



Management[®]

The monthly update on Emergency Department Management



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EDs slash unnecessary visits using interfaced computers, common protocols

Project aimed at boosting safety net pays financial dividends

Three Lincoln, NE-based EDs have joined forces to tackle two of the most nagging problems facing emergency departments today: The use of EDs for primary care services, and the growing number of uninsured or underinsured patients seeking emergency care.

The program, named Lincoln ED Connections, was designed to improve "safety net" services for the local population by finding them primary care "homes" with providers. How serious was the problem? In a 12-month period, the 12 people who made the highest number of visits to the two EDs resulted in \$231,869 in unreimbursed care, according to **Ruth Radenslaben**, ED manager at Bryan Lincoln General Hospital (LGH) Medical Center. She oversees two EDs: one at Bryan LGH East, and another at Bryan LGH West.

Lincoln ED Connections officially began seeing patients in October 2005, she says. In the 12 months prior to enrolling, 34 patients made a total of 377 visits to Lincoln EDs, which is more than a visit a day by at least one of them. One such "frequent flier" made 96 trips to the two EDs.

In the first three months of the new program, those frequent flier visits have been reduced to 40. At an annualized figure of 160, that would represent more than a 50% reduction.

The program got its impetus when Bryan was involved in a grant several years ago from the Robert Wood Johnson Foundation several years ago that involved internal and communitywide data collection, Radenslaben recalls.

Executive Summary

Foundation funding and teamwork with your competitors can be a powerful combination: Three Lincoln, NE-based EDs have cut unnecessary visits by two-thirds.

- Interface your computer systems so that all participating EDs have common information about the targeted patient population.
- Involve your information technology and privacy experts from day one of the program.
- Implement case management for consistent treatment of patients and to serve as liaison with primary care providers.

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“One thing we learned was we had to improve the safety net service to the community, and they suggested we do it cooperatively with St. Elizabeth [Regional Medical Center],” she says. They found there wasn’t formal collaboration between safety net providers, Radenslaben says. “Access to primary care was limited, and we needed a better referral mechanism for patients who did not have medical homes.”

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Editorial Questions

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In the summer of 2004, Bryan started working with Community Health Endowment, a dollar-granting group for the city, and with St. Elizabeth to get a better idea of the needs that existed. They learned that the potential safety net for nonemergent needs included primary care providers, and two public centers: The Urban Indian Center, a primary care center run by the Nebraska Urban Indian Health Coalition, and the People’s Health Center, a federally qualified health center (Medicare fee-for-service). Principal collaborators in creating the center were the Lincoln Lancaster Health Department, local hospitals, the University of Nebraska Dental School, the Lincoln Medical Education Program/Family Practice Residency Program, and community mental health centers.

The EDs eventually received a \$300,000 grant from the Community Health Endowment. That money was used to cover the labor costs of the case managers for three years, says **Libby Raetz, RN**, the ED director at St. Elizabeth. Each ED campus has an RN case manager and a social services case manager. “Each of the hospitals contributed in-kind services: ED management, oversight by each facility, human resources, IT [information technology], and legal,” she says.

Health Insurance Portability and Accountability Act (HIPAA) representatives also were active on both campuses, adds Radenslaben. “Putting this program together involved very close communication between the two facilities,” she explains. Any ED manager considering a similar program should get these departments involved early in the project, she recommends.

At Bryan, the nursing case manager had been an ED nurse prior to moving into that position. The ED nurse was very aware of the types of problems the ED faced and had a good working knowledge of the EDs involved, Radenslaben says. “The non-nurse case manager brought us the community resource background that was needed; they have made a very good team,” she adds, noting that both case managers work the same shift.

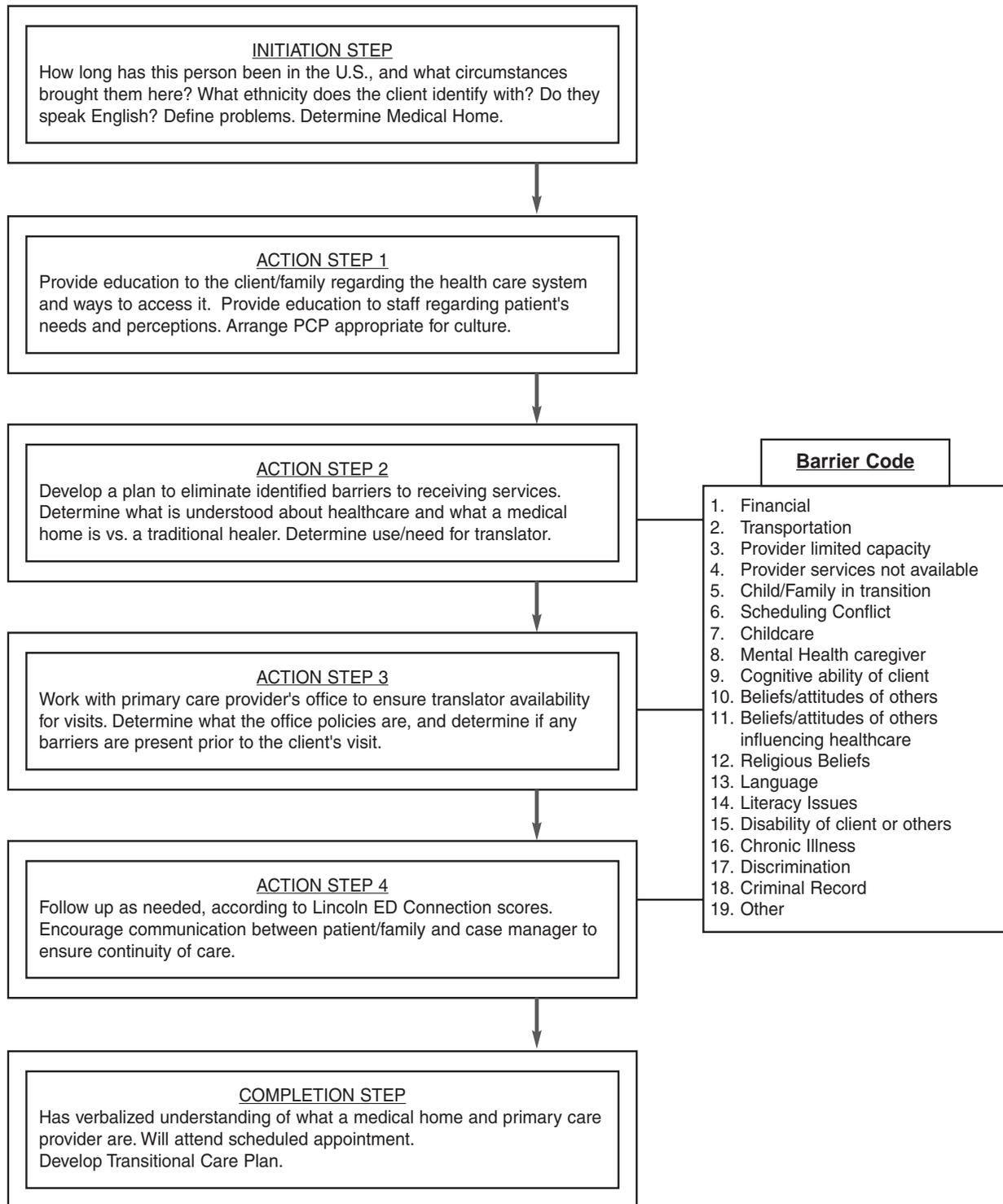
The case managers put together common pathways for both facilities. **(See chart of one example, a cultural pathway, on p. 39.)** “This enabled us to quickly determine what the patients’ issues were and to treat them on a consistent basis,” says Radenslaben.

The EDs also involved patient family representatives, to ensure all processes were ethical, as well as representatives from Community Health Endowment. “They agreed to be our facilitator and also helped put us in touch with several different communities who had put together programs similar to what we were thinking about, which was very helpful,” says Radenslaben. **(For more information about these programs, see resource box, p. 40.)**

After gathering data on the highest utilizers, the team decided to open the program to any uninsured child

Continued on page 40

Cultural Pathway



This is a sample of a pathway used by the Lincoln, NE, EDs as part of their joint Lincoln ED Connections program. The main thrust of this cultural pathway is matching patients with providers familiar with their culture. The items off to the right indicate barriers that might be an issue for this patient. The number of barriers indicate the level of intervention needed for this patient. Barriers are re-evaluated as the patient moves through the program and are one way of measuring success with the program.

Source: Bryan Lincoln General Hospital, Lincoln, NE.

Sources/Resources

For more information on reducing unnecessary ED visits, contact:

- **Ruth Radenslaben**, ED Manager, Bryan Lincoln General Hospital Medical Center, Lincoln, NE. Phone: (402) 481-5604. E-mail: ruth.radenslaben@bryanlgh.org.
- **Libby Raetz**, RN, ED Director, Saint Elizabeth Regional Medical Center, 555 S. 70th St., Lincoln, NE 68510. Phone: (402) 219-7045.

For more information on community safety net programs, contact:

- **Dyad Case Management Program**, Wake Forest University Baptist Medical Center, Medical Center Boulevard, Winston-Salem, NC. Phone: (800) 446-2255.
- **ED Frequent User Program**, San Francisco General Hospital, 1001 Potrero Ave., San Francisco, CA 94110. Phone: (415) 206-8000.
- **Project Access**, 1102 S. Hillside, Wichita, KS 67211. Phone: (316) 688-0600.

younger than 18, and anyone 18 and older with chronic illness diagnoses, or mental health diagnoses, Raetz says.

Any patients who visit the EDs a total of three or more times in six months make the “A list,” which triggers a call from one of the case managers to explain the benefits of the program (free care), how they can receive better health care, and what to do if they choose to enroll, she says. “If they do enroll, the case manager can pull up their record, see their discharge diagnoses, and they can be case managed,” Raetz says. The program is completely voluntary for patients.

The ED managers have worked with physicians’ offices and social services to let them know they have this program, Radenslaben says. “When the RN case manager gets the patient in the system and puts together a plan, they then make an appointment for the patient to follow up with a primary care provider.”

Raetz says one of the most positive aspects of the program is that they want the patient to present on the initial or ongoing visit to their primary care physician already packaged — “that is, they will have an RN case manager with them, they will have all their medical records with them, a list of their medical problems, and a meds sheet.” So far, the case managers have been able to attend every first visit as a natural part of their workload, says Raetz. “They know the date and time, and they just make it part of their calendar,” she explains.

Because the ED’s computer systems are linked by an interface that was created in-house, an enrolled patient presents a “flag” when they tell the staff they are part of Lincoln ED Connections. “When the flag comes up, you will also see the case manager’s comment field,” says Raetz. “It may say something like, ‘Being weaned

off Dilaudid [hydromorphone hydrochloride], please don’t prescribe.’”

To make sure the program stays on track, an oversight council, made up of physicians, other safety net providers, the health department, and the fire department EMS, meets quarterly to review program.

While the program is only a few months old, Raetz and Radenslaben are encouraged. While they are seeing financial savings, they not ready to disclose an actual figure. “We want to have three quarters under our belt,” Raetz says. “We have to make [savings] happen to show sustainability, because in three years, the funding will be gone.”

“The plan would be that based on the savings from the program that the two hospitals would take over the total cost,” adds Radenslaben.

It’s benefiting the ED in terms of slowing down the number of patients they’ve seen in the ED for nonemergent issues, Radenslaben says. “We believe it will have an impact on flow, as well as on unreimbursed care.”

Since similar programs and foundations exist in many areas of the country, this program could be replicated by EDs, says Raetz. “If I were an administrator and I saw that if I could get 11 people corralled [into a program like this] and save \$250,000, I could certainly hire a case manager and afford it,” she says. ■

New coma scale offers option to Glasgow

Ease of use, accurate prediction of mortality touted

Researchers at the Mayo Clinic College of Medicine in Rochester, NY, have created a new coma scale they say is superior to the commonly used Glasgow Coma Scale (GSC). The new scale, called the FOUR (Full Outline of UnResponsiveness) Score, is detailed in

Executive Summary

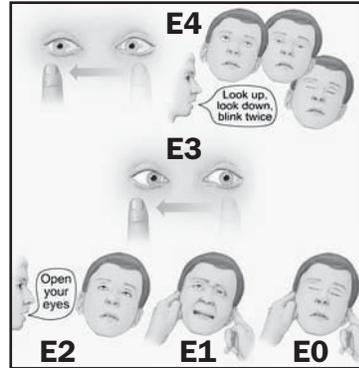
A new coma scale called the FOUR Score may provide ED managers with an alternative to the Glasgow Coma Scale. Here are some of the advantages it offers:

- the ability to test brainstem reflexes to obtain a clearer picture of neurological status, according to the scale’s developer;
- greater simplicity. In the new scale, every component has a maximal score of 4. In the Glasgow Coma Scale, the maximal number varies with each component;
- the ability to learn more about the condition of intubated patients than you can with the Glasgow Coma Scale.

FOUR Score

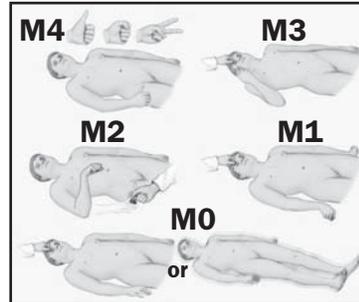
Eye Response

- 4 Eyelids open or opened, tracking or blinking to command
- 3 Eyelids open but not tracking
- 2 Eyelids closed but opens to loud voice
- 1 Eyelids closed but opens to pain
- 0 Eyelids remain closed with pain



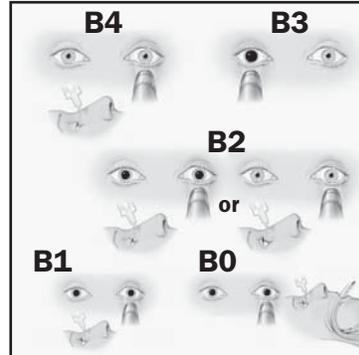
Motor Response

- 4 Thumbs up, fist, or peace sign to command
- 3 Localizing to pain
- 2 Flexion response to pain
- 1 Extensor posturing
- 0 No response to pain or generalized myoclonus status epilepticus



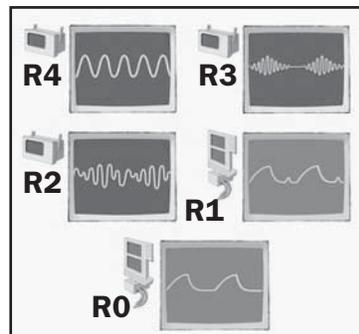
Brainstem Reflexes

- 4 Pupil and corneal reflexes present
- 3 One pupil wide and fixed
- 2 Pupil or corneal reflexes absent
- 1 Pupil and corneal reflexes absent
- 0 Absent pupil, corneal, and cough reflex



Respiration

- 4 Not intubated, regular breathing pattern
- 3 Not intubated, Cheyne-Stokes breathing pattern
- 2 Not intubated, irregular breathing pattern
- 1 Breathes above ventilator rate
- 0 Breathes at ventilator rate or apnea



Wijdicks EFM, Bamlet WR, Maramattom BV, Manno EM, McClelland RL. Validation of a new Coma Scale: the FOUR score. *Annals of Neurology*, 2005, 58:585-593

a recent article in the *Annals of Neurology*.¹

The “four” in the title refers to the number of components in the test — eye response, motor response, brainstem reflexes, and respiration — and the maximum score that can be given in each component (ranked from 0-4, with 0 being the lowest score).

“There are major limitations with GCS,” including the failure to assess the verbal score of intubated patients and the inability to test brainstem reflexes, says **Eelco F.M. Wijdicks**, MD, professor of neurology at Mayo Medical School and the lead author of the paper. “The findings do not really represent the neurologic status of the patient.”

Alan Katz, MD, FACEP, assistant chair of the Department of Emergency Medicine at New York Hospital Queens in Flushing, agrees. “In general, the GCS is really being used beyond what it was designed to be used for,” he says. “In the ’70s, when it first came out, we were supposed to look at patients for six hours post-injury; now it is used for points beyond that,” Katz says. It has very low interrelator reliability, which indicates the extent of agreement among those rating that which is being studied. “Besides that, you can have the same score on your desk as would a [healthy] live person, or a drunk, or a severely injured person,” Katz says.

New scale’s advantages

The GCS uses only eye response, motor response, and verbal response. Wijdicks says the new scale has added components “to give us a much better idea of how severe the brain damage is and of the expected prognosis of the patient.” In addition, he says, his scale is simpler, as four is always the maximal number, while GCS has different numbers for different components.

“The eye components [of our scale], instead of only addressing eye opening, adds visual tracking, which would identify not only locked-in syndrome, but also a persistent vegetative state,” Wijdicks says.

The most significant findings of his study include the fact that while the scale is more complex, it is very easily trained and learned, he adds. “The major finding is there is good interobserver agreement between ICU nurses, residents, and intensivists, and it is a better predictor of in-hospital mortality,” Wijdicks says. For a GCS of 3, they found more than 20 scores in their new rating system that corresponded to that, “so we could identify many more subtleties, and we had a 20% better prediction of in-hospital mortality,” he says. “That’s expected because our scale looks at the important component of brainstem reflexes, including signs of increased intracranial pressure — and the need to do something about it — and identifies difficulties with breathing.”

At press time, Wijdicks said he was going to repeat

Sources

For more information on coma scales, contact:

- **John Duldner**, MD, FACEP, Director of Research, Department of Emergency Medicine, Akron General Medical Center, 400 Wabash Ave., Akron, OH 44307. Phone: (330) 344-2044.
- **Alan Katz**, MD, FACEP, Assistant Chair, Department of Emergency Medicine, New York Hospital Queens, 56-45 Main St., Flushing, NY. Phone: (718) 670-1231.
- **Eelco F.M. Wijdicks**, MD, Professor of Neurology, Mayo Medical School, Rochester, MN. E-mail: wijde@mayo.edu.

the study in the ED in the next couple of weeks.

Support not universal

Wijdicks asserts enormous momentum for his scale since the paper was published, and he says several major institutions are adopting it. These facilities include Akron (OH) General Medical Center, which has just begun to use it in the ED and with Emergency Management Services and has plans to also use it in helicopter transport.

John Duldner, MD, FACEP, director of research in the Department of Emergency Medicine at Akron, says, “The GSC is a fine tool, but in certain situations, such as when the patient is intubated, you lose one-third of the value of the GCS [i.e., the verbal score] and you need another tool. Plus, if the patients are transferred to the ICU, the staff there will be able to repeat the test over time and do a numerical timeline of the patient’s condition.”

Katz, however, has his doubts about how helpful the scale would be. In general, four components are harder to remember than three, and very few ED physicians even know the GCS components, he says. “Would you even remember four minutes after this exam if this was a 3 or if this was a 4? They are proud to say their interrater reliability is the same as that for GCS, but in multiple studies, I’ve seen no interrater reliability in GCS.”

He does concede that having a measure of brainstem reflexes makes the FOUR Score more helpful than the GCS and that it makes sense that this measure helps more accurately predict in-hospital mortality. However, “you could just look at brain stem indicators and get rid of everything else,” he says.

Wijdicks maintains, however, that this scale would give ED managers a more comprehensive patient evaluation. No scale replaces a neurological exam, he concedes, “but we took the bare essentials and put them in a scale while maintaining simplicity. That simplicity is

its most important feature.”

Katz strongly disagrees. “This is very difficult to memorize or to do,” he asserts. “It will require a little bit more work to get anyone even on the same page, and in EDs it will be horrific.”

Reference

1. Wijdicks EFM, Bamlet WR, Maramattom BV. Validation of a new coma scale: The FOUR score. *Ann Neurol* 2005; 58(4):585-593. ■

Diversions worsening, trend may continue

ED managers must be proactive to reduce hours

Two studies to be published in the April 2006 edition of *Annals of Emergency Medicine*^{1,2} indicate that the ambulance diversion problem in America has become even more serious — and is growing steadily worse.

Centers for Disease Control and Prevention (CDC) researchers, in the first national study of ambulance diversions, found about one ambulance every minute in the United States is diverted from its originally intended ED because it was overcrowded and could not safely care for another sick or injured patient. The research is based on the 2003 National Hospital Ambulatory Medical Care Survey, an annual probability sample survey of U.S. hospital EDs and outpatient departments.

“I think the trends with ambulance diversion are concerning and indicate the capacity problems we see in hospitals aren’t going away,” says **Brent Asplin**, MD, MPH, the journal’s editor for the CDC study, department head of emergency medicine at Region’s Hospital St. Paul (MN), and professor of emergency medicine at the University of Minnesota.

In the second study, which examined the impact of hospital closures and hospital characteristics on ambulance diversions, University of California-Los Angeles (UCLA) researchers looked at ambulance diversion

hours for hospitals in Los Angeles County over a seven-year period. The study found that ambulance diversions at Los Angeles County hospitals more than tripled between 1998 and 2004.

“We were surprised by the magnitude in the increase of diversion hours,” says **Benjamin C. Sun**, MD, MPP, the lead author of the UCLA study. “By 2004, diversions represented 25% of the total operating hours of the average ED.”

ED managers not helpless

While many of the forces contributing to diversion, such as hospital closings, may be beyond the control of ED managers, Asplin and Sun say there is much they can do to improve the situation within their own facilities.

“Rule No. 1 is not to try to solve your *hospital’s* capacity problems with an ED-based initiative,” Asplin advises. “Diversions are clearly tied to capacity constraints across the hospital.”

In addition, he says, ED managers must do a much better job of embracing evidence-based operations. “That means having a much more sophisticated approach to understanding patient flow, measuring key indicators, and having a system built that eliminates bottlenecks,” Asplin says. “Just as you wouldn’t think of treating a heart attack patient without doing an EKG, you can’t solve patient flow problems without access to real-time data about patient flow across the hospital.”

For example, one of the biggest drivers for capacity problems in the ED is the elective admission schedule — particularly from the operating room, he says. “Logically, there may be sudden surges in emergency admissions, but in most hospitals it’s easier to predict in the ED than demands coming from the OR,” Asplin notes.

While the problems may be hospitalwide, the ED manager still can provide the impetus for improvement, he says. “If you feel as the ED director that you have done all you can do, and every time you make improvements on the front end you still get overwhelmed because inpatients are waiting longer to get upstairs, it’s your job as ED manager to get hospital leadership engaged in improving real-time management of flow,” he says.

There are several resources for ED managers seeking to learn more about the science of patient flow, says Asplin. “The Institute for Healthcare Improvement has a whole collaborative on flow and is beginning a new one on EDs.” **(For more information on this and other Institute for Healthcare Improvement collaboratives to improve ED operations, see resource box, p. 44.)**

In addition, there are a lot more initiatives coming from the hospital industry and from emergency medicine professional groups such as the American College of Emergency Physicians.

Executive Summary

Operational changes and viewing the issue from a hospital-wide perspective are keys to internal flow improvements.

- Develop a greater knowledge of, and embrace implementation of, evidence-based operations.
- Actively advocate that hospital leadership become engaged in improving real-time management of flow.
- Learn to recognize the major barriers to flow within the hospital, such as the OR’s elective admission schedule.

Sources/Resource

For more information on reducing diversion hours, contact:

- **Brent Asplin**, MD, MPH, Department of Emergency Medicine, Region's Hospital St. Paul (MN). Phone: (651) 254-3044.
- **Benjamin C. Sun**, MD, MPP, University of California-Los Angeles Medical Center, Los Angeles. Phone: (310) 903-3177.

For more information on **Institute for Healthcare Improvement collaboratives** to improve ED operations, go to the IHI web site: www.ihl.org/ihl. Scroll down the center column and click on "Emergency Department Learning and Innovation Community."

Sun agrees that diversion is a hospitalwide problem. Still, he says, "there are things you can do that are operational in nature, like decreasing door-to-doc times. However, the major impact will be felt by

Blood test may help ID more at-risk patients

Quandary: Short of breath, but absent heart failure

According to a new study in the *Archives of Internal Medicine*,¹ ED managers may be able to predict with greater accuracy than ever before the risk of post-discharge mortality in patients presenting with shortness of breath — whether they are diagnosed with heart failure.

Researchers from Massachusetts General Hospital in Boston have shown that the blood test measuring levels of the protein N-terminal prohormone brain natriuretic peptide (NT-proBNP), previously found useful for diagnosing heart failure and determining prognosis in several cardiovascular conditions, also can predict the risk of death among patients coming to hospital EDs with shortness of breath.

"There had really been no reliable single estimate that could be reproduced on a large scale for predicting such risk," notes **James Januzzi Jr.**, MD, associate director of the coronary care unit, and the paper's lead author. "For patients rolling into the ED with shortness of breath, there are so many diagnoses you need to consider, and not until now have we had a single, objective, rapid way of assessing a breathless patient's risk for mortality."

Specifically, the study showed that an elevated

freeing up beds being occupied by inpatients."

He advises ED managers to work closely with the hospital management "to make clear this is a patient safety issue." How do diversions affect patient safety? "If a patient is used to getting all their care at your hospital and they are now sent somewhere else, there is first of all a delay in their getting treated by a physician," he says. "In addition, that treating physician will not know anything about the patient."

The ED manager also can point out the financial impact of diversions, says Sun. "Depending on your insurance mix, you may be losing potential revenue."

References

1. Sun BC, Mohanty S, Weiss R, et al. Effects of hospital closures and hospital characteristics of Emergency Department ambulance diversion, Los Angeles County, 1998-2004. *Ann Emerg Med* 2006; 47:in press.

2. Burt CW, McCraig LF, Valverde RH. Analysis of ambulance transports and diversions among U.S. emergency departments. *Ann Emerg Med* 2006; 47:in press. ■

value of more than 1,000 identified a patient with a threefold increase of risk for death in one year. "If you look at the converse, if you were below the cut point, the risk for mortality was so much lower it was dramatic," adds Januzzi. In the patients with heart failure who had a reading of less than 1,000, not a single one was dead one year after discharge, he observes. "In those patients without heart failure, mortality was well below 5% if they were below the cut point."

Perhaps the most important take-home message for ED managers is that the value and potential applications of this blood test have clearly expanded, says Januzzi.

"Initially, it was used to help identify and exclude heart failure, and that's correct," he says. "Now, it's shown value even for those patients who do not have heart failure — those with acute coronary syndrome,

Executive Summary

More frequent use of N-terminal prohormone brain natriuretic peptide (NT-proBNP) test may not only be useful in diagnosing heart failure, but could also help limit your ED's liability as patients are directed to most appropriate follow-up care.

- More widespread testing can help pick up those patients with missed heart failure and inappropriate discharge.
- An elevated NT-proBNP value of more than 1,000 identified a patient with a threefold increase of risk for death in one year.
- Test appears to have value not only for patients in heart failure, but those who are merely dyspneic.

Sources

For more information on the N-terminal prohormone brain natriuretic peptide test, contact:

- **James Januzzi Jr., MD**, Associate Director, Coronary Care Unit, Massachusetts General Hospital, Boston. Phone: (617) 724-9692.
- **Andrew Nugent, MD**, Vice Chair of Emergency Medicine, University of Iowa Healthcare, Department of Emergency Medicine, 200 Hawkins Drive, Iowa City, IA 52242. Phone: (319) 353-7946. E-mail: Andrew-nugent@uiowa.edu.

pulmonary embolism, and those who are just dyspneic [unable to breathe].”

The bottom line, he says, is that “rather than holding [this test] in your back pocket for patients for whom you are not sure what the diagnosis is, we are arguing that more widespread testing would be indicated, given its value for prognosis,” he says. “In other words, we probably should be testing more patients.”

Andrew Nugent, MD, vice chair of emergency medicine at the University of Iowa Healthcare in Iowa City, says he could go along with that statement, but it’s difficult for him to recommend the blood test for *all* patients. “It’s an awfully expensive thing to do, and I’m not sure how many people die within a year is *that* applicable to emergency medicine,” Nugent says. “Frankly, I’d like to know the ones who are going to die *today*.”

Nugent says he would like to see more information before recommending widespread use of the test. “I’d like to see the study taken further, perhaps to several hundred patients, and the types of patients [who would benefit most] narrowed down further,” he says.

At present, Nugent reserves the tests for cases where he has a high degree of suspicion of congestive heart failure. “They say it’s applicable to others, but I’d have to find that group of patients and their complaints,” he explains.

Potential liability implications

The study’s findings may have some liability implications, Januzzi says.

“There is a potential liability to missing heart failure, so with such high sensitivity, we can minimize this,” he says. “Furthermore, recognizing that patients below a certain cut point have very low risk for mortality will lend further reassurance of a confident discharge.”

More widespread testing will be more useful in picking up those patients with missed heart failure and inappropriate discharge, he says, “but it’s very hard to discharge someone with shortness of breath.”

Of course, as many ED managers know all too well, patients’ families often will sue in the wake of a bad outcome — despite the fact that the patient may have received appropriate care. Might the use of this test mitigate liability for discharged patients who subsequently die several months later? It might, Nugent concedes. “It really depends on the patient,” he says. “But when we send a patient out, we usually send them to someone who will hopefully do the right thing.”

Even Januzzi has at least one very important unanswered question. “If the patient’s NT-proBNP comes back elevated, and they are without heart failure, we don’t yet know if directed treatment will be associated with better outcomes,” he says.

Reference

1. Januzzi JL, Sakhuja R, O’Donoghue M, et al. Utility of amino-terminal pro-Brain Natriuretic Peptide testing for prediction of 1-year mortality in patients with dyspnea treated in the emergency department. *Arch Intern Med* 2006; 166:315-320. ■

Study: Children may get antibiotics too often

Sore throats receiving them exceed strep numbers

Do ED physicians overprescribe antibiotics for children with sore throats? They do, according to a new study in the *Journal of the American Medical Association*.¹ In fact, while the study of EDs, outpatient facilities, and physicians’ offices showed that on average doctors prescribe antibiotics for more than 50% of children with sore throat, when the statistics were broken down, the EDs prescribed antibiotics for 60% of children with sore throats.

This number is significant, says the paper’s lead author **Jeffrey A. Linder, MD, MPH**, associate physician in the division of general and internal medicine at Brigham and Women’s Hospital in Boston, because “other studies have shown that among kids, somewhere

Executive Summary

Unnecessary use of antibiotics can endanger patients, increase bacteria resistance, and result in added expenditures.

- There are only four appropriate medications that should be given to children in whom strep is suspected.
- You may wish to consider giving Group A beta-hemolytic streptococcus test to children before prescribing an antibiotic.
- Staff also should take into consideration whether the patient has been exposed to friends or relatives with strep.

Sources

For more information on prescribing antibiotics for children, contact:

- **Jeffrey A. Linder**, MD, MPH, Division of General Medicine, Brigham and Women's Hospital, 1620 Tremont St., BC-3-2X, Boston, MA 02120. Phone: (617) 525-6654. E-mail: jlinder@partners.org.
- **Richard Ruddy**, MD, Director of Emergency Services, Cincinnati Children's Hospital Medical Center. Phone: (513) 636-7973. E-mail: richard.ruddy@cchmc.org.

between 15% and 36% of patients with sore throat will have Group A strep — and that's the only common cause of sore throat for which antibiotics are needed."

Unnecessary prescriptions of antibiotics are not benign, he stresses. They increase the prevalence of antibiotic-resistant bacteria, expose patients to adverse drug events, and increase costs. "The point I try to hammer home is that the real risk is to the individual kid," says Linder. "Giving medicine they don't need could cause anything from a little bit of diarrhea or a rash all the way to anaphylactic shock — and they may not get any benefit at all if they have a viral sore throat." Unnecessary broad-spectrum meds could cost as much as \$80-\$100 a dose, he says.

The study showed physicians prescribed nonrecommended drugs 27% of the time, although Linder says EDs were a bit less likely to do so. "The most important thing to know about strep is that the bug is never resistant to penicillin, so for kids, amoxicillin or penicillin is recommended, or erythromycin for those allergic to penicillin," he says. "The other option is first-generation cephalosporins. There's really not much reason to use anything else."

Finally, he notes, to improve diagnostic accuracy and reduce unnecessary antibiotic treatment, the American Academy of Pediatrics and the Infectious Diseases Society of America recommended that a Group A beta-hemolytic streptococci (GABHS) test be done before children are prescribed an antibiotic.

As significant as Linder's findings appear to be, you should look beyond the numbers before concluding that EDs are missing the boat in this area, says **Richard Ruddy**, MD, director of emergency services at Cincinnati Children's Hospital Medical Center.

He notes, for example, that the numbers were abstracted out of the National Ambulatory Medical Care Survey (NAMCS) and the National Hospital Ambulatory Medical Care Survey (NHAMCS) from 1995 to 2003. "Some of the good exclusions are not there, and that does not tell you the whole truth," Ruddy says. For example, he says, "Culture results prove the presence of strep bacteria, but that does not necessarily mean there is infection. The child could be carrying it."

In addition, there are patients who have symptoms of a sore throat for whom ED physicians can empirically say the likely causative reasons for their pain and symptoms is Group A strep, he says. "For example, if I believe a 5-year-old has strep, and we treated his brother three days ago, I do not culture him," Ruddy shares.

Finally, says Ruddy, the rapid strep test is close to 80% positive when there is infection, and the culture is closer to 90%, but you still miss 10%. Still, he does not entirely dismiss the study. "This study would suggest at least from data that we still have a ways to go to improve antibiotic utilization and our testing skills," he says.

He also concedes that antibiotics sometimes are given unnecessarily. "In some EDs, people tend to not stick with the simple treatment for strep," Ruddy says. "Part of the time, preferences may be coaxed by the pharmaceutical industry or by what the parent says is best for the child." In his own ED, says Ruddy, "We strongly recommend amoxicillin or long-acting benzocaine penicillin, depending on whether the parent wants the child to have one shot or an antibiotic several times a day for 10 days."

If your ED has the resources, it can track compliance, he says. "In our center we have seven or eight clinical guidelines that are evidence-based," he notes. One they have pushed very hard is antibiotics used for community-associated pneumonia. "We have gotten close to 95% use in the ED of what's recommended," Ruddy says. "We don't have the resources, however, to measure all things all the time, but ED managers should do all they can to make sure their people are not practicing antibiotic prescription willy-nilly."

Reference

1. Linder JA, Bates DW, Lee GM, et al. Antibiotic treatment of children with sore throat. *JAMA* 2006; 294:2,315-2,322. ■

COMING IN FUTURE MONTHS

■ New microbubble technology used to diagnose and treat strokes

■ The National ED Inventory: Are we what we think we are?

■ Off-site options for surge capacity during disasters

■ Tool kit seeks to cut door-to-doc time to 20 minutes

Physician greeters? ED managers weigh pros, cons

A growing number of ED managers have begun using ED physicians as “greeters” — placing them in triage as the first provider to see patients. With the creation of a “door-to-doc” time of virtually zero, the patient satisfaction benefits are obvious. Proponents also argue that this strategy can improve flow as well.

However, support for this approach is far from universal. “This is a workaround for places like California that have [required] nursing ratios and staff shortages, and no beds or hallway spaces to bring patients back into,” argues **Loren A. Johnson**, MD, FACEP, chief medical officer of Sutter Emergency Medical Associates, an emergency physician medical group and medical director of the ED at Sutter Davis Hospital, both in Davis, CA. “I’m personally leery,” he says. “Why can’t you bring patients back into a private room, a *real* treatment space, where you can theoretically do a good job and better meet patient expectations?”

Johnson recognizes that the use of physicians at triage “is becoming more and more prevalent,” he says.

One of the obstacles to universal acceptance of this new model is that triage has never achieved a high level of standardization in the U.S., he says.

Still, the advantages of this approach are clear to many ED managers, including **Charles F. Pattavina**, MD, clinical assistant professor of emergency medicine at Brown Medical School and attending emergency physician at The Miriam Hospital, both in Providence, RI. “The general idea is that you get a much better assessment and start the ball rolling on work-up,” he says.

A lot of emergency physicians don’t like the idea of conventional triage because it causes a bottleneck, he says. “Even if you have two triage nurses, you still have a variable number of patients coming in, so you can end up with a backup in the waiting room,” he says.

With a physician at triage, the doctors can see the people who otherwise would be “stuck” and, he hopes,

eliminate the bottleneck, Pattavina says. Ideally, such a setup “would be great, because the more simple cases could be dealt with right then and there,” he adds.

Johnson says he understands the rationale for physician greeters. “Triage, as it has traditionally been practiced, is *not* an MSE [medical screening exam],” he says.

“Having the physician at triage is a way to improve the efficiency in overcrowded EDs, so that in essence, it’s moving the fast-track a notch higher,” Johnson says. You could call it a super fast-track, he adds. “You do the MSE for urgent care patients and speed work-ups for more complex patients even before they are brought back to the work-up area.”

So why does he still object to this approach? “It’s true this is a relative patient satisfier and an efficiency response,” he says, “but you have to ask the question: Is this *really* an enhancement to the quality of care we should be providing as part of emergency medicine?”

Pattavina recognizes the strategy does have its limitations. “You couldn’t have a physician alone [at triage] because they would be consumed with these minor cases,” he says. “And you generally need a nurse to do some of the things docs are not trained to do.”

Having a physician in triage also would be expensive, Pattavina says, “and there would have to be enough triage volume to support that.”

Ironically, however, if your ED did have that much volume, “the physician would not be able to triage *every* patient,” he says. Recognizing the drawbacks, however, Pattavina still concludes that having a physician in triage can shorten the time of the visit.

As for the patient satisfaction benefit of seeing a physician almost immediately, it may not be quite the benefit it might have been a few years ago, he says. “People in less urgent care areas have gotten used to the idea that they may see a physician extender, so there’s more acceptance of that reality.” ■

Executive Summary

Before introducing physicians in triage, carefully weigh the potential benefits as well as disadvantages.

- Patients may appreciate seeing a physician first, but most have come to expect — and accept — seeing extenders.
- Carefully consider whether implementation of this strategy will improve quality of care.
- Even with a physician at triage, nursing support still will be required.

CE/CME instructions

Physicians and nurses participate in this CE/CME program by reading the issue, using the references for research, and studying the questions. Participants should select what they believe to be the correct answers, then refer to the answer key to test their knowledge. To clarify confusion on any questions answered incorrectly, consult the source material. After completing the semester’s activity, you must complete the evaluation form provided and return it in the reply envelope to receive a certificate of completion. When your evaluation is received, a certificate will be mailed to you. ■

CE/CME questions

- According to Ruth Radenslaben, it is critically important to include experts in which field in the first stages of developing a safety net improvement program?
 - Legal
 - Health Insurance Portability and Accountability Act (HIPAA)
 - Human resources
 - Primary care
- According to Eelco F. M. Wijdicks, MD, which area of assessment does the FOUR (Full Outline of UnResponsiveness) Score scale address, but the Glasgow Coma Scale does not?
 - Brainstem reflexes
 - Eye movement
 - Motor response
 - Verbal response
- According to Brent Asplin, MD, MPH, ED managers can cut diversion hours by utilizing which strategy?
 - Approaching diversion as a hospitalwide issue
 - Embracing evidence-based operations
 - Ensure real-time access to patient flow data
 - All of the above
- According to James Januzzi Jr., MD, an appropriate cut point for elevated N-terminal prohormone brain natriuretic peptide is:
 - 1,000.
 - 1,050.
 - 1,100.
 - 1,150.
- According to Jeffrey A. Linder, MD, MPH, which of the following is an appropriate antibiotic for strep?
 - Penicillin
 - Erythromycin
 - First-generation cephalosporins
 - All of the above
- According to Charles F. Pattavina, MD, which of the following is *not* an advantage of having a physician at triage?
 - You achieve more rapid assessment.
 - You achieve increased patient satisfaction.
 - You eliminate the need for nurses in triage
 - You eliminate bottlenecks in the ED.

Answers: 1. B; 2. B; 3. D. 4. A; 5. D; 6. C.

CE/CME objectives

- Apply** new information about various approaches to ED management.
- Explain** how regulatory developments apply to the ED setting.
- Implement** managerial procedures suggested by your peers in the publication. ■

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Our Condolences

Nancy Eckle, longtime board member for *ED Management* and *ED Nursing*, has died after an extended illness. We send our condolences to Eckle's family and her co-workers. ■