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Mass shooting in Colorado: Practice drills, disaster preparations key to successful emergency response

Witnessing the impact of the tragedy first-hand takes an emotional toll on providers, staff

People understand that natural disasters like floods, hurricanes, or tornadoes are going to happen every year. That's why EDs across the country routinely conduct practice drills so that they have plans in place to deal with mass-casualty events. But when a lone gunman inexplicably opens fire in a crowded movie theater, killing 12 people and sending dozens of critically injured people to area hospitals, it takes a different type of emotional toll — not just on the community and the victims' families, but on the emergency providers as well.

"This was a horrific, sudden, unprecedented event that defies any explanation," stresses **Richard Zane**, MD, FAAEM, chair of emergency

EXECUTIVE SUMMARY

While EDs are accustomed to preparing for mass-casualty events, the EDs responsible for caring for the victims of the mass shooting at an Aurora, CO, movie theater on July 20, 2012, say the emotional impact of dealing with such a senseless, horrific event remains challenging. Still, the ED directors from the two hospitals who cared for the most patients that night credit established disaster-response procedures and regular practice drills with helping them to successfully manage the crisis.

- Within a 30-minute time period, the University of Colorado's Anschutz Medical Campus in Aurora, CO, received 23 critically ill or injured patients, one of which was deceased upon arrival. There were no additional fatalities among the remaining 22 patients.
- The Medical Center of Aurora received 18 patients, 13 of which where suffering from gun shot wounds; all survived.
- Hospital administrators say ED providers and staff have responded in different ways to the tragedy, but the emotional impact has been difficult for some.
- Resources, ranging from spiritual support and grief counselors to psychiatric help, have been made available to help ED personnel access the kind of help they need.

medicine at the University of Colorado School of Medicine. The University of Colorado's Anschutz Medical Campus in Aurora, CO, was one of six hospitals that received victims from the mass shooting that took place at an Aurora movie theater on July 20th. "The people who work here live in the community. The people who are patients here are our community. So we were in the community that was horribly assaulted and we saw first-hand what happened," says Zane.

In the space of about 30 minutes, the Anschutz Medical Campus received 23 critically ill or injured patients, and one of the victims was deceased upon arrival, explains Zane. "At the time, just after midnight, the ED was pretty full, and we activated a Code D, which is essentially a disaster response," he says. This set in motion a series of activities designed to send extra resources to the ED while also decompressing the department.

"Patients were moved to other areas of the hospital where they could be cared for. Simultaneously, the operating rooms were activated, the ICUs were activated, operating room staff and surgical staff were called in, and extra blood products were ordered," says Zane. "The first patient went to the operating room in less than five minutes, and the patients were all cared for. Of the 22 patients who arrived alive, 22 are still alive."

Incident command takes charge of response

While the University of Colorado's Anschutz Medical Campus received the most patients from the shooting that night, five other hospitals also cared for victims. One of them, the Medical Center of Aurora, was just across the highway and to the south of where the shooting occurred. "We have an Aurora police officer who is stationed in our ED 24/7, and he started reporting to our charge nurse that there had been a shooting at a movie theater because he heard the radio traffic, so our charge nurse had a bit of a heads-up about it," explains **Mark Mayes**, MD, the director of Emergency Services. "She called me after she received her second patient, not only because she had received two patients by police car, which is very strange, but she had also heard more radio traffic indicating that there were multiple victims on the scene and that we needed to implement our mass-casualty, external disaster program."

Mayes immediately got in the car and headed toward the hospital while also working the phone to alert his chief nursing officer, the medical director, and other key personnel to come in as well. "After arriving here fairly quickly, I got in touch with the trauma physicians who were already in the operating rooms taking patients," he says. "We had a trauma physician who was on-call and we also had a back-up trauma physician. Both of those physicians came in along with the head of trauma at the hospital."

Denver, CO-based Swedish Medical Center, which

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Editor: **Dorothy Brooks** (dobr@bellsouth.net).
Managing Editor: **Leslie Hamlin** (404) 262-5416 (leslie.hamlin@ahcmedia.com).
Executive Editor: **Shelly Morrow Mark** (352) 351-2587 (shelly.mark@ahcmedia.com).
Senior Vice President/Group Publisher: **Donald R. Johnston** (404) 262-5439 (don.johnston@ahcmedia.com).

Editorial Questions

For questions or comments, call **Leslie Hamlin**, (404) 262-5416.

is a sister hospital to the Medical Center of Aurora, received three victims from the shooting, but it was also able to send operating room staff to the Medical Center of Aurora to help the hospital get patients into the OR quickly. While getting this type of assistance from Swedish is not a formal part of the hospital's emergency plan, it did facilitate the process. "We had an inter-hospital liaison who was assigned to our incident command team, and that person took care of these things for us," says Mayes. "We have disaster vests that everybody in incident command wears so that their roles are clearly assigned, from the incident commander all the way to the logistics chief and the ED section chief."

Established systems, structures make crisis manageable

The Medical Center of Aurora received 18 patients, 13 of whom had gunshot wounds. "That was a big stress on the ED, the operating room staff, and the surgeons," says Mayes, noting that the ED's typical daily census is about 165. "It wasn't necessarily the largest mass casualty event [we have ever dealt with], but it arose so fast that it was quite an undertaking."

Further, within two hours of the shooting, friends and family of the victims began flocking to the hospital to look for loved ones. "We set up a staging area where we could manage these individuals and give them information and updates," says Mayes. "Managing the media was another problem altogether because we had [inquiries] locally, nationally, and internationally the night of the crisis."

As part of the hospital's incident command structure, a media liaison took charge of these inquiries, and the hospital also got additional resources and personnel from HCA's Health One division office in Colorado. "They were able to come and provide leadership and strategy around how we were going to provide information while keeping the privacy of our patients a top priority," says Mayes. "We were the first hospital to put up a hotline for families to call into to try to find patients. We set it up through our incident command and got that out to the media as soon as we could."

While the Medical Center of Aurora has never experienced an incident like the mass shooting, Mayes says the hospital has a mature disaster response program in place, and that made a big difference during the crisis. "Everything was difficult, but what made it manageable were the systems we have in place, the structure we have in place, and the training we have done around crisis management and incident command," he says. "Everyone on the leadership team of the hospital carries a three-ring binder that is our disaster manual. We basically have a whole laid-out plan to follow."

As a result of all this preparation, the teamwork that occurred was seamless, says Mayes. The trauma surgeons would shout when they needed things right away, but no one got angry, he recalls. "You never think this is going to happen to your department. You never think it is going to happen to your hospital. And then when it does, you really see where all that training comes into play," adds Mayes.

Room for improvement on communications

The primary challenge in any mass-casualty event is managing the mismatch that occurs between the demand for services and the supply of available resources, explains Zane. But he adds that there is no way to know precisely how these events will unfold. "Although we prepare for disaster and mass-casualty care, you never prepare for specific events because preparedness is 80% generic ... and you have to accept that the last 20% is going to be enigmatic or variable," he says. "It requires leadership on the front lines, which in this case was in the ED."

While the specifics in this case were not what anyone could have anticipated, people recognized that that they were trained to deal with the crisis, and they did that, adds Zane. "We had people taking on roles that were similar to their normal roles, but not the same, and they did it without question and without exception," he says. "The response on that night was nothing short of heroic."

However, no plan works perfectly, and Zane observes that the way health care providers were called in to help with the crisis could have been more efficient. "We could have had a mass-casualty, team-like response so that surgeons, ED physicians, anesthesiologists, and others were all called at once in an organized fashion," he explains. "Instead, the system we had at the time was not functional, so a nurse in the OR called the OR nurses, a surgeon called all the surgeons, and so on. It worked, but it was not ideal, and that was a big lesson for us, so going forward we are going to revamp our technology for how we do team-based emergent calls."

Array of services critical for emotional support

For an event like this, the challenge doesn't end when the immediate crisis is over. Hospital adminis-

trators need to anticipate that at least some providers and staff will need help in dealing with the emotional impact, explains Zane. "What we know is that there is no standardization for the way you care for providers in the community after something so horrific happens," he says. "You simply have to make sure that you have different types of resources that are available because different people need different things."

For example, during this crisis some people were distraught and required a lot of emotional help immediately after the event, and then began to do better, observes Zane. "There are also people who have not thought about it, have not needed it, and don't think they want emotional help now, but in six months they may realize that this has really affected them and they need some help," he says.

In addition, Zane stresses that you have to have a variety of resources available because people respond differently to these types of scenarios, and they don't all need the same kind of assistance. Some may require spiritual help or peer support while others will fare better with the assistance of psychologists, psychiatrists, or grief counselors, he says. Further, some people prefer to get help privately, while others want to access help in a group setting with their colleagues, adds Zane. "The important thing is that you make these resources available, and that you publicize how to access them," he advises. "Create different types of venues and access, and be vigilant in making these resources available on an ongoing basis."

Mayes held a debriefing with all of his staff immediately after the crisis, and that seemed to help. "We went into one of our rooms and just went over what we did well, and how we were feeling," he says. "I told them how proud I was to work with such a group. Everything was done, everything was followed-up on, and we checked to make sure everyone was OK."

Mayes adds that while the ED has dealt with several mass-casualty events, it has never experienced one to this extreme, and the staff have learned some powerful lessons to use going forward. "What I would say to others is to practice often and practice like it is a real event," says Mayes, noting that it is critical to really test your systems. "When we practice and drill at our next mass-casualty event, it is going to have a new level of importance for us."

Further, Mayes plans to do more debriefings and reviews of this incident to pinpoint any processes or procedures that can be improved. "We always focus as hospital managers on good patient care, and this is one aspect of patient care that you never want to have to deal with, but when you do, you really want to be good at it." ■

SOURCES

• **Mark Mayes**, MD, Director, Emergency Services, Medical Center of Aurora, Aurora, CO. Phone: 303-695-2600.
• **Richard Zane**, MD, FAAEM, Chair, Emergency Medicine, University of Colorado School of Medicine, Aurora, CO. Phone: 888-448-9135.

The Joint Commission and the FDA take steps to curb adverse events related to the use and misuse of opioid drugs

Emergency departments face unique challenges in treating patients who present with pain

Noting that opioid analgesics are among the drugs most often associated with adverse drug events, the Joint Commission has issued a Sentinel Alert, urging hospitals to step up their efforts to prevent complications and deaths from use of these powerful drugs. At the same time, the Food and Drug Administration (FDA) has launched an opioid safety plan that requires the manufacturers of extended-release and long-acting opioids to fund continuing education programs for physicians and others who prescribe these drugs. The training sessions, which are scheduled to begin in March of 2013, will be voluntary, but the FDA estimates that within three years of implementing the education program, at least 60% of the 32,000 health professionals who prescribe the drugs will have received the opioid training.

These moves come amid growing alarm that patients are being harmed because of dosing errors, improper monitoring, and dangerous drug interactions associated with opioids such as morphine, oxycodone, and methadone. The Joint Commission reports that of the opioid-related adverse events reported by hospitals to the accrediting agency between 2004 and 2011, 47% involved wrong-

dose medication errors, 29% pertained to improper patient monitoring, and 11% were attributed to factors such as excessive dosing, interactions with other drugs, and adverse reactions. Also, according to the FDA, close to 16,000 Americans died from overdoses involving opioids in 2009, and in 2011, nearly 23 million prescriptions for extended-release and long-acting opioids were dispensed in the United States.

The Joint Commission stresses that while some patients require opioids to manage their pain, use of these drugs can slow breathing to dangerous levels and can cause other problems as well such as dizziness, nausea, and falls. Further, while the Sentinel Alert focuses primarily on opioid use among hospitalized patients, the agency observes that EDs have unique challenges with regard to opioid use that also should be addressed.

ED visits involving misuse, abuse of drugs are way up

Indeed, the latest report from the Drug Abuse Warning Network (DAWN), issued in July 2012, notes that ED visits involving the misuse or abuse of pharmaceuticals increased by a whopping 115% between 2004 and 2010, and ED visits involving adverse reactions to pharmaceuticals taken as prescribed increased by 86% between 2005 and 2010. (***See Figure 1.***) While only a portion of these adverse reactions are related to opioids, many experts agree that opioids are of particular concern.

The American College of Emergency Physicians (ACEP) released a clinical policy paper on opioid prescribing in the ED earlier this year, and some individual states are taking on the issue as well. For example, in Washington state, an ED opioid abuse work group recently unveiled guidelines on opioid prescribing that have been disseminated to every ED in the state, explains **Stephen Marshall**, MD, medical director of the ED at Overlake Hospital Medical Center in Bellevue, WA, and president of the Washington chapter of ACEP. ***(See Source for links to ACEP paper and W-ACEP guidelines, p. 116.)***

The guidelines were prompted by data showing that there is a high number of accidental deaths related to prescription medications in the state, observes Marshall, but he emphasizes that the problem is not an easy one to solve. "This is a bit of a dilemma for emergency physicians. A significant portion of our practice is to try to relieve pain and to do so in a timely and humane way, and yet, we understand with more and more education that in patients who do receive narcotic medications or opioids, that we may be creating a secondary problem while we are trying to relieve their initial problems," says Marshall.

The guidelines don't prevent physicians from treating their patients in the way they think is best, but rather set up a support structure that helps them to have conversations with their patients about appropriate care, explains Marshall. ***(See also "To improve opioid prescribing practices, enlist the support of state-level agencies," p. 116.)***

Time to institute photo IDs?

Among the recommendations spelled out in the document, the guidelines discourage the administration of intravenous and intramuscular opioids in the ED for the relief of chronic pain, and they stress that long-acting or controlled-release opioids should not be prescribed at all in the ED setting.

Further, the guidelines suggest that EDs should photograph patients who present with complaints of pain without a government-issued ID. "Everybody has anecdotal stories of people taking someone's insurance card and showing up and pretending to be that person, and getting prescriptions or getting health care in a fraudulent way," says Marshall. "This helps to avoid that."

This practice should also help to prevent people from going to multiple EDs to access prescriptions

EXECUTIVE SUMMARY

Alarmed by adverse events involving opioid drugs, the Joint Commission has issued a Sentinel Alert urging hospitals to take steps to improve safety in the prescribing of these powerful drugs. In addition, the Food and Drug Administration (FDA) has launched an initiative that will soon require the manufacturers of long-acting and extended-release opioids to offer education and training to physicians and others who prescribe these pharmaceuticals.

- The Joint Commission reports that of the opioid-related adverse events reported to the agency between 2004 and 2011, 47% involved wrong-dosage medication errors, 29% pertained to improper patient monitoring, and 11% were attributed to other factors such as excessive dosing, drug-drug interactions, and adverse reactions.
- The FDA reports that nearly 16,000 Americans died from overdoses involving opioids in 2009, and in 2011, there were nearly 23 million prescriptions written for extended-release and long-acting opioids.
- Some new guidelines on opioid prescribing in the ED urge providers to avoid prescribing extended-release or long-acting opioids altogether, and to consider measures that will limit opportunities for drug diversion.

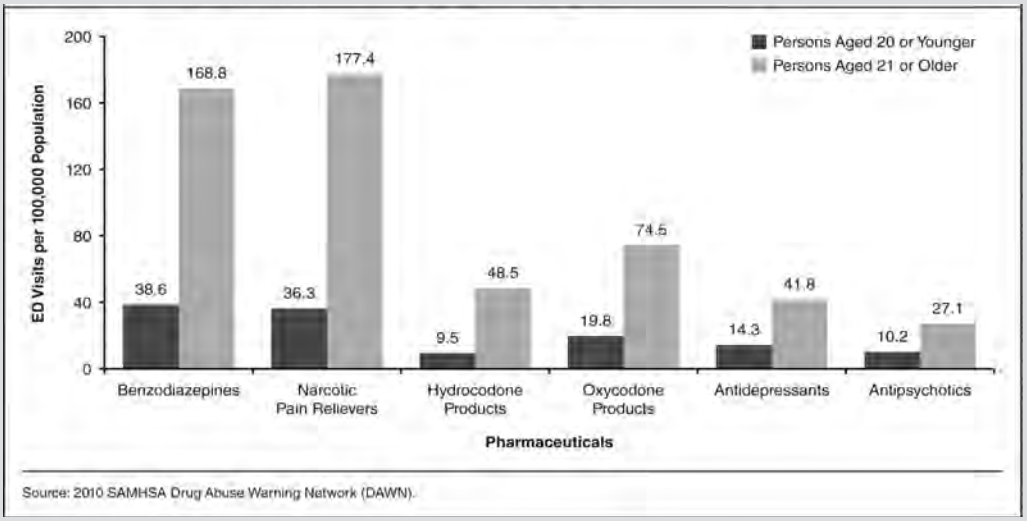

Figure 1: Rates of Emergency Department (ED) Visits Involving Misuse or Abuse of Select Pharmaceuticals per 100,000 Population, by Age and Drug: 2010

for narcotics that they can then re-sell or divert, adds Marshall. "These people are not necessarily the users of the drugs, so we would like to eliminate this practice completely because it is a danger to society," he says. "Probably half of the prescription narcotic deaths that are reported involve people taking drugs that were not actually prescribed to them. The drugs were either diverted or taken out of a parent's or friend's medicine cabinet, so we are trying our best to reduce this."

Having a photo ID program in the ED is one way to address this problem, but it is only a first step, says Marshall. The next step is having pharmacists require a photo ID when patients pick up their prescriptions, he says.

Other recommendations in the guidelines are designed to address patients who present to the ED to receive narcotics for relief of chronic pain. "There is significant evidence that narcotics or opioids aren't very good at treating chronic pain, even though we have many people going down that pathway," says Marshall. "We want to give them hope and help them switch to medications that are safer and more likely to work better for them."

Marshall adds that posters summarizing the pain medication prescribing policies advocated in the guidelines have been posted in every ED in the state so that patients will understand what they can expect if they present to an ED for pain, and why the policies are in place.

Physicians adjust prescribing practices

For the past 15 months, hospitals in Washington have been under intense legislative pressure to reduce non-emergent ED visits, so practices that reduce drug-seeking behavior should assist in this effort, although development of the opioid guidelines began long before the legislature began cracking down on ED visits, explains Marshall. "The timing was fortuitous in helping us to show that we could offer an alternative solution to the legislature's rather draconian, non-clinical intervention of trying to limit visits," he says. "We were able to show them that we had been working on this for two years with other state agencies and that we already had a plan in place."

The opioid guidelines have only been in place for about a year at this point, so it is difficult to gauge what impact they will have, but Marshall indicates that preliminary data show that the number of prescription opioid-related accidental overdoses seems to be decreasing. "The bad news is that the number of heroin-related accidental deaths seems to be increasing, so part of this process may be pushing addicted people who don't want help to other sources for their narcotics, but it is too soon to make that judgment," says Marshall.

However, there is also evidence that ED physicians are adjusting their prescribing practices. "What I can tell you from my practice and my

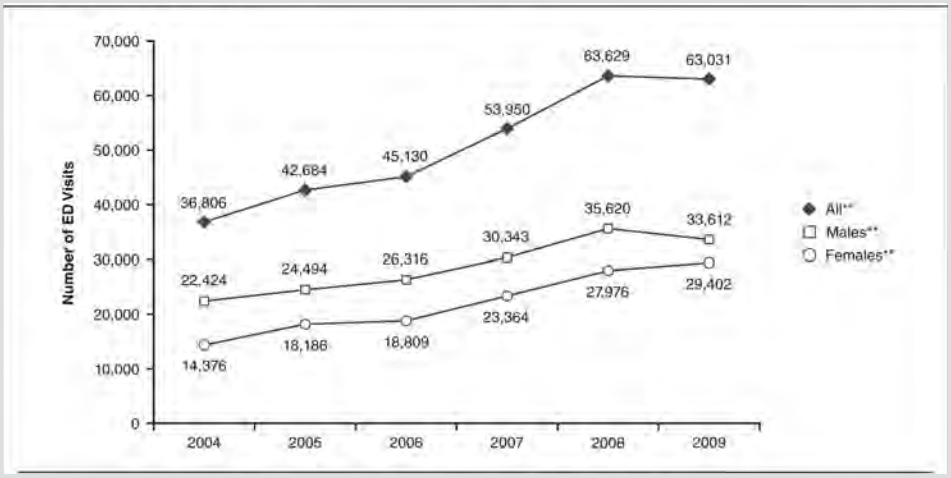

Figure 2: Trends in Methadone-related Emergency Department (ED) Visits Involving Nonmedical Use, by Gender: 2004 to 2009
**Because gender is unknown in a small number of visits, estimates for males and females do not add to the total.*
***The change from 2004 to 2009 is statistically significant at the .05 level.*
Source: 2004 to 2009 SAMHSA Drug Abuse Warning Network (DAWN).

partner's practice is that we are writing fewer prescriptions and we are talking to patients about the risk of addiction when we are giving narcotics for acute pain relief," says Marshall. "If a patient comes in with a broken ankle, there is some evidence that opioid narcotics do well in combination with Tylenol or ibuprofen, so we are going to prescribe them for that, but we are also going to try to prescribe less than we might have, we are going to try to make sure the patient gets careful follow-up, and we will warn people about the risks of narcotics or opioid prescriptions left in their medicine cabinets and not taken."

Be careful with drug-drug interactions, methadone

Lynn Webster, MD, FACPM, FASAM, president-elect of the American Academy of Pain Medicine, and Medical Director, Lifetree Clinical Research and Pain Clinic, Salt Lake City, Utah, welcomes the FDA's initiative aimed at providing physicians with more education about how to prescribe extended-release and long-acting opioids because he believes many physicians lack understanding of how to identify patients who are most likely to be vulnerable from the use of these drugs. In addition, Webster notes that some physicians don't know how to properly initiate some of these medicines, or how to rotate from one type of opioid to another safely. "Sometimes physicians are unaware of drug-drug interactions, and some will use medicines that are inappropriate for the emergency setting," adds Webster.

Another problem that Webster sees in ED settings is that in the case of acute trauma-related pain, physicians often prescribe more medicine than is necessary. For example, a patient who presents to the ED with a legitimate pain complaint may receive a prescription for a week or two of pain medication when he only needs the medicine for one or two days, explains Webster. "The unused medicine then becomes available for diversion," he says.

Webster contends that physicians in the ED should not even be prescribing long-acting or extended-release opioids because the ED is an acute setting. "If an extended-release opioid is needed, then it should be prescribed by someone who is going to follow the individual for a long time," he says. "It is just not appropriate to use extended-release or long-acting opioids for acute pain, particularly in patients who may be opioid naïve."

One drug-drug combination that ED physicians should be careful to avoid is the use of opioids and benzodiazepines. "There is significantly more toxicity to both drugs — the benzodiazepine and the opioid — when they are prescribed in combination," explains Webster.

Physicians in the ED should also be careful about how they use methadone, a drug that is increasingly being used as a narcotic pain reliever because many payers are declining to cover branded drugs, observes Webster, but he emphasizes that it is a risky choice.

"One-third of the opioid deaths in this country are due to methadone, and many of those are due to an inappropriate starting dose," he says. "My guideline is never to start anyone on more than 15 milligrams of methadone, even though the package insert states that you can start someone on up to 30 milligrams. Sometimes 30 milligrams is lethal."

With the increasing use of methadone as a pain reliever, there has been a huge increase in ED visits related to the non-medical use of the drug, according to a DAWN report covering the years 2004 to 2009. (***See Figure 2 on p. 115.***) These would pertain to patients who took more of the drug than prescribed, patients who took methadone prescribed to someone else, deliberate poisoning, or documented misuse or abuse of the drug.

Joint Commission: Take these steps

The Joint Commission is urging hospitals to implement practices designed to ensure that patients receiving opioids are regularly monitored and that pain management experts are consulted to review pain management plans. The agency also encourages the use of technology to enhance safety in opioid prescribing, and it recommends additional training and education on the safe use of opioids for both clinicians and patients. Other steps that hospitals should consider include using standardized tools to screen patients for any risk factors that could heighten the possibility of adverse events from opioid use, and the tracking of any opioid-related incidents. ■

SOURCES

• The American College of Emergency Physicians (ACEP) issued a clinical policy paper on opioid prescribing in the ED in June 2012. To review the paper, "Critical Issues in the Prescribing of Opioids for Adult Patients in the Emergency Department," visit the ACEP website at: http://www.acep.org/clinicalpolicies.

• The Washington State Chapter of the American College of Emergency Physicians collaborated with other state agencies to develop Washington Emergency Department Opioid Prescribing Guidelines. They can be accessed at http://washingtonacep.org/Postings/edopioidabuse-guidelinesfinal.pdf.

• **Stephen Marshall**, MD, Medical Director, Emergency Department, Overlake Hospital Medical Center, Bellevue, WA, and President, Washington Chapter, American College of Emergency Physicians. E-mail: Steve.Marshall@overlake-hospital.org.

• **Lynn Webster**, MD, FACPM, FASAM, President-Elect, American Academy of Pain Medicine, and Medical Director, Lifetree Clinical Research and Pain Clinic, Salt Lake City, Utah. E-mail: LynnW@lifetreepain.com.

Management Tip

Improve ED opioid prescribing practices by enlisting support of state-level agencies

To effectively tackle the issue of opioid prescribing practices in the ED, you will need the support of physician and nurse champions in high places, but you should also try to enlist the participation of state-level agencies such as the health department, the hospital association, and medical association, advises **Steven Marshall,** MD, medical director of the ED at Overlake Hospital Medical Center in Bellevue, WA, and president of the Washington chapter of the American College of Emergency Physicians (W-ACEP)**.** These groups can not only help you win buy-in for the effort, they may also provide some financial support.

In Washington, for example, state agencies picked up the tab for printing posters so that every ED in the state could prominently display how patients presenting to the ED with pain will be treated, and why these policies were implemented. "The state was going to take [W-ACEP] money for that, and then they just decided to step up and do it," says Marshall. "It was a big deal having the state be on board with the effort." ■

Reap the rewards of a non-targeted HIV screening program

Routine screening policies can diminish decline rates, identify patients in the early stages of infection, and curb transmission of the disease

While the Centers for Disease Control (CDC) in Atlanta has been calling on EDs to routinely test patients for HIV since 2006, the practice is hardly widespread. Even among EDs in urban areas, where the prevalence of HIV is relatively high, cost remains a significant barrier to this type of screening. Hospital administrators point to administrative hurdles and, in some cases, provider pushback as often complicating efforts to implement the kind of non-targeted, opt-out screening policies that the CDC recommends.

However, some of the EDs that have pushed through these obstacles and implemented routine HIV screening practices are beginning to see positive results from their efforts. What's more, new technologies are bringing the cost of HIV testing down, and experts suggest that once an infrastructure is in place to carry out routine HIV screening, there are opportunities to leverage these resources for additional gains.

EXECUTIVE SUMMARY

Administrative hurdles, costs, and provider resistance have prevented many EDs from implementing the kind of non-targeted HIV screening that the CDC recommends. However, some of the hospitals that have successfully negotiated through these obstacles are having a positive impact on their communities, identifying cases of HIV at a time when many of the downstream complications and costs can be prevented. Further, once an infrastructure is in place to support HIV screening, it can be used for other purposes as well.

- Since the ED at the University of Alabama at Birmingham implemented non-targeted HIV screening a year ago, the process has identified 72 patients with HIV and linked them into care.
- Administrators caution that it is imperative to identify resources for follow-up care before HIV testing begins; otherwise the benefits of testing will be lost.
- Experts advise EDs to make testing as routine as possible so that patients will agree to undergo HIV tests. At UAB, triage nurses explain to all patients that the HIV test will be conducted unless they choose to decline the test. The decline rate is only 13%.
- New, fourth-generation testing platforms have reduced the per-test costs by more than half, and can deliver results within 30 minutes.

Reduce the stigma

Even with funding assistance from the CDC, it took a year for the ED at the University of Alabama at Birmingham (UAB) to implement a non-targeted, opt-out approach to HIV testing, explains **James Galbraith**, MD, a physician in the UAB Department of Emergency Medicine and the testing program coordinator. "That [timeline] is pretty common anytime anyone attempts to initiate any type of high-volume testing in the ED," says Galbraith. "We ran our first test in August of 2011, and we have been testing 24/7 since then without any pauses or breaks."

The way it works is that any patient aged 19 to 64 who presents to the ED for care, will be asked during triage whether he or she has ever been tested for HIV, and if so, what the result of the last test was, explains Galbraith. If the test result was negative for HIV, the nurse will inform the patient that UAB offers a free and confidential rapid HIV test for all ED patients, and that the patient should let her know if there are any questions or concerns, or if the patient wishes to decline the test.

"The nurse then allows patients to take in the information, and what we have found is that only about 13% of patients decline the test," says Galbraith. "In other models where hospitals have used pieces of paper, or registration people have gone into the triage room to ask the patients these questions, there is a much higher opt-out rate. In some cases, it is as high as 80%."

While it is important to be transparent with patients so that they know you will be testing them for HIV, you also want to make the process as routine as possible, explains Galbraith. "The less routine you make the offering, the less likely it is that patients are going to want to participate in the testing," he says. "We reduce the stigma attached to HIV testing by saying that we want to test everybody."

In one year of conducting 20,000 HIV tests, the ED has confirmed diagnoses in 72 patients; this is in an ED that sees about 63,000 patients a year, says Galbraith. He observes that the prevalence may seem quite small, but a positive diagnosis is made every three or four days at UAB, and most of these patients have not yet developed AIDS.

"It becomes cost-effective downstream for a hospital to be getting these patients linked into care, making this more of a manageable chronic disease rather than dealing with end-of-life issues, multiple ICU stays, and all of these expenses," adds Galbraith. "The math-

ematical models that the CDC has done suggest that if the prevalence in your community or your population of patients is greater than 0.1%, then this approach is cost-effective."

Identify patients early on

One of the reasons why expanded testing programs are important is because treatments for HIV have become so effective, explains **Michael Saag**, MD, director of the UAB Center for AIDS Research. "Especially when you find people early and get them into care, they will live a normal lifespan, so the trick is finding people soon after they have been infected and getting them early into care," he says. "In addition, once these patients are in care and their viral load is suppressed with treatment, they don't transmit the virus to other people, so we have both a personal health benefit and a public health benefit."

In the early stages of an HIV infection, there are usually no symptoms, so unless you are testing patients, you are not going to know they are infected, adds Saag. "Most people who are at risk for HIV don't define themselves as being at risk, so they don't even think to get tested," he says. "The ED is great place to do testing because several studies have shown that among people who ultimately got admitted to the hospital from the ED for an AIDS-related condition, on average they had three to five ED visits in the year prior to their admission when they were never tested for HIV."

If these patients had been tested, they would have been diagnosed sooner, and that hospitalization down the road could have been averted, stresses Saag. "It is not just these patients and their families who are affected. This affects anyone who might have had contact with them down the road and picked up the infection, so the ripple effects are pretty profound."

Identify resources for follow-up care

However, Galbraith emphasizes that the benefits of expanded testing are lost if adequate resources are not in place to provide these patients with effective follow-up. "You really need to have these places identified and have a strategy in place to link these patients into care," he stresses. "The longer patients have to wait for their first appointment or the longer they have to wait for their confirmatory results, the less likely they are to follow-up."

To make these connections quickly at UAB, Galbraith hired a linkage care coordinator whose primary responsibility is to call all patients who have tested HIV positive on the next business day after they have received counseling in the ED. "The patients are also given the linkage care coordinator's phone number so they can call in," says Galbraith. "An encouraging sign for us is when the patient leaves the ED and calls the linkage care coordinator right away."

A disproportionate percentage of patients with HIV are "extremely under-served," adds Galbraith. "They don't have health insurance, they don't have care, and they may not have a phone," he says. "Their mind is set every day on food, shelter, and water; HIV is very low on the priority list, so the easier you can make [accessing care] for them, the better the chance you have of getting the benefit of screening."

Before the HIV testing program began at UAB, Galbraith communicated with all of the HIV care resources within the community to discuss how they would care for an influx of newly diagnosed patients in terms of logistics and funding. "In the first year, we have had 72 new cases, and we were able to handle it just fine," he says.

While the patients identified as having HIV will definitely benefit from being connected to care at an early stage, any cost savings from the screening program will take time to realize. "We won't potentially see the effects of expanded testing for 3, 4, or 5 years, when these patients would otherwise develop AIDS," notes Galbraith. In addition, he suggests there is a preventive effect from screening because if people know they have HIV, they can take steps to insure that they do not pass the disease on to others. Public health experts estimate that roughly 20% of persons who have HIV are not aware that they have the disease.

"The CDC's argument is if you wait until the epidemic gets much worse before you start a screening strategy, it is going to get much more out of control. This is a means of prevention by getting these patients identified," explains Galbraith.

COMING IN FUTURE MONTHS

- What EDs can do now to curb crowding
- Guiding frequent users toward more appropriate care settings
- How to recognize and alleviate provider burnout
- Streamline the ED-to-inpatient admitting process

Provide training to clinicians, staff

There is no question that implementing a non-targeted screening program of this size and scope requires additional personnel. In addition to the linkage care coordinator, Galbraith has brought on a project coordinator to handle the financial end of the program and three dedicated lab personnel to carry out the roughly 20,000 HIV tests per year required.

Galbraith acknowledges that getting the ED physicians on board with the program was challenging because many were concerned about the time it would take to counsel patients with a positive diagnosis, and many were also uncomfortable taking on that role. "I did sessions on how to counsel, and I had counselors from our HIV clinic come over and train everybody about the initiative," he says. "We also trained the nurses about the initiative and the rationale behind it. All these things took several months before we implemented the screening."

While some EDs have attempted to put the responsibility for HIV testing on a single person, there is no way to operate such a program on a 24/7 basis, observes Galbraith. "We use what is called a hybrid model, which means that the burden of this testing program on our department is shared throughout," he says. "The physicians are responsible for providing the results of the tests, the nurses are responsible for collecting the samples as well as the triage questions, and the lab staff process all the samples. It is a team effort in the ED."

Galbraith adds that new, fourth-generation HIV tests can detect HIV at an earlier stage than previous tests, they can deliver results within 30 minutes, and they have reduced the per-test cost by more than half.

Initially, UAB's testing program was funded just through 2013, but because of the success the program has achieved in identifying patients with HIV and linking them into care, the CDC has now extended its funding through 2016. Galbraith explains that the contract UAB has with the CDC is basically reviewed every three years, and he is hopeful that the funds will continue even after 2016. "If the funding went away, we would struggle to offer this type of screening, and would probably have to resort to more of a targeted approach or go back to a diagnostic strategy," says Galbraith.

Consider future benefits

Once the infrastructure and processes are in place to support HIV screening in the ED, the approach can easily be applied to other diseases as well, observes Saag. In fact, the ED at UAB has already begun to apply the same testing approach to identifying patients who have hepatitis C and then linking them into care. "Rather than starting from scratch, once you have an HIV screening procedure in place, it is relatively straightforward to add this in, and a positive result can be managed in exactly the same way."

The potential health benefits and cost savings are significant, stresses Saag. "There is a revolution going on right now in hepatitis C therapeutics. Within the next five years, I think we will be curing hepatitis C in up to 90% of the people who have the infection," he says. "This has already started to happen, so [these improvements] will significantly trim health care expenditures and prevent long-term complications like cirrhosis of the liver and liver cancer." ■

SOURCES

• **John Galbraith,** MD, FACEP, Physician and Testing Program Coordinator, Department of Emergency Medicine, University of Alabama, Birmingham, AL. E-mail: jimgalbraith@gmail.com.

• **Michael Saag,** MD, Director, Center for AIDS Research, University of Alabama, Birmingham, AL. Phone: 205-934-5191.

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. ■

CME/CNE QUESTIONS

1. According to **Richard Zane**, MD, FAAEM, what is the primary challenge of any mass-casualty event?
A. managing the mismatch that occurs between the demand for services and the supply of available resources
B. getting providers to the scene quickly
C. communications
D. handling all the inquiries from media and the families of patients

2. Also according to Zane, what kind of support should be in place for ED providers and staff who have responded to mass-casualty events?
A. spiritual help and peer support
B. grief counselors
C. psychiatric services
D. all of the above

3. According to **Stephen Marshall**, MD, what percentage of prescription narcotic deaths that are reported involve patients taking drugs that were not prescribed to them?
A. 25%
B. 90%
C. 20%
D. 50%

4**. Lynn Webster**, MD, FACPM, FASAM, notes that one drug-drug combination that ED physicians should be careful to avoid involves:
A. Tylenol and opioid medications
B. antidepressants and opioids
C. benzodiazepines and opioids
D. antibiotics and opioids

5. **James Galbraith**, MD, explains that while it is important to be transparent to patients when implementing a non-targeted HIV screening program in the ED, it is also critical to make the process:
A. mandatory
B. as painless as possible
C. as routine as possible
D. all of the above

6. Galbraith explains that the mathematical models that the CDC has created show that a non-targeted HIV screening program in the ED will be cost-effective if the prevalence of HIV in the community is:
A. greater than 0.1%
B. greater than 1%
C. greater than 10%
D. Greater than 0.5%