demonstrated the success of an ED vaccine program at Cook County Hospital in Chicago.<sup>1</sup>

"When we are busy, we tend to feel hostility toward patients who 'could' or 'should' be seen in other settings, even when we know that the other settings are inconvenient or even unavailable to the patient because of lack of insurance," says Slobodkin. (See **related story on targeting uninsured, low-income patients with vaccine programs, p. 16.**)

### ED Management adds journal reviews

This issue of *ED Management* includes a new regular feature: journal reviews. Each month, we'll report on recently published research relevant to ED managers. This month, we cover ketamine overdoses in children, elderly patients' quality of life after an ED visit, and short-term follow-up after patients are discharged from the ED. We hope you enjoy this new feature.

Currently, only single-shot immunizations such as influenza and pneumococcal are feasible in the ED, Slobodkin explains. When vaccine registries become available, so a staff person can look up a patient's vaccination status by modem, other vaccinations also will be feasible, he adds.

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## Executive Summary

Although controversial, ED vaccination programs can successfully target minority, low-income, and uninsured populations.

- Without access to vaccination registries, only single-shot immunizations such as influenza and pneumococcal are feasible in the ED.
- For a vaccine program to be financially feasible, an ED needs a significant Medicaid population and low immunization rates in the community.
- Protocols for vaccine programs should delegate the responsibility to nursing with standing orders.

Large numbers of single-dose immunizations can be given in the ED successfully, Slobodkin stresses. “Completed vaccination status can be reasonably assumed for single-dose vaccines only,” he adds.

Flu and pneumococcal vaccines require only one shot rather than a whole series such as with hepatitis B, says **Jennifer Drew**, MSPH, data manager/analyst for the pneumococcal vaccine intervention project at Grady Health Systems in Atlanta. “So they are more appropriate for patients who may not seek care elsewhere or return for care to finish a vaccination series,” she explains.

Here are items to consider before starting an immunization program in your ED:

- **Consider cost issues.** An immunization program has to be financially feasible, stresses **Sandra Cunningham**, MD, FACEP, associate director of the pediatric ED at Jacobi Medical Center in Bronx, NY. “You need all the components to make it work,” she says, pointing out that key factors for success are a high enough Medicaid population and a low enough immunization rate.

Even though many immunizations, including flu and pneumococcal, cut costs for the community, Medicaid and HMO reimbursement for immunization in the ED is difficult to obtain, notes Slobodkin. “Medicare does reimburse for this, but ED physicians may not know that Medicare reimburses by roster billing or know how to bill in a cost-effective manner.”

“Roster billing” means that, unlike for most medical procedures, Medicare does not require a separate bill

for each influenza or pneumococcal immunization, he explains. “It is acceptable to send in a list of names, Social Security numbers, and the statement that each patient’s signature is on file. The immunizer will be paid in full for each beneficiary’s name.” Medicare representatives are willing to help providers with this process and will send examples of the relevant simple forms and walk providers through the process, says Slobodkin.

Because many ED managers don’t know about that option, they fear that if ED immunization catches on, they may some day be coerced or mandated to provide unreimbursed services, he adds. “If more ED directors learn to resolve this issue and obtain reimbursement from Medicare, they might be eager to make a few extra dollars per patient, rather than the current situation in which ED immunization means accepting a loss [to the ED] of several dollars per patient.”

It might be necessary to find a way to transfer money from the departments realizing savings from the program — such as pharmacy and internal medicine units — to the ED, which is providing the vaccine and labor, he suggests. At Cook County, the pharmacy supervisors agreed to provide all of the vaccines out of their budget, he notes.

- **Consider contraindications.** Severe allergy to eggs or a previous reaction to influenza immunization are the only absolute contraindications, Slobodkin notes. “Truly critical patients should probably be deferred, simply because immunization is a distraction from other emergently needed activities.”

High fever (more than 102 degrees) would be a good reason to defer immunization, as would severe transient immunosuppression, such as patients with acute chemotherapy-induced immunosuppression, he says. “But these relative contraindications should be weighed against the likelihood of the specific patient being immunized elsewhere.”

For many ED patients, the overwhelming risk is that they will not be immunized at all, rather than that they will suffer a vaccine failure, Slobodkin says.

- **Educate staff that access to child’s immunization records improves compliance.** At Jacobi Medical Center, researchers found that if parents had immunization records with them, or if ED staff were able to get the information from charts because the

## COMING IN FUTURE MONTHS

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child had been hospitalized, and it was shown that the child was underimmunized, parents were more likely to accept the immunization during that visit, says Cunningham.

Often, parents will think their children are up-to-date and won't want them to receive unneeded shots, Cunningham points out. "But in many cases, many of them were actually not up-to-date. Once they saw that, they would accept the immunization."

- **Address liability concerns about vaccinations.**

You may worry that immunization in the ED will set a legal standard or result in broad mandates to immunize certain classes of patients, but that is not the case, advises Slobodkin. "People often worry that if they start providing this kind of service, they may be inviting civil and/or regulatory liability, even though we already provide immunization against tetanus and rabies in EDs."

- **Administer flu and pneumococcal vaccines to adults.** Children have multidose vaccination schedules that are almost impossible to track from the ED without a vaccination registry, Slobodkin says. "Instead, think about flu and pneumococcal vaccination, which have tremendous bang for the buck and are single-dose immunizations that can be given fairly easily in the ED," he recommends.

Research on pediatric immunization in the ED has shown it can be difficult and of questionable benefit, given the general lack of records accessible to the ED, he says.<sup>2-4</sup> "Parent recall on status is poor," he adds.

However, research on adult immunization in the ED, specifically against flu and pneumococcal disease, has shown it can be done without disrupting the ED; there is a serious need among ED patients; it is well-accepted by the patients; and large numbers of patients can be reached in this way, Slobodkin adds.<sup>5-6</sup> (See **additional references on vaccines in the ED, p. 16.**)

- **Keep things simple.** Protocols for vaccine programs should delegate the responsibility to nursing, use standing orders, and keep things as simple as possible. "Immunization has to be made very easy, so that people don't feel that they are taking a lot of time or effort from other more urgent, although frequently less important, jobs," Slobodkin says.

- **Use standing orders.** Grady's vaccine program uses standing orders requiring nurses to screen patients for pneumococcal and influenza vaccine indications and physicians to assess for contraindications and order the vaccine when necessary, says Drew. (See **order form and guidelines, inserted in this issue.**)

- **Provide inservicing as needed.** Staff and MDs need to be inserviced repeatedly about the importance of the vaccines and the very low incidence of side effects, Slobodkin says. "Many misconceptions

abound, and they should be dealt with specifically, both in handouts or videos for patients [in terms understandable by low-literacy individuals] and in handouts for staff." Specific concerns about slowing down the ED need to be addressed, he emphasizes. (See **story on obtaining nursing buy-in, p. 16.**)

Immunization protocols have to be explained to all involved, including private attendings, he advises. "There may need to be a way for attendings to opt out of the program for their patients. In the private hospital where I work, very few attendings chose to do that. However, it is important to avoid ruffling political feathers."

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# Vaccine program targets low-income, uninsured

The primary benefit of vaccinating in the ED is that services provided in the ED reach minorities and the uninsured, who are very difficult to reach in other settings, says **David Slobodkin**, MD, MPH, FACEP, assistant professor of health policy and administration at the school of public health at the University of Illinois at Chicago and an ED physician at Freepoint (IL) Memorial Hospital.

It is cost-effective to vaccinate when the patient is already being seen for a health care problem and where large numbers of people can be seen in the same location, he notes.

Poor, uninsured patients often are in need of vaccinations and lack access to primary care, says **Jennifer Drew**, MSPH, data manager/analyst for the pneumococcal vaccine intervention project at Grady Health Systems in Atlanta.

## 5% had received pneumococcal vaccine

When Grady started a vaccine program, more than 50% of ED patients had vaccine indications, and only 5% had received the pneumococcal vaccine.

“Furthermore, almost 50% of the patients did not have a primary care provider,” Drew says. “Since many of these patients are using the ED as a primary care facility and have vaccine indications, the ED can offer a unique opportunity to improve the health of this population while also decreasing costs for an otherwise unreachable population.”

Many ED staff tend to resist doing anything “extra” for patients with non-urgent or chronic chief complaints, even though these patients make up the majority of ED patients, Slobodkin says. “We use the excuse that we would need to take time from our ‘real’ patients, even though that may not be true. The preventive intervention for the minor patient might be the most cost-effective thing that we could do in the ED.”

In a large urban ED, a single public health nurse in the waiting room might be able to vaccinate dozens of people per shift, he notes.

A vaccine program was started at Jacobi Medical Center in Bronx, NY, in response to low immunization rates found during a measles epidemic in 1991. **Sandra Cunningham**, MD, FACEP, associate director of the pediatric ED at Jacobi, says Bronx was one of the hardest hit areas. “From further investigation, they found out that children in this community had one of the poorest immunization rates in the city,” she says.

If immunization rates are adequate, and patients have good access to primary care, you may not need a program in the ED, Cunningham says. To determine your community’s immunization rates, contact your state department of health, she recommends. ■

# ED nurses may resist vaccination programs

When researchers at Grady Health Systems in Atlanta surveyed ED nursing staff’s knowledge, attitudes, and practices regarding pneumococcal vaccination, they found that nursing knowledge was limited, reports **Jennifer Drew**, MSPH, data manager/analyst for the ED’s pneumococcal vaccine intervention project.

Almost 90% of respondents agreed that ED nurses share in the responsibility of addressing the disease prevention needs of their patients, she notes. However, only 41% of nurses surveyed indicated that pneumococcal vaccination would be welcomed by the ED nursing staff, and about half (49%) responded that giving vaccines would hinder patient flow.

“This suggests that there would be some resistance from the nursing staff regarding the implementation of a vaccine initiative in the ED,” says Drew, whose ED currently gives flu and pneumococcal vaccines by protocol.

## Selected references on vaccines in the ED

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To help alleviate this problem, find an ED nurse to be the vaccine “champion,” which will help generate buy-in from the nursing staff, she recommends.

In big EDs, it may be cost-effective to have a nurse whose only job is immunization, suggests **David Slobodkin, MD, MPH, FACEP**, assistant professor of health policy and administration at the school of public health at the University of Illinois at Chicago and an ED physician at Freeport (IL) Memorial Hospital.

“That nurse might not need to come from the ED staff but could be from the local health department or hospital infection control or employee health,” he says.

If the duty of checking a patient’s immunization status and administering vaccines falls to staff nurses, it may be overlooked, advises **Sandra Cunningham,**

MD, FACEP, associate director of the pediatric ED at Jacobi Medical Center in Bronx, NY. “That job may become a nonpriority, so you may not be very successful,” she says. “We were funded by the state department of health to hire an immunization nurse, which was her only duty.”

If you perform a large number of immunizations, the program may pay for an immunization nurse, says Cunningham. In her case, the state department of health’s Vaccines for Children program pays for the vaccines, and Medicaid pays an administration fee. “Those fees would have paid for the nurse,” she explains. “So if you are in an area with poor immunization rates, then you could theoretically support an immunization program financially.” ■

## ED managers: Teamwork is key to success with APCs

Although the switch to ambulatory payment classifications (APCs) proposed by the Baltimore-based Health Care Financing Administration (HCFA) has been delayed, experts interviewed by *ED Management* warn that you need to prepare by collaborating with other hospital departments. Your success with APCs will depend on it, emphasizes **Caral Edelberg, CPC, CCS-P**, president of Medical Management Resources in Jacksonville, FL. (See guest column on APCs and prospective payment, p. 18.)

On Sept. 8, 1998, HCFA published proposed rules for the mandated prospective payment system and requested public comment. Recent amendments to the Balanced Budget Act specified a phased-in approach to APCs. “There will also be numerous revisions that spell relief for hospitals across the country,” reports Edelberg. (For more information about APCs, see *ED Management*, January 2000, p. 9, and August 1999, p. 85.)

“At this point in time, considering HCFA’s full plate of Y2K and APC issues, APC implementation by July 1, 2000, without extraordinary effort and risk of problems, seems unlikely,” she says.

Implementation by that date also would be politically troublesome, given the wide range of complaints and concerns voiced by providers and insurers, she notes. “The Health and Human Services Secretary is discouraged from implementation until more current data is available.”

Because of the delay, there is lots of speculation about implementation dates. “My guess is that HCFA will wait to see what Y2K issues arise after the first of

the year before scheduling revisions to the APC process,” says Edelberg.

Despite the delay, some experts are still predicting a July 2000 date for implementation. “As far as we know, the final rule is still supposed to be published by the end of February 2000,” states **Mason Smith, MD, FACEP**, president and CEO of Lynx Medical Systems, a Bellevue, WA-based consulting firm specializing in coding and reimbursement for emergency medicine. “If HCFA fails to do that, then we anticipate the final rule won’t be published until July 2000.”

The Medicare carriers will have to ensure that their systems and training will address the process as finally determined, notes Edelberg. “I can’t see it happening before fall 2000, and there is the potential for 2001.”

In the meantime, don’t put preparation on the back burner, she warns. “You should take time now to begin addressing the issues associated with APCs and the requirements they will place on documentation and coding of outpatient services.”

### Executive Summary

Collaboration with other departments is key to preparing for the switch to ambulatory payment classifications (APCs) proposed by the Health Care Financing Administration.

- Physician documentation will be critical to the overall success of your hospital’s experience with APCs.
- Late charges caused by hospital-related billing information depending on the physician diagnosis will not be paid.
- The APC system will require better cooperation among all hospital departments, including medical records and the billing office.

Prepare to meet the challenges of APCs in these three key areas, she advises:

- improved documentation of both physician and nursing services;
- assurances of efficient information flow to facilitate charge capture;
- timely claim submission of all charge information.

The delay in APCs provides time for ED managers to develop a more organized approach to the information flow from the ED to the business office, which will be dramatically affected by APCs, Edelberg predicts.

Here is what you should be doing to take advantage of the delay:

• **Meet with the coders in your billing office or medical records department.** Review the basic information needed to code the records appropriately.

“Many medical records departments continue to have problems with complete and/or legible medical records,” Edelberg notes.

• **Address late charges.** Ensure that ED charts are completed and sent to the medical records department so that the record can be reviewed for complete charge capture, she says. “This is not just for the physician information but the nursing information as well.”

If the physician records are held up, and hospital-related billing information is dependent on the physician diagnosis, it will hold up everything, she says. “Under APCs, all hospital charges will need to be reviewed and billed at the same time. Any late charges just won’t get paid.”

• **Prepare for interdependence between departments.** The APC system will mandate better cooperation among all hospital departments, she says. “The physician documentation will be critical to the overall success of each hospital’s experience with APCs.”

The medical records departments will have to make a fairly significant transition to a new process, she notes. “It is so unfortunate that so many hospitals have experienced staff reductions, particularly in medical records departments. You will need all the help you can get from medical records, working in cooperation with the business office, to ensure that coding is performed accurately and charges are paid.”

During such a dramatic transition, the business office will have to provide a significant amount of feedback to medical records on how charges are being paid by Medicare under the APC system, Edelberg says. “This is so that medical records [staff] can ensure that their coding is correct.”

Medical records should be provided with examples of payment remittances and inservices on how to read them if necessary, she explains. “Routine meetings between business office and medical records representatives should include discussion of payment problems

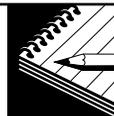
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resulting from code assignment.” Consider using a payment grid that lists the payment amounts by major payer for each of the major procedure codes or service types, with special notations on payment amounts when certain procedures or services are combined, she suggests. “In addition, it is helpful to maintain a list of diagnoses that are routinely downcoded as ‘non-emergencies’ to identify when claims are downcoded inappropriately.” Payers don’t often pass fair judgment on the medical necessity of emergency treatment and may need to be reminded about the prudent layperson standards of payment, Edelberg stresses.

In general, the transition to APCs promises to be difficult with limited time to gear up and fine-tune once the final rule is published, she says. “The key will be open communication between hospital departments with efficient recognition and resolution of problems as they occur.” ■

## GUEST COLUMN



# Know difference between APCs, current system

By **Mason Smith, MD, FACEP**

President and CEO

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**W**hat is the Medicare ambulatory payment classification (APC) system? Simply stated, APC is the name that the Health Care Financing Administration (HCFA) has given to its solution for prospectively paying hospitals for outpatient services provided to Medicare beneficiaries.

Please note that APCs have no relationship to ambulatory patient groups (APGs). HCFA considered, and then rejected, using the APG system of prospective payment. Similarity in the names of the two approaches has

left many administrators assuming the two methods were simply slightly different forms of the same method. They are not. APGs are a derivative of the diagnosis related groups (DRGs). APCs are a clone of the Medicare physician payment system.

APCs will replace the present cost-based method by which Medicare reimburses hospitals for outpatient services. The present method has been in use since the founding of the Medicare program in 1960s. Rapid and continued growth in Medicare outpatient expenditures caused major political concern throughout the last decade. Congress finally mandated a change from cost to prospective reimbursement in the Balanced Budget Act of 1997.

To grasp the magnitude of the change in the payment mechanism, one must appreciate the differences in the incentives between cost reimbursement and prospective payment. Let's start with an analogy.

### **Cost reimbursement**

Assume you are a college student, and your parents agree to pay your school costs. In this analogy, the student is a hospital outpatient department, and the parents are the Medicare program.

Medicare cost reimbursement is the equivalent of having the student turn in a report (cost report) to the parents so the parents can reimburse the student for his/her expenditures. The parents have established certain rules with the student as to what costs they will reimburse and what personal expenses they will not. But the only limits on reimbursement relate to the fact that the cost was incurred. It does not matter if the student selects an expensive private school or a low-cost public university. In either case, the parents reimburse whatever the tuition expense turns out to be. This is exactly how the Medicare program reimburses hospitals for their expenses related to ED care.

The student also incurs ancillary expenses, such as living expenses and books, and turns in an expense report to the parents that lists all expenses. To cover expenses, the parents provide a monthly stipend based on expected costs. This stipend is similar to the payment Medicare makes for outpatient services when the hospital bills for the service. Medicare's payment is only an advance payment — not the final amount that the hospital will receive. Later, after reviewing the expense report, excluding any inappropriate costs, the parents write a check or reduce future payments to the student for the allowed (approved) expenses.

Medicare follows the same procedure. Only Medicare is normally two or three years behind in completing the hospital cost report.

Prospective payment will work differently. The

parents agree to reimburse the student for each college course completed. The student will get a specific payment for each course based on value the parents have placed on each course. Like a fee schedule, different courses have different values. Value assigned to each

**Prospective payment will reward efficient low-cost providers and punish high-cost providers**

course might depend on the typical number of hours of course work, its difficulty, and its importance for graduation.

An efficient student can keep any money left over after the expenses associated with the course are paid. The parent does not

base reimbursement on the cost of the course but instead on the fact the course was completed. Because full-time student tuition covers an unlimited number of courses, productive students can increase their average net reimbursement per course by taking more courses.

In addition to paying a fixed amount for the course tuition, the parents also agree to pay a fixed price for books, supplies, lab fees, transportation, tutoring, computer fees, and other related expenses (ancillary expenses in the Medicare APC payment system). The student reports to the parents that he/she purchased a particular textbook. To reimburse the student, the parent looks up the retail price of the book in the reference list and writes a check for the amount shown in the reference list (Medicare Fee Schedule). The student's actual cost has no effect on the amount of the reimbursement the parents are willing to pay. In fact, the student can be paid substantially more or less than the cost of the book.

A frugal student can spend less money buying used books, and the parent will not care. This type of student will have extra money to spend on other "uncovered" expenses. If the student buys a full-price version of the same book, he/she actually may be reimbursed less than the actual cost of the book.

This analogy can help bring understanding to the very significant differences in incentives that are associated with reimbursement based on cost vs. fee schedule. APCs represent the transition from a cost-based reimbursement to a fee schedule method of reimbursement. Prospective reimbursement will reward efficient low-cost providers and punish high-cost providers.

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## JOURNAL REVIEWS

Green SM, Clark R, Hostetler MA, et al. **Inadvertent ketamine overdose in children: Clinical manifestations and outcome.** *Ann Emerg Med* 1999; 34:492-495.

To date, reported inadvertent overdose with ketamine has been uncommon, but overdose might increase with the growing popularity of the drug, according to this study. The researchers studied nine cases of inadvertent ketamine overdose in children treated in the ED.

Patients received five, 10, or 100 times the intended dose, either by the intramuscular or intravenous route. All nine patients experienced prolonged sedation of three to 24 hours. Four experienced brief respiratory depression shortly after administration, and assisted ventilation was performed in two. Two children without respiratory difficulty or hypoxemia were intubated by their physicians as a precaution. In five children, the dosing error was not discovered until late in the sedation, often when the child was not waking at the expected time.

No adverse outcomes were noted, and all children were normal neurologically on discharge and longer-term follow-up, where available.

ED physicians must be prepared to encounter inadvertent ketamine overdoses, the researchers warn. "The first attention of the physician should be directed at airway maintenance and assessment of oxygen saturation, especially in the first 5-10 minutes after administration, when the risk may be greatest," they say. They also suggest that physicians should be prepared to monitor the child closely during an extended recovery period, either in the ED or the pediatric ICU.

The margin of safety in ketamine overdose may be wide, but less common and more serious outcomes, such as life-threatening adverse events and even death, cannot be excluded by this small self-reported sample, they say. ▼

Chin MH, Jin L, Karrison TG, et al. **Older patients' health-related quality of life around an episode of emergency illness.** *Ann Emerg Med* 1999; 34:595-603.

For elderly patients, a visit to the ED can represent a sentinel event indicating an inadequate care plan or support system in the outpatient setting, according to this research from the University of Chicago.

The researchers studied 983 patients 65 years or older who presented to an urban academic ED. The health-related quality of life during a 40-month period

surrounding a visit to the ED was studied, and factors associated with less recovery were identified.

Elderly patients are at high risk for poor outcomes because they often have multiple medical, social, and economic problems. In general, patients worsened markedly after a visit to the ED and then improved, although not to baseline levels.

To target those at greatest risk for poor recovery, ED physicians should inquire about functional status of elderly patients and the adequacy of help at home for acutely ill older patients, the researchers say. Baseline functional impairment, lack of adequate help, and increasing morbidity were the most consistent predictors of poor recovery from the emergency illness, they report.

"Patients with problems in these areas may be particularly likely to benefit from re-evaluation of their medical and social plans of care." ▼

Barlas D, Homan CS, Rakowski J, et al. **How well do patients obtain short-term follow-up after discharge from the emergency department?** *Ann Emerg Med* 1999; 34:610-614.

Many patients discharged from the ED who were believed to be at risk for clinical deterioration did not obtain medical follow-up within 48 hours when instructed to do so, according to this study from the State University of New York University Medical Center at Stony Brook.

The study looked at the follow-up rate of discharged ED patients to find out why patients fail to obtain follow-up. Of 300 patients, 68% obtained follow-up. Inability to obtain an appointment was cited by 34% of patients who did not obtain follow-up care.

Free ED follow-up resulted in a better rate of short-term follow-up than that for clinical and private physicians. "This may be especially useful if a patient's ability to obtain follow-up is uncertain or if timely re-evaluation is particularly imperative," say the researchers.

Poor access discourages patients from seeking outpatient care on short notice and makes the ED an attractive alternative, especially for patients receiving Medicaid, uninsured patients, and, to a lesser degree, those with commercial insurance.

ED physicians shouldn't assume that patients will be able to obtain recommended care, suggest the researchers. "We also suggest that free ED follow-up should be considered for those with financial constraints, for those for whom close follow-up is particularly imperative, and for those seek follow-up with provider with whom appointments are known to be difficult to obtain." ■

# Joint Commission

## Joint Commission IDs five high-alert meds

Five high-risk medications frequently result in harm to patients, according to a new bulletin released by the Joint Commission on Accreditation of Healthcare Organizations in Oakbrook Terrace, IL. Both the Joint Commission and the Huntingdon Valley, PA-based Institute for Safe Medication Practices (ISMP) have identified similar problems with medications.<sup>1</sup>

The Joint Commission began tracking sentinel events in 1995, reviewing 89 cases related to medication errors so far. The findings are presented in a Joint Commission Sentinel Event Alert about medication errors. (See source box at right for information on how to obtain a copy of the bulletin.)

### Another study backs results

Similar findings were found in an ISMP study, the 1996 Benchmarking Project, which culled data on serious medication errors from 161 health care organizations. That report showed that a majority of medication errors resulting in death or serious injury were caused by a specific list of medications. The five "high-alert medications" are as follows:

1. insulin;
2. opiates and narcotics;
3. injectable potassium chloride (or phosphate) concentrate;

### Executive Summary

The Joint Commission on Accreditation of Healthcare Organizations has issued a bulletin listing "high-alert" medications that have the highest risk of causing injury when misused.

- The five high-alert medications are insulin, opiates and narcotics, injectable potassium chloride (or phosphate) concentrate, intravenous anticoagulants (heparin), and sodium chloride solutions above 0.9%.
- The Joint Commission recommends strategies such as a system that confirms the correct drug, dosage, patient, time, and route.

### Sources

Single copies of the 1996 Benchmarking Project report are available at no charge. For more information, contact:

- **Institute for Safe Medication Practices**, 1800 Byberry Road, Suite 810, Huntingdon Valley, PA 19006. Telephone: (215) 947-7797. Fax: (215) 914-1492. E-mail: ismpinfo@ismp.org.

The Nov. 19, 1999, Sentinel Event Alert titled "High Alert Medications and Patient Safety" can be found on the Web site for the Joint Commission on Accreditation of Healthcare Organizations: [www.jcaho.org](http://www.jcaho.org). Or copies can be obtained from the customer service department at no charge. Also, a publication titled *Medication Use: A Systems Approach to Reducing Errors* is available for \$60 plus \$9.95 for shipping and handling. For more information, contact:

- **Joint Commission on Accreditation of Healthcare Organizations**, P.O. Box 75751, Chicago, IL 60675-5751. Telephone: (630) 792-5800. Fax: (800) 676-3299 or (302) 678-9200. E-mail: ebryant@jcaho.org.

4. intravenous anticoagulants (heparin);
5. sodium chloride solutions above 0.9%.

Both organizations found that those five medications — combined with certain situations — repeatedly resulted in errors, producing poor outcomes for patients. The errors could be avoided by implementing specific practices, according to the bulletin. (See chart, "High-alert Medications and Patient Safety," p. 22.)

In addition, here are some general strategies recommended by the Joint Commission:

1. Have systems in place to confirm that the correct patient is getting the correct drug, in the correct dosage, at the correct times, by the correct route.
2. Have policies and procedures for ordering, preparing, dispensing, administering, and monitoring of medications.
3. Review your storage, access, administrations, and patient monitoring procedures to determine whether there is a risk of a medication error. If there is, take steps to reduce the risk.

### Reference

1. Cohen MR, Proux SM, Crawford SY, et al. Survey of hospital systems and common serious medication errors. *J Health Care Risk Management* 1998; 18:16-27. ■

# High-Alert Medications and Patient Safety

DRUG	COMMON RISK FACTORS	SUGGESTED STRATEGIES
Insulin	<ul style="list-style-type: none"> <li>• Lack of dose check systems</li> <li>• Insulin and heparin vials kept in close proximity to each other on a nursing unit, leading to mix-ups</li> <li>• Use of “U” as an abbreviation for units (which can be confused with “O,” resulting in a tenfold overdose)</li> <li>• Incorrect rates being programmed into an infusion pump</li> </ul>	<ul style="list-style-type: none"> <li>• Establish a check system whereby one nurse prepares the dose and another nurse reviews it</li> <li>• Do not store insulin and heparin near each other</li> <li>• Spell out the word “units” instead of writing “U”</li> <li>• Build in an independent check system for infusion pump rates and concentration settings</li> </ul>
Opiates and narcotics	<ul style="list-style-type: none"> <li>• Parenteral narcotics stored in nursing areas as floor stock</li> <li>• Confusion between hydromorphone and morphine</li> <li>• Patient-controlled analgesia (PCA) errors regarding concentration and rate</li> </ul>	<ul style="list-style-type: none"> <li>• Limit the opiates and narcotics available in floor stock</li> <li>• Educate staff about hydromorphone and morphine mix-ups</li> <li>• Implement PCA protocols that include double-checks of the drug, pump setting, and dosage</li> </ul>
Injectable potassium chloride or phosphate concentrate	<ul style="list-style-type: none"> <li>• Storing concentrated potassium chloride/phosphate outside of the pharmacy</li> <li>• Mixing potassium chloride/phosphate extemporaneously</li> <li>• Requests for unusual concentrations</li> </ul>	<ul style="list-style-type: none"> <li>• Remove potassium chloride/phosphate from floor stock</li> <li>• Move drug preparation off units and use commercially available premixed IV solutions</li> <li>• Standardize and limit drug concentrations</li> </ul>
Intravenous anticoagulants (heparin)	<ul style="list-style-type: none"> <li>• Unclear labeling regarding concentration and total volume</li> <li>• Multi-dose containers</li> <li>• Confusion between heparin and insulin due to similar measurement units and proximity</li> </ul>	<ul style="list-style-type: none"> <li>• Standardize concentrations and use premixed solutions</li> <li>• Use only single-dose containers</li> <li>• Separate heparin and insulin and remove heparin from the top of medication carts</li> </ul>
Sodium chloride solutions above 0.9%	<ul style="list-style-type: none"> <li>• Storing sodium chloride solutions (above 0.9%) on nursing units</li> <li>• Large number of concentrations/formulations available</li> <li>• No double-check system in place</li> </ul>	<ul style="list-style-type: none"> <li>• Limit access of sodium chloride solutions (above 0.9%) and remove from nursing units</li> <li>• Standardize and limit drug concentrations</li> <li>• Double-check pump rate, drug, concentration, and line attachments</li> </ul>

Source: Joint Commission on Accreditation of Healthcare Organizations, Oakbrook Terrace, IL.

# Synchronize timepieces in your trauma room

Timepieces are probably inaccurate in your ED, which can result in serious problems, both medically and legally, warns **Joseph P. Ornato, MD, FACC, FACEP**, professor and chairman of the department of emergency medicine at the Medical College of Virginia Hospitals in Richmond.

Research has demonstrated that ED timepieces often are inaccurate and result in poor documentation.<sup>1</sup> "As a result, the documentation from a critical event [such as major trauma resuscitation or cardiac arrest resuscitation] will contain inaccuracies, which can have devastating effects," says Ornato, the principal investigator for a study examining timepieces in the ED.

Resuscitation emergencies usually involve many timepieces and many events in a short time period; inaccuracies make it impossible to reconstruct the order of events accurately, he says. Such flaws in the data might make it difficult to reconstruct the events later. "Or worse yet, flaws can make it appear as though certain actions were delayed or done out of the normal sequence. This creates both medical and medicolegal problems," he explains.

He offers this example: A patient is delivered to the ED at an accurate time of 5 p.m., which is documented by the 911 center when the paramedics call in to say they are at the hospital. "If the patient is in ventricular fibrillation, and the physician shocks the patient in the first 30 seconds after arrival, but the nurse documents the time as 5:05, it medicolegally and medically looks like there was an uncalled-for delay in defibrillation."

Staff can be instructed to synchronize their timepieces by calling the number that announces the atomic clock time every 10 seconds, he advises. "But ideally,

## Executive Summary

Timepieces are probably inaccurate in your ED, and that can have serious consequences during critical events such as major trauma and cardiac arrest resuscitation.

- During resuscitations, multiple timepieces are used, and many events occur in a short period of time.
- Inaccuracies make it impossible to reconstruct the order of events accurately, which increases liability risks in the event of a lawsuit.
- Staff can synchronize their timepieces by calling the local number that announces the atomic clock time every 10 seconds; ideally, however, all clocks should be set universally by a central server.

## Sources

For additional information about synchronization of timepieces, contact:

- **Joseph P. Ornato, MD, FACC, FACEP**, Department of Emergency Medicine, Medical College of Virginia Hospitals, Main Hospital, G 503, 401 N. 12th St., P.O. Box 980401, Richmond, VA 23298. Telephone: (804) 828-4859. Fax: (804) 828-4686. E-mail: ornato@aol.com.

For an announcement of the current atomic clock time, contact:

- **Time Service Department**, United States Naval Observatory, Washington, DC. Telephone: (202) 762-1401.

all clocks should be set universally by a central server." Computers can be programmed to dial and download the correct time automatically into their timepieces from the atomic clock on a daily basis, Ornato notes.

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Synchronization to the atomic clock can reduce the problem significantly, he says. "However, our study showed that the effects of a one-time attempted synchronization event are short-lived. A continuous program is needed." A continuous program must include periodic synchronization of all timepieces to the atomic clock; ideally, that should be done daily, but monthly updates are more feasible and practical. In addition, a log book should record how far off each timepiece is each month, he advises. "That way, anyone could retrospectively on a given call determine how much maximum error existed in documenting a specific event."

## Reference

1. Ornato JP, Doctor ML, Harbour LF, et al. Synchronization of timepieces to the atomic clock in an urban emergency medical services system. *Ann Emerg Med* 1998; 31:483-487. ■

## 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 *Should you vaccinate patients in your ED? Take a look at these unique protocols*, p. 13; *Journal Reviews*, p. 20; *Joint Commission Update: Bulletin on high-alert meds*, p. 21.)
2. Explain developments in the regulatory arena and how they apply to the ED setting. (See *ED managers: Teamwork is key to success with APCs*, p. 17.)
3. Share acquired knowledge of these developments and advances with employees.
4. Implement managerial procedures suggested by your peers in the publication. ■

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