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Evolution in testing technology enables some urban EDs to implement HIV screening at relatively low cost

Hospital reports significant progress in identifying patients with HIV, linking them with care

Five years after the Centers for Disease Control (CDC) in Atlanta issued recommendations calling for all health care settings to routinely screen patients for HIV in areas where HIV prevalence is at 0.1% or higher, the practice has failed to take hold in most EDs, even though many obstacles to testing, such as burdensome informed consent requirements, for example, have been cleared away.[1] However, with financial support from the CDC and other sources, as well new testing platforms that have helped to lower the cost of HIV screening, substantial progress has been made, according to **Bernard Branson**, MD, a medical epidemiologist in CDC's Division of HIV/AIDS Prevention, an author of

EXECUTIVE SUMMARY

Despite strong recommendations from the CDC for EDs and other health care settings to implement routine screening for HIV, only a minority of EDs offer HIV screening programs. However, new testing platforms that enable high-volume, laboratory-based blood tests with a reasonable turnaround time for results, are enabling a number of hospitals in urban areas to implement HIV screening for a relatively low cost.

- Ben Taub General Hospital in Houston now performs opt-out screening for all ED patients who require a blood draw for any reason.
- Since this testing program began in 2008, Ben Taub has identified 780 patients as HIV positive, and most of these patients had been to the ED multiple times previously without becoming aware of their disease status.
- The approach has enabled Ben Taub to lower the cost of HIV screening from $77 per test to about $12 per test. Ben Taub uses service linkage workers to connect patients identified as HIV positive with appropriate resources for care.

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the CDC recommendations regarding HIV screening, and a co-editor of a just-published special supplement to the *Annals of Emergency Medicine* that deals with HIV testing in the ED.[2]

"Screening has basically gone up from about 13% in hospital EDs [in 2004] to a range now of 22% to 25%, especially in academic EDs," says Branson. "And the significant thing is that a lot of this screening is happening in urban centers that have high-risk populations with a high prevalence of HIV, so this has very much gone in the direction that we had hoped."

Further, despite valid concerns that EDs are already overburdened with responsibilities, there are strong arguments in favor of expanded HIV screening in the ED.

"There are studies that suggest that most people who are diagnosed late have missed opportunities for earlier diagnosis in the ED, and late diagnosis is very damaging for individual health and public health," explains **Michael Lyons**, MD, MPH, an assistant professor of emergency medicine at the University of Cincinnati in Cincinnati, OH, and also a co-editor of the special supplement to the *Annals of Emergency Medicine*, dealing with HIV screening in the ED. "That suggests that EDs have a role, and very likely a unique role, in terms of screening the population. And the idea that screening the population is beneficial is certain. There is no dispute about that."

Consider "path of least resistance"

One approach that has proven particularly successful at testing large numbers of patients who present to the ED for care was first implemented at Ben Taub General Hospital in Houston, TX, in August of 2008, but has since been expanded to include many other hospitals in Texas, and it is in the process of being implemented in other urban areas as well, according to **Ken Malone**, the HIV testing project coordinator for the Harris County Hospital District, an entity that includes two other hospitals in addition to Ben Taub and 13 community health centers.

"We had been doing walk-up HIV testing for a number of years," says Malone, noting that the hospital advertised that people could basically walk into the ED and ask for one of the oral swab rapid tests. However, it quickly became clear that this type of personnel-dependent approach would not work with the kind of volume testing that the CDC was looking for, says Malone. (**Also, see "Lack of resources a key barrier to HIV screening in the ED," p. 112.**)

"We decided it would be easier to concentrate on people who were getting a blood draw because they would likely include the sickest patients … and this would require no change in our operating procedure to just add an HIV test [to the list of tests being ordered]," says Malone. "It was like the path of least resistance."

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New testing platforms that enable many different types of tests to be conducted at the same time on the same machine are critical to the approach adopted at Ben Taub and other hospitals that have adopted similar HIV testing policies, says Branson. "What they allow is much higher-volume testing that is much less personnel-dependent," he says. "That has enabled [Ben Taub] to bring their costs for doing the HIV test down from $77 per test to about $12 per test."

While this type of high-volume testing does not produce results as quickly as the point-of-service rapid tests that are favored in many EDs, most patients can still receive their results before their ED visit is over, says Malone. "It has worked out fine because it takes 122 minutes turnaround time for the test itself, and the wait time [for results] is now about 8 hours, as opposed to 13 or 14 hours when we started using this process," he says.

Branson adds that the approach is a "very attractive alternative" because when done in accordance with opt-out testing, in which the default action is to go ahead and conduct an HIV test unless the patient requests that the test not be done, fewer than 2% of patients are declining the test. "With a lot of the point-of-care tests, the proportion of people who decline the test can be as high as 30%," he says. "This tends to be a more affordable model, and it very actively involves the laboratory."

Hospitals in the Harris County Hospital District have actually gone a step further than most in their approach to opt-out testing, says Malone. "We have put signage out telling patients that they are going to be tested for HIV, and if they don't want to be tested, they should tell their physician," he says. "It has worked pretty well."

Make plans for care linkage

Of course, a seamless front-end strategy for getting a large number of patients tested is only half the battle. Hospitals also need to develop resources and a process for connecting patients who test HIV positive with care. Administrators at Ben Taub addressed this issue early on.

"We leveraged some other funding that we have for what we call a service linkage worker," says Malone, explaining that this person is charged with explaining the diagnosis to the patient, reviewing what resources are available through the Harris County Hospital District, and then setting up appointments for the patient to see an appropriate care provider. "Then we monitor whether they come to their appointments or not," says Malone. "If they miss appointments, we call them and try to find out what happened. We don't consider them linked to care until they have made a doctor visit. We have had an 80% success rate thus far."

The service linkage worker is also responsible for tracking down patients who test HIV positive but are no longer in the ED when results from their blood work are available from the lab. "We call them and tell them that we have some lab results that we want to go over with them, and that they need to return to the ED so we can talk to them," says Malone.

Reaching patients after they have left the ED can be problematic, as their contact information is not always reliable. "We have missed a few people who we couldn't find after they left, but it is a very small percentage," says Malone. "Normally they are still here and we can contact them right there."

Service linkage workers are not licensed social workers, but the Harris County Hospital District equips them with training in protocol-based counseling and motivational interviewing, says Malone. "The motivational interviewing is very important because patients typically come to the ED thinking they have something else only to find out that they are HIV positive," he says. "You have to be able to assess where that patient is in an instant and attract his attention because you don't have many chances to get these people into care; you have to turn their heads so that they understand exactly what you are talking about."

Early analyses of the patients who have tested positive through Ben Taub's HIV testing program reveal that most had visited the ED at least four times before they were diagnosed, says Malone. "It is an enormous burden on our system because while you can't say that HIV is what caused them to be here, obviously there is something that made them sick and they couldn't get it figured out because they kept coming back," he says. "We have seen that by identifying people, you can [pin point] the problem and start addressing their care in a more proactive fashion."

Since the HIV testing program commenced in August of 2008, the Harris County Hospital District has identified 780 patients as HIV positive, and these are people who had no idea of their disease status, says Malone. "Now we have helped reduce the transmission of disease by some factor," he says, noting that researchers plan to measure this impact in the near future. "The program has

not been without problems; no program is. But it has been tremendously successful."

In fact, the project spawned another effort in the hospital aimed at making sure that all inpatients with a diagnosis of HIV are identified and connected with appropriate resources. This is accomplished through the creation of an ID team, says Malone. "If inpatients have HIV in their diagnosis at all, they get a visit from the ID team, and our service linkage workers are attached to that team as well," he says. "We are making sure that all the people coming through our facilities are taken care of, and that we give them the resources they need so that once they leave any one of our facilities they will be in care and stay in care."

Get a champion, consider a pilot

ED managers who are interested in exploring the HIV screening approach used at Ben Taub should consult the guidelines published by the Chicago, IL-based Health Research and Education Trust (HRET), advises Malone. (**See Resource Box for link to HRET resources, p. 112.**) "I used the HRET framework … and sold the program from the ground up and top down at the same time," he says. Malone stresses that it is also critical to find a champion who is at a sufficiently high level to cut through administrative red tape and really push things through.

Shkelzen Hoxhaj, MD, MBA, director of the ED, championed the approach at Ben Taub, and published data on the results.[3] "He was given the assignment and told that the problems weren't fixable," says Malone. "But they're always fixable. You just have to do it right. He is very creative and forward thinking, and that is what you need."

Ben Taub was fortunate in that it had funding from the CDC and some other sources to support the program. This was critical, says Malone, and he advises hospitals to make sure they have adequate financial resources to carry out their plans. "You have to be able to fund this type of program at all levels," he says. "We are, right now, working towards making our program completely sustainable after our funding diminishes or goes away."

Starting the effort as a pilot may work to your advantage, says Malone, noting that this approach helped get the testing program off to a quick start at Ben Taub. "We didn't have to go through all sorts of forms and committees," he says. "If we had done that, three years later we would still be trying to plan the program." ■

REFERENCE
1. Branson B, Handsfield H, Lampe M, et al. Revised recommendations for HIV testing of adults, adolescents, and pregnant women in health-care settings. *MMWR Recomm Rep*. 2006;55:1-17.
2. Rothman R, Lyons M, Branson B, Boyette B. HIV screening in the emergency department. http://www.annemergmed.com/supplements
3. Hoxhaj S, Davila J, Modi P, et al. Using Nonrapid HIV technology for routine, opt-out HIV screening in a high-volume urban emergency department. *Ann Emerg Med*. 2011;58:S79-S84.

SOURCES/RESOURCES

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• **Health Research and Education Trust**, Chicago, IL. Web link to ED-based HIV screening resources: http://www.hret.org/quality/projects/ed-based-hiv-screening.shtml

Lack of resources, philosophical issues remain barriers to HIV screening in the ED

While more EDs are implementing HIV screening programs, significant barriers remain, emphasizes **Michael Lyons**, MD, an assistant professor of emergency medicine at the University of Cincinnati in Cincinnati, OH. For example, Lyons points out that one persistent roadblock is that some emergency physicians don't feel as though public health or prevention should be a primary focus in the ED.

"There is a philosophical issue in the emergency medicine community about this," says Lyons. "It is not that emergency physicians don't understand that HIV testing is important, but it is one thing among many that is important, and in their daily jobs where they are already overburdened taking care of emergent illness and injury, it is an open question how much attention they are going to choose to give to issues that they see as someone else's role."

The biggest barrier, however, is generally lack of resources, says Lyons. "Emergency departments are already overcrowded, they are already overwhelmed, they're already unable to meet their basic mission, so anything new is going to be perceived as an unfunded mandate, particularly if there is not a clear way to pay for it," he says.

While some public and private payers will reimburse for HIV testing, such coverage is not always assured or clearly spelled out. "A lot of EDs have a bundled charge so that for whatever the service is, whether it is a sprained ankle or something else, there is a fixed reimbursement that is negotiated with the insurance company," explains **Bernard Branson**, MD, a medical epidemiologist at the Division of HIV/AIDS Prevention at the Centers for Disease Control in Atlanta. However, he points out that many hospital systems and payers have only just begun to negotiate the addition of HIV screening into the reimbursement rate for the bundled service.

Further, while Medicare pays for HIV screening for high-risk persons, Medicaid policies on this issue differ from state to state. "In New York, Medicaid actually incentivizes HIV screening in the ED by providing extra reimbursements, but other states don't necessarily pay for HIV screening explicitly, although in many ED situations for high-risk people, it is indicated and covered for diagnostic reasons," says Branson.

The problems with reimbursement are likely to remain a stumbling block for HIV screening in many EDs. However, Lyons believes that health systems have yet to fully acknowledge the degree to which being proactive on this issue could ultimately save money in the long run. "We know that HIV testing is cost-effective in a general sense to society," he says. "We don't have as good an understanding of how much an individual hospital could save itself by implementing HIV testing, but it is clear that at least in many centers there would be some savings there." ■

Take steps to curb violence, improve safety for ED personnel

Hospitals use staff training, metal detectors, and visible security personnel to address violence

The potential for violence in the ED is well-recognized and often discussed. Several organizations such as The National Institute for Occupational Safety and Health at the Centers for Disease Control in Atlanta, GA, for example, cite the ED as being one of the most dangerous places in health care to work, and a study completed last year by the Des Plaines, IL-based Emergency Nurses Association noted that every week, between 8% and 13% of ED nurses experience some type of physical violence in the course of doing their jobs.[1]

Despite the subject's high profile, however, there is not a lot of hard data on what strategies are most effective at de-escalating tense situations or dealing with violent eruptions when they do occur, explains **Stephen Davis**, MPA, MSW, the director of clinical research and an adjunct associate professor at West Virginia University Department of Emergency Medicine in Morgantown, WV. The harsh reality of the situation was brought painfully close to home for Davis when a family member who was working as a triage nurse was assaulted while on the job. The incident prompted Davis to join colleagues in taking a closer look at violence in the ED to see what solutions were being leveraged to manage the problem.

Carefully consider location of security

The researchers, led by **Marcelina Behnam**, MD, an emergency medicine physician at Santa Clara Medical Center in Santa Clara, CA, surveyed a cross-section of ED physicians about the issue, and what they learned was sobering: Out of 263 surveys that were returned and analyzed, more than three-quarters (78%) reported at least one incident of workplace violence in the previous 12 months.

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While violent eruptions are well documented in the ED, there is a not a lot of research into what strategies are most effective at both curbing violence and managing incidents when they do occur. Experts suggest that ED managers should consider staff training and visible security measures when developing procedures for dealing with violence.

- In one survey of ED physicians, more than three-quarters reported at least one incident of workplace violence in the previous 12 months.
- Researchers report that many EDs post security at the point of entry, but lack security coverage in patient care areas.
- Experts suggest that verbal de-escalation techniques can be helpful in lowering anxiety levels. They also urge ED managers to bring in assistance when the ED is crowded or waiting times are long.

Further, while the most common type of violence reported involved verbal threats, 21% reported physical assaults, 5% reported confrontations outside of the workplace, and 2% reported incidents involving stalking.[2]

Most of the survey participants noted that their EDs offered full-time security, although less common was a security presence where patients were receiving care, says Davis. Further, 40% reported that their EDs employed some type of weapons screening, and 38% utilized metal detectors. Just 16% reported that their EDs offered some type of violence workshop, and fewer than 10% offered self-defense training.

Davis concedes that the research is just a first step toward finding out what strategies work well, and where new approaches need to be tried. However, the research highlights several areas that ED managers should consider when reviewing their own security procedures.

For example, while many survey participants reported that their EDs offer security at the point of access, violent incidents tended to occur back in patient care areas. "We received some feedback about EDs trying to put security in the ambulance bay or the trauma bay to get more of a presence in the patient care areas," says Davis. "That's something we need to look at to see if it is more effective."

Some EDs reported that they were posting security personnel out in the parking lots, while others were providing security escorts to ED personnel as they returned to their cars, he says.

Tightly control access

While incidents of violence are more common in high-volume EDs, smaller operations in less-populated areas are not immune to the problem. The ED at Scotland Memorial Hospital in Laurinburg, NC, was the scene of a shooting incident in February of 2010. The reception area was already outfitted with bullet-proof glass, and there was a log-in system for after-hours visitors, but hospital administrators took additional steps to control access to the ED after the incident occurred.

The shooting was not a random act; the gunman was looking for a person with whom he had had an earlier altercation, explains **Karen Carlisle**, RN, BSN, the director of Scotland Memorial Hospital's emergency center. Consequently, the ED now goes on lockdown whenever an assault victim is being treated. "No visitors are allowed in the back, and patients have to be wanded [with metal detectors] when they come in the door," she says.

In addition, the hospital hired an additional security officer for each shift, and these officers make more frequent rounds through the facility than they used to. "I think just their presence deters violent behavior," adds Carlisle.

Since the shooting, nurses, techs, and other ED personnel have undergone training on nonviolent crisis intervention as well as violent patient management, says Carlisle. If patients or family members become irate or anxious, ED personnel will try to speak with them and calm them down. However, if a person becomes aggressive or starts to make threats, the policy is to call in law enforcement, says Carlisle.

Master verbal techniques

McKee Medical Center in Loveland, CO, began looking at ways to improve security in 2007 as part of an initiative of Phoenix, AZ-based Banner Health. "We were seeing an upswing in behavioral health patients, patients who were agitated, and patients who were violent system-wide," explains **Shelley Simkins**, MSN, the ED nursing director at McKee. "We realized we needed to prepare a toolkit so that frontline staff would be able to successfully handle these patients with the best outcome." **(Also, see Management Tip on consulting frontline staff on how to deal with aggressive behavior, p. 115.)**

Simkins adds that McKee's policy is to make every effort to avoid using restraints or medicines to calm patients down. "We don't want [these measures] to be the first line of defense," she says. "We want to create an environment where we can verbally start talking to patients and get them de-escalated so that we don't have to utilize further interventions."

Staff training, which is led by Simkins and the hospital's security team, is key to the approach, says Simkins, explaining that all new hires go through the training, and there are refresher classes offered to existing staff every year. Frontline staff learn to keep an eye out for verbal and non-verbal cues that patients or family members are becoming agitated, and they get schooled in various techniques for effectively communicating with these individuals.

For example, if someone is pacing back and forth or becoming verbally aggressive, it can be helpful to invite the person to sit down so that you can discuss his or her concerns, explains Simkins. "Sometimes just allowing people a period of time

to vent their frustrations can help to settle them down," she says. "You don't necessarily have to say a whole lot. They often just want someone to understand what their issue is, and what they are concerned about."

There are times, however, when it is important to calmly establish boundaries or expectations related to a patient's or family member's aggressive behavior, adds Simkins, noting that this can be done tactfully by first indicating that you understand their frustration, but that you need them to help you with the situation.

"Sometimes people lash out because they feel like they don't have control over a situation where a friend or family member is sick. The agitation is a coping mechanism," says Simkins. "What you may hear between the lines is that they have been dealing with the situation for a long time and they are just burned out, so giving them the space to [discuss their difficulties] can bring down the tension level."

When aggressive or agitated outbursts are handled skillfully, there can be rewards beyond the successful de-escalation of the situation. Simkins points out that people have returned to the ED on occasion just to apologize for their behavior and to thank the staff for the way they handled the incident.

Devise an escape route

Verbal de-escalation strategies are helpful, but staff also receive safety guidance. "We include components such as how to remain safe if you are in a patient room. Make sure, for example, that you are always close to a door and that you have an escape route if things start to escalate and you need to get out," explains Simkins. Personnel are also encouraged to call security or the police if they feel they are in danger.

A crowded waiting room or long waits to see a provider will heighten anxiety levels, and elevate the risk for aggressive behavior, says Simkins. Consequently, she advises ED managers to consider calling in extra help during such periods. For example, during any high-census period at McKee, a person from guest relations is brought in to make rounds in the waiting room and make sure that all non-medical needs are being met, she says. ■

REFERENCE

1. Emergency Department Violence Surveillance Study, Emergency Nurses Association Institute for Emergency Nursing Research, August 2010. Web: www.ena.org/IENR/Documents/ENAEDVSReportAugust2010.pdf.
2. Behnam M, Tillotson R, Davis S, et al. Violence in the emergency department: A national survey of emergency medicine residents and attending physicians. *J Emerg Med*. 2011;40:565-579.

SOURCES/RESOURCES

• The Emergency Nurses Association offers a web-based workplace violence toolkit that can help ED managers assess their needs, establish goals, and monitor progress. The toolkit can be accessed here: http://www.ena.org/IENR/ViolenceToolKit/Documents/toolkitpg1.htm

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Management Tip

Consult frontline staff on how to deal with aggressive behavior

To develop a consistent standard of care for dealing with aggressive behavior, be sure to consult with your frontline personnel, advises **Shelley Simkins**, MSN, the ED nursing director at McKee Medical Center in Loveland, CO. "They're out there every day and they have phenomenal ideas on what can work well in these patient situations and what resources would be helpful," she says.

Also, to access training resources, consider partnering with local law enforcement agencies. "SWAT teams or individuals who handle hostage negotiations are experts at verbal de-escalation strategies," says Simkins. "It really doesn't matter if you are dealing with a hostage situation or an angry patient or family member in the ED. The techniques are basically the same." ■

CT use more than triples in the ED, but use of the technology may be linked with a significant drop in hospitalizations

Experts urge providers to take the lead on curbing excessive use of CT

All of the discussion in recent years about the risks from exposure to radiation from computed tomography (CT) scans has hardly dampened enthusiasm for the technology in the ED. To the contrary, a new study suggests that CT use in the ED increased by a whopping 330% between 1996 and 2007, according to a retrospective look at data from the National Hospital Ambulatory Medical Care Survey, which is a national survey of services in emergency departments conducted by the Centers for Disease Control in Atlanta, GA. However, the study also suggests that the increase in CT use may be associated with a dramatic reduction in hospitalizations. In 1996, when the study period began, the rate of hospitalization following a CT scan was 26%. This rate dropped to 12.1% by 2007, when the study period concluded.[1]

The reduction in hospital admissions can certainly be seen as positive with respect to costs. Further, the data suggest that information gleaned from CT scans played a key role in provider determinations that hospitalization was not necessary. However, the steep rise in CT use is a concern, acknowledges **Keith Kocher**, MD, MPH, the lead author of the study and an emergency medicine physician in the University of Michigan Health System in Ann Arbor, MI.

"The reality is that we are probably doing too many CT scans," says Kocher. "The data from 2008 is already out, and [CT use in the ED] continued to increase, but this is not sustainable."

The Joint Commission clearly agrees with Kocher. The accrediting agency has issued a Sentinel Event Alert, urging hospitals to carefully consider the potential danger posed by repeated exposure to ionizing radiation, and to take steps to ensure that the doses used in CT scans are as low as possible to achieve study standards, and that staff are thoroughly trained about the issue.

Look for opportunities to optimize

Kocher's study doesn't specifically say where CTs are being used unnecessarily, but it does offer some suggestions on where emergency medicine providers might be able to do a better job of optimizing their CT use. One of these areas is in the use of CTs in patients with flank pain.

"If you look from the beginning of the study to the end of the study, there is about a nine times increase in the number of CT scans being used [in patients with flank pain]," says Kocher. "Most of the time, ED physicians who are doing CTs on these patients are looking for kidney stones, yet it is unclear in my mind whether a CT scan is necessary to diagnose a kidney stone."

Kocher points out that ultrasound, or even simply using clinical judgment, are alternative options to consider with respect to diagnosing patients with kidney stones. Further, he questions whether the ability to diagnose a patient definitively with a kidney stone with the use of CT would necessarily translate into a change in how that patient is treated or managed.

Other areas where decision rules have been developed to guide physicians with respect to testing include head injury, neck injury, and pulmonary embolism, says Kocher, but he also states that good evidence showing when patients should receive CT scans and when they should

EXECUTIVE SUMMARY

A new study shows that use of computed tomography (CT) scanning has exploded in the ED in recent years, despite high-profile concerns regarding patient exposure to radiation. The retrospective study, which looked at CT use in the ED from 1996 to 2007, suggests that use of the technology grew by 330% during the study period. However, the study suggests that the increase in CT use may be linked with a significant decrease in hospitalization following the use of CT. The rate of hospitalization following a CT went from 26% in 1996 to 12.1% in 2007. However, experts remain concerned that more needs to be done to curb excessive use of CT. In fact, the Joint Commission has issued a Sentinel Event Alert, urging hospitals to implement safeguards with respect to CT scans.

- Potential targets for improvement include use of CT for flank pain, head injury, neck injury, and pulmonary embolism; experts say evidence-based guidelines suggest alternative diagnostic approaches in these cases.
- Peer review of testing patterns may help to curb excessive CT use, but experts say ED managers and emergency physicians need to come up with new strategies to address the problem.

not is scant. "A lot of those studies just haven't been done," he says. "Also, on some level, every patient situation is very individual, so making blanket statements about how things should be done in every case is challenging, and it requires sophistication."

Lead discussions on CT use

One approach to the issue, says Kocher, might be for physician groups to make data available so physicians can see how much they are using CTs for testing relative to their peers. "The challenge is that this suggests that we should all regress to the mean of the group, so you are relying on the mean being, hopefully, the appropriate amount of testing," he says. "But this approach would certainly curb the extremes."

Kocher also encourages ED managers and other emergency providers in leadership positions to lead discussions about the issue and collect ideas on what strategies might be effective and acceptable in their own work settings. "I don't think they could unilaterally mandate how physicians should be practicing … but there is certainly a lot of space to make some change," he says.

Further, to the extent that such measures can include the larger health care community, the easier it will be for ED physicians to make changes. "When you are working in the ED, you feel like you are on an island, you are doing your best, but there are all these pressures that are external to you," says Kocher, noting that patients often request CTs, primary care practitioners often send patients to the ED for CTs, and consulting specialists often want their patients to have CTs before they are admitted to the hospital. "The more that you can remove that sense of being isolated in the decision … I think that might ameliorate a lot of the pressures."

The skyrocketing costs associated with imaging tests will eventually curb the use of CTs one way or another, suggests Kocher. Consequently, he advises providers to propose some of their own approaches now. "The solutions I have seen are few and very ad hoc," he says. "The truth is if we, as ED physician groups, don't come up with our own strategies, somebody else is going to come up with the strategies for us, and they will be imposed on us. And those situations might not be the solutions that we want." ■

REFERENCE

1. Kocher K, Meurer W, Fazel R, et al. National trends in use of computed tomography in the emergency department. *Ann Emerg Med*. 2011 Aug 9. [Epub ahead of print]

SOURCE

• **Keith Kocher**, MD, MPH, Emergency Medicine Physician, University of Michigan Health System, Ann Arbor, MI. E-mail:kkocher@umich.edu.

High-tech approach to medication reconciliation saves time, bolsters safety at hospital in northern Virginia

Medication data flows directly into electronic medical record

There is no question that hospitals face innumerable challenges in meeting the "meaningful use" of health information technology (HIT) criteria established by the Health Information Technology for Economic and Clinical Health (HITECH) Act in 2009. However, it is also becoming clear that among the first to benefit from HIT enhancements are hospital EDs, where the ability to access patient information quickly can be especially important.

The ED at Inova Alexandria Hospital in Alexandria,VA, is a case in point. With the touch of an icon, clinicians here can quickly find out what prescriptions a patient is taking, regardless of where in the country these prescriptions were filled, explains **Martin Brown**, MD, FACEP, chairman of the Department of Emergency Medicine at Inova Alexandria Hospital. This capability is part of a pilot program involving the Northern Virginia Regional Health Information Organization (NoVaRHIO), the non-profit group established in 2007 to facilitate the electronic exchange of health information for providers in northern Virginia. However, project administrators say the idea is to eventually expand this capability to all providers in the region, and to extend the information-sharing capacity to include laboratory results, radiologic studies, and other health information as well. Experts say the pilot offers an early glimpse of efficiencies and safeguards that will be possible

when the nation's health care infrastructure has been completely wired.

Make sure process fits your workflow

While NoVaRHIO operates in the interests of all the region's hospitals, physicians, and residents, it was clear early on that Inova Alexandria Hospital was best suited to be the pilot site for this project, says Brown. "NoVaRHIO needed a pretty big site that was willing to participate," he says. "It was a risk [for the hospital] in terms of time commitment and operational complexity, but it was worth taking that risk given the potential benefits."

The considerable groundwork for the project was completed by IT consultants, who worked with NoVaRHIO and the hospital's IT department before clinicians were ever involved, says Brown. This phase of the project involved creating the IT tools needed to get different databases to communicate with each other. However, Brown points out that the system is still being tweaked to operate more efficiently.

"What is unique about this project is that we are completely integrating [the pharmacy data] into the electronic health record at Inova Health Systems," explains **Edmond Magny**, PMP, an HIT expert who is managing the project for NoVaRHIO. When a query for a patient's medication history is made to the system, the information flows directly into the health record for the physician to consume, adds Magny.

"It allows physicians to stay within their native electronic health record as opposed to going to a different portal or going through several steps," he says. "Physicians are very keen to do exactly what they are trained to do, and not having to do 15 steps in order to get somewhere, so making sure it fits into their workflow is absolutely critical."

For this kind of seamless information sharing to take place, information coming into the hospital from a pharmacy benefit manager [PBM] must be transformed into a continuity of care document (CCD), a standard type of document that any certified electronic health record must be able to accept, explains Magny. And this is the critical step that the health information organization provides.

While the IT aspects of the project are complex, clinicians have found the tool to be user-friendly. "It took just a few minutes to show physicians and physician assistants how to use the system," says Brown. "For nurses, it is just a little bit more complicated because they are responsible for documenting the medications, but it is still very simple."

Since the approach is still a pilot, the hospital decided to ask patients for their consent before querying the IT system for the patient's medication history, says Brown. This takes place right at registration, and thus far, 80% to 90% of patients have agreed to the search, and the rest of the patients probably just don't understand what they are being asked, he says.

It takes a few minutes for the pharmacy record to feed into the hospital's electronic medical record, but "by the time I pick up the patient in the back, there is something for me to click on that will show me what was sent from the [PBM]," says Brown. "The patient might have filled a prescription in Los Angeles three days ago or filled it around the corner two months ago, but it will show up there."

Target errors, boost safety

A nurse or physician always confirms with the

EXECUTIVE SUMMARY

Clinicians in the ED at Alexandria Inova Hospital in Alexandria, VA, have been able to streamline the medicine reconciliation process with the help of a new high-tech tool that retrieves a patient's medication history in a matter of minutes and transforms the data into a form that can automatically populate the patient's electronic medical record. The approach is facilitated by the regional health information exchange (HIE) organization, and will eventually be available to other providers in northern Virginia.

- Thus far, 80% to 90% of patients who have come through the ED have consented to have their medication history electronically retrieved.
- Eventually, administrators anticipate that the same approach will be used to share patient radiology studies, laboratory results, and other patient information across providers.
- Experts predict this practice will be commonplace among U.S. hospitals within five years, but they encourage hospital and ED administrators to take advantage of opportunities to leverage regional HIEs.

COMING IN FUTURE MONTHS

- The pros and cons of utilizing temporary staff in the ED
- Managing the burgeoning number of patients presenting with chest pain
- A fresh approach for connecting frequent ED users to more appropriate care settings
- Anatomy of the no-wait ED

patient that he or she is taking the indicated medications, but the hospital has found the information to be accurate in every case thus far, says Brown. And there have been some instances where the information may have prevented serious adverse events.

For example, Brown recalls the case of a woman who came into the ED and provided the nurse with information about what medications she was taking, but when the nurse clicked on the icon for the medication history information, she learned that woman was taking Coumadin, a blood thinner that is known to interact with many medications. The woman forgot to mention that she was taking Coumadin.

"Patients may know some or most of the medications they are on, but they don't always know which ones are important, and they can forget the important ones," says Brown. "That has happened more than once."

The capability is also valuable in instances where elderly or chronically ill patients who take several medications come into the ED and aren't sure of the specific names of all of their medications. The ED at Inova Alexandria hospital is not a trauma center, but Magny points out how helpful this information would be in instances where the patient is incapacitated.

"If the patient is unconscious and came via ambulance, and all you have is the driver's license in his wallet, how is the doctor going to know if the patient is taking anticoagulants, antibiotics, or anything else?" says Magny. "You really don't know, so you are taking a guess, and medication errors are one of the biggest causes of adverse events in a hospital."

At press time, the medication history pilot at Inova Alexandria still had a few more months remaining, and technical glitches were still being worked out, according to Brown. But he anticipates that the approach will become routine practice in the ED.

"We think this kind of system will improve the safety of our medication practices in this department," says Brown. "We haven't proved that yet. It is still too early in the game to say we have proof that is the case, but it seems intuitive and logical that if this information is proven out to be consistent and reliable, that our medication use in the ED and our diagnostic and treatment decisions in the ED will be inherently safer based on the information we have early in the visit."

Consider HIE opportunities

As health information exchanges (HIEs) continue to develop, Magny says hospitals will be able to further leverage their functionality and the value that HIEs provide. "Every state has at least submitted plans for an HIE. Not every state has one yet, but in the future, every state will have an HIE, if not multiple HIEs."

Brown agrees, noting that hospital administrators and ED managers should not shy away from opportunities to test out HIE-focused interventions like the medication history project. "This can be very helpful to your department, and it is something that is going to be part of our routine," adds Brown. "In five years, people in EDs will say that they can't believe that someone is practicing without this." ■

CNE/CME INSTRUCTIONS

HERE ARE THE STEPS YOU NEED TO TAKE TO EARN CREDIT FOR THIS ACTIVITY:

1. Read and study the activity, using the provided references for further research.
2. Log on to **www.cmecity.com** to take a post-test; tests can be taken after each issue or collectively at the end of the semester. *First-time users will have to register on the site using the 8-digit subscriber number printed on their mailing label, invoice, or renewal notice.*
3. Pass the online tests with a score of 100%; you will be allowed to answer the questions as many times as needed to achieve a score of 100%.
4. After successfully completing the last test of the semester, your browser will be automatically directed to the activity evaluation form, which you will submit online.
5. Once the evaluation is received, a credit letter will be sent to you. ■

CNE/CME OBJECTIVES

1. Apply new information about various approaches to ED management.
2. Discuss how developments in the regulatory arena apply to the ED setting.
3. Implement managerial procedures suggested by your peers in the publication. ■

SOURCES

• **Martin Brown**, MD, FACEP, Chairman, Department of Emergency Medicine, Inova Alexandria Hospital, Alexandria, VA. E-mail: martin.brown@inova.org.
• **Edmond Magny**, PMP, Principal, Audacious Inquiry, Catonsville, MD. E-mail: emagny@aing.com.

CNE/CME QUESTIONS

1. **Michael Lyons**, MD, MPH, states that EDs very likely have a unique role to play in HIV screening. Why does he believe this is the case?
A. Because of the large number of uninsured patients in this country
B. Because late diagnosis is very damaging for individual health and public health
C. There is a high incidence of HIV in urban populations
D. People who are HIV positive are often reluctant to be tested

2.The ED at Ben Taub General Hospital in Houston, TX, targets what group of patients for HIV screening?
A. men between the ages of 16 and 48
B. all adult patients
C. patients who exhibit any of the risk factors for HIV
D. all patients with orders for a blood draw for any reason

3. When **Marcelina Behnam**, MD, surveyed a cross-section of ED physicians about workplace violence, how many reported experiencing at least one incident in the previous 12 months?
A. more than half
B. more than three-quarters
C. slightly more than one-quarter
D. 96%

4. Administrators in the ED at McKee Medical Center in Loveland, CO, try to avoid using restraints or medicines to calm down agitated patients. What method do they prefer, according to **Shelley Simkins**, MSN?
A. verbal de-escalation techniques
B. calling in law enforcement
C. metal detectors
D. self-defense classes

5. To curb excessive use of computed tomography (CT) scans in the ED, **Keith Kocher**, MD, MPH, suggests that hospitals look more closely at the use of CT for the following conditions, where guidelines suggest alternative diagnostic approaches:
A. ankle pain, chest pain
B. flank pain and head injury
C. neck injury and pulmonary embolism
D. both B and C

6. According to **Edmond Magny**, PMP, for pharmacy information to automatically populate an electronic health record, this information must first be:
A. cleared through the hospital's security system.
B. screened for inaccuracies.
C. transformed into a continuity of care document (CCD), a standard type of document that any certified electronic health record must be able to accept.
D. previewed by clinicians.

ACEP Notice:
Application has been made to the American College of Emergency Physicians for ACEP Category I credit.