



Management

Best Practices – Patient Flow – Federal Regulations – Accreditation

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What is the best weapon against MRSA? You might be surprised

Newly published research points to ‘old standby’

According to a recent study in the *Annals of Emergency Medicine*, thorough hand washing might be the most cost-effective way to reduce the spread of methicillin-resistant *Staphylococcus aureus* (MRSA) in the ED.¹ Knowing that information is helpful, but experts agree that’s only half the battle. ED managers also need to work on boosting compliance rates.

“We found that 20% of infected ED patients did not have typical risk factors that would alert the staff they might be carrying MRSA,” notes **Elissa Schechter-Perkins**, MD, MPH, lead author of the study, assistant professor of emergency medicine at the Boston University School of Medicine, and an attending physician in the Boston University Medical Center ED. “The conclusion we took from that is that it probably does not support testing everyone. It’s too costly and time-consuming, and an additional burden on an otherwise overburdened ED staff.”

Based on those findings, the researchers concluded that, as opposed to targeted screenings, other infection control measures such as hand hygiene would be the most efficient way of combating the spread of MRSA. In a statement released by the American College of Emergency Medicine, publisher of *Annals of Emergency Medicine*, **Kalpna Gupta**, MD, a co-author of the study and chief, Section of Infectious Diseases at the Boston Veterans Affairs Health Care System, said, “MRSA is transmitted by touch, making clean hands essential to stopping the spread of

EXECUTIVE SUMMARY

Getting your staff to wash their hands thoroughly and regularly can help prevent the spread of methicillin-resistant *Staphylococcus aureus* (MRSA), say the experts.

- Make sure there are an ample number of convenient places for staff to use sinks and/or dispensers.
- Collect data infection control data, and share it with your staff.
- Place posters and other reminders around the department in highly visible areas.



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this potentially deadly organism.”

The researchers' conclusion is correct, according to **Kate Ellingson, PhD**, an epidemiologist with the Centers for Disease Control and Prevention (CDC) in Atlanta. “It's very expensive to do active surveillance testing, though active surveillance allows you to cohort patients and institute proper staff precautions like gloves and gowns,” Ellingson says.

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“But in the ED situation, cohorting may be more difficult than in a ward situation.”

Key to compliance

While experts agree that hand washing can be an effective and efficient weapon against the spread of MRSA, there is not universal agreement on the best way to boost compliance. Ellingson, however, sees nothing wrong with that lack of agreement.

“The Joint Commission Center for Transforming Healthcare just published the results of a hand hygiene project where they report on eight different locations, and they show a variety of approaches” she notes. (*A link to the report, “Hand Hygiene Project: Best Practices from Hospitals Participating in the Joint Commission Center for Transforming Healthcare Project — 01/04/2011,” is found on the home page of center’s web site under “Featured News.” Web: <http://www.centerfortransforminghealthcare.org>.*)

However, Ellingson has found some common elements in successful hand washing compliance projects, both in her own experience and in the literature. “One of the common things we emphasize is data feedback; collect data and feed it back to the staff,” she says. “You also have to approach it from a cultural point of view and gain buy-in.”

For improvement to be sustainable, it has to be taken on by advocates in the unit itself, Ellingson says. “The Joint Commission talks about Six Sigma training, and others talk about training behavior through approaches like Toyota’s,” she says. “The commonality is that each of them really tries to get down to what root causes are.” If you can be specific about the causes, she explains, you can find specific solutions.

Ellingson offers the example of EDs where hand cleaner dispensers are placed in convenient accessible locations, in response to a root cause identified as lack of adequate access to hand cleaning options.

“That’s a situation where you can easily implement a solution,” she says. “Hidden monitors” are another common solution, involving direct observers out on the floor to observe hand hygiene compliance. “Many times there is an effort to make these people secret, though many healthcare workers will tell you they are not secret,” says Ellingson. “But when people know they are being observed, they change their behavior.”

Schecter-Perkins disagrees with this approach. “Rather than single out individuals, it might be

SOURCES

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more effective to adjust the environment to make it easier to be compliant with hand washing guidelines,” she says. Schechter-Perkins refers to interventions such as:

- placing signs around the ED encouraging hand washing/sanitizing;
- adding more hand sanitizer dispensers at convenient locations (i.e. just inside or outside patient’s rooms) so that it is more convenient to wash hands;
- ensuring that soap dispensers and sanitizers are full and functioning properly.

Ellingson agrees the observer approach has limitations. “One of the big complaints is it gives you a fairly limited view of what’s going on,” she says. There are automated mechanisms for assessing hand hygiene adherence such as radio frequency identification (RFID) that could be the “wave of the future” in terms of monitoring, Ellingson says.

She says that products by Proventix (<http://www.proventix.com>), Arrowsight (<http://www.arrowsight.com/public/as>), and HyGreen (<http://www.xhale.com/hygreen/?gclid=CLrj16bv4aYCFYrt7QodSlgFzw>) are examples of types of technologies designed to automate the monitoring and feedback progress. Also, a cheaper, wireless technological solution is being developed by a group headed by Philip Polgreen, MD, MPH, director of the Infectious Disease Society of America’s Emerging Infections Network, a sentinel surveillance group sponsored by the Centers for Disease Control and Prevention, and assistant professor of medicine and epidemiology at the University of Iowa, in Iowa City.

“I think the most effective way would be to have a multi-pronged approach, because there are multiple reasons why it’s not being done,” Ellingson says. “The ED is such a busy place that most staff members are trying to do two or three things at the same time, so make it easier: Increase supplies and have dispensers available when you walk in or out of a room so they don’t have to stop at the nurses’ station or sink. They can just wash and go on to the

next task.” (For details on how one ED’s multi-pronged approach significantly improved compliance, see the story below.)

REFERENCE

1. Schechter-Perkins EM, Mitchell PM, Murray KA, et al. Prevalence and predictors of nasal and extranasal staphylococcal colonization in patients presenting to the emergency department. *Ann Emerg Med* Jan 14 2011 [Epub ahead of print]. PMID: 21239081. ■

Multiple strategies boost compliance

Approach credited with one ED’s success

The ED at Sutter Delta Medical Center in Antioch, CA, has significantly improved hand washing compliance with a multi-pronged approach that yielded results in just a few months. Before the initiative began, compliance rates were about 40%, according to Shelly Fitzgerald, RN, CEN, charge nurse for emergency services.

“Our MD numbers were 61% in August 2009 and up to 80% by mid-November,” Fitzgerald reports. “Non-MDs went from 56% to 71%.”

The program, called “Back to Basics,” included not only using regular soap dispensers and water, but also having enough dispensers around the ED, says Adriene Clark, RN, assistant ED manager.

Fitzgerald says, “We did not have sinks in all ED care areas, so we made sure we installed hand sanitizers at every point of patient care, including the hallways and outside the doors of utility rooms as well as in triage bays — anywhere you might have patient contact.”

Through interviews with the staff, it was determined that the sanitizers, which are battery powered, were often either empty or had dead batteries that had not been replaced. “We posted the phone number of the single individual who would now be responsible for both,” says Fitzgerald.

In addition, she notes, there had not been a lot of signage in the department, so she and the infection control director put together posters that rotated on a weekly basis. “They would also show up as screensavers,” says Fitzgerald.

Mike Whitehair, RN, MSN, CIC, infection preventionist, says, “If anyone Googles ‘hand hygiene/hand hygiene posters’ you will get a wealth of free resources, which is what we did for our project.” The CDC and the VA system ([MARCH 2011 / ED MANAGEMENT](http://www.publi-</p></div><div data-bbox=)

SOURCES

For more information implementing a successful hand washing compliance program, contact:

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• **Mike Whitehair**, RN, MSN, CIC, Infection Preventionist, Sutter Delta Medical Center, Antioch, CA. Phone: (925) 756-1118.

health.va.gov/infectiondontpassiton) have some easily downloadable posters, Whitehair says.

The posters had catchy phrases, notes Clark. “One, which said ‘Don’t get caught germy-handed,’ pictured a hand with a magnifying glass showing the amount of germs that can reside on the skin,” she says. Another said “gel in, gel out,” referring to staff using hand sanitizers when they went into and out of a patient’s room.

It was important that the posters be rotated, Clark says. “If you see the same one over and over again, you become oblivious to it,” she says. Many of them also pictured staff members on the posters to help “inspire” the staff.

Observations were conducted on a weekly basis. Notations were made as to whether the individual observed was a physician, nurse, or tech, but their names were not used.

Clark said that one experience she had at the hospital showed her that the messages had clearly taken hold. “I was watching a physician, and he turned to me and said ‘Gel in, gel out,’” she recalls. “The more you talk about it, the more aware of it they are.” ■

Smartphone app speeds registration

Patients send in basic info before arrival

More and more, it seems, EDs are harnessing the power of the digital world to make their operations more efficient and to enhance patient services. In the Denver area, that trend now includes a smart phone application that enables patients to register before they get to the hospital.

Called iTriage, the free app (available for Android, Blackberry, and Apple phones) was developed by members of an emergency physician group and is now being piloted by Porter

Adventist Hospital and Littleton Adventist Hospital. “The patient can type their symptoms in, and the app can provide some direction as to where they might get care; for example, it might recommend an urgent care center,” explains **Ahmed Stowers**, MD, medical director of the Porter ED, a business partner of the physicians who developed the app. “If it tells the patient they should go to the ED, it also provides a list of those closest to the patient.”

If the patients choose Porter, for example, they can notify the ED, much like an ambulance call-ahead. “They type in information for the registration clerk, who gets them pre-registered,” notes Stowers. When the registrars are alerted, they page the charge nurses and let them know they have received a message from iTriage. The charge nurses let the triage nurses know, and they in turn notify the attending physicians.

Roxana Newton, CHAA, patient access supervisor, says, “We instantly get a fax with the patient’s name, date of birth, reason for the visit, basic insurance information, and if they have any allergies. It’s a kind of heads-up for the ED to know what to expect. If it is vital that the patient be seen right away, that can be anticipated based on their history.”

As an ED medical director, Stowers appreciates such a heads-up. “We can prep the ED if they have a specific issue like gynecology or ENT,” he notes. “It allows me to manage my resources: staffing, room traffic, and so on.”

Just last week, an elderly patient with a nose-bleed was brought in by her daughter. “The daughter had previously looked up iTriage and, noting that her Mom was on Coumadin, realized it would not be good to take her to urgent care and instead brought her here because we were equipped to deal with problem,” Stowers says. “We had a 10-15 minute warning, so when she got here we took her right back to the ENT room and we were able to get her problem taken care of.”

Newton says, “It’s been pretty useful, and I

EXECUTIVE SUMMARY

Two Denver area EDs have entered the digital world with the use of a mobile application that allows patients to pre-register before coming to the ED.

- Patients can use their smart phones to determine if they need to go to the ED and which one is closest.
- The ED registration desk receives the pre-registration form, which provides basic information, via fax.
- Once the information is received, registration notifies the charge nurse so the ED can prepare to receive the patient.

SOURCES

For more information on using smart phone applications, contact:

- **Roxana Newton**, CHAA, Patient Access Supervisor, Porter Adventist Hospital, Denver. Phone: (303) 765-6545.
- **Ahmed Stowers**, MD, ED Medical Director, Porter Adventist Hospital, Denver. Phone: (303) 778-5666.

think business will be picking up. It's very helpful for the registration staff as well as for the patient." Because the patient's basic information can be viewed before they arrive, "once they do arrive it takes mere seconds to get them to be seen," she says. "It does not hold the process up at all."

Stowers agrees that the app has made life easier for his staff. "With all the electronic stuff we have in the department, it's tough to get it all done on the fly, and iTriage just moves some of it outside of the ED and into somebody's home," he explains.

The community was notified of the new app through the Porter web site, which includes a link to iTriage. "In addition, if you Google it or go to some health web sites, a link for iTriage will appear," Stowers says.

The system just received an update, Stowers adds. "Starting yesterday, patients were also able to see what our wait times are," he says. *(Little staff training was required to prepare for the introduction of the app. See the story below.)* ■

App requires little training

There was no need for extensive training to prepare the ED staff at Porter Adventist Hospital in Denver for the introduction of a new iPhone app called iTriage, says **Roxana Newton**, CHAA, patient access supervisor.

The managers had a small amount of training from the emergency physician group, which had developed the application, "and I trained the staff," Newton says. "It's very simple to work with and easy to learn."

The initial class, which lasted about 30 minutes, covered issues such as what the patients see when they use the app, what the registration staff can expect to see when the information is received in the ED via fax, and what to do when they receive the faxes, such as notify the charge nurse. ■

Radiation detector passes big test

False positives and negatives removed

University of Pittsburgh Medical Center (UPMC) Presbyterian Hospital in Pittsburgh has successfully tested the Emergency Department Notification System (EDNS) by Waltham, MA-based Thermo Fisher Scientific, which a member of the ED staff describes as "novel technology" for radiation detection.

"The old detectors simply gave you a positive or negative reading," says **Joe Suyama**, MD, associate professor of emergency medicine at the University of Pittsburgh School of Medicine and an attending physician in the UPMC Presbyterian ED. "This can tell you what is hot and what isotope is giving you that signal."

In other words, it helps discern between non-hospital grade radiologicals and those commonly used in a hospital, Suyama says. "There is a ton of radioactive iodine around the hospital, for example, which is used for diagnostics or therapy," he notes. "You get dozens of hits from these hospital isotopes when people walk by the ED, so a 'plus/minus' reading is not very helpful."

Joel S. Greenberger, MD, professor and chairman of the Department of Radiation Oncology at University of Pittsburgh Medical Center, says, "This is a system of radiation detectors which does not signal the controller when a hospital isotope is detected." In the past, not only iodine but iridium prostate seed implantations and sometimes even isotopes used for nuclear medicine scanning would commonly set off detectors, Greenberger says. "They were basically useless because they were always going off," he says.

The cost of the system varies based on configu-

EXECUTIVE SUMMARY

The new Emergency Department Notification System (EDNS) for radiation detection has been successfully tested at University of Pittsburgh Medical Center Presbyterian Hospital in Pittsburgh. Physicians in the hospital ED and radiation oncology departments agree this "new generation" device offers several benefits.

- Isotopes regularly used for diagnoses and therapy will not set off the detectors.
- Because dangerous isotopes can be detected in a patient's body, if radioactive dust has been inhaled, the detectors will set off an alarm.
- Machines such as CT scans can be saved from contamination.

SOURCES/RESOURCE

For more information on radiation detection in the ED, contact:

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- **Joe Suyama**, MD, Associate Professor of Emergency Medicine, University of Pittsburgh School of Medicine. Phone: (412) 647-3333.

For more information on the Emergency Department Notification System (EDNS), contact:

- **Thermo Fisher Scientific**, 81 Wyman St., Waltham, MA. Phone: (781) 622-1000. Fax: (781) 622-1207. Web: <http://www.thermoscientific.com/wps/portal/ts/products/catalog?categoryId=80427>

ration, but Greenberger says that it is “well within the range of what hospitals budget for.”

At UPMC Presbyterian, there is one detector in the ambulance bay, another in the walk-in entry point to the ED, and a third set in the ED in the ceiling and in walls “and places where people might be coming in from points outside, such as another corridor,” he says. There also are detectors in the ceiling and walls in the main corridor of the hospital away from the ED, Greenberger says. “All customers may not want to install those detectors away from the ED, but I thought it was important,” he says.

The corporation monitors the detectors at a central office in Atlanta. “If someone came in with isotopes that should not be there, an alarm goes off in Atlanta, and Atlanta notifies command central at UPMC,” Greenberger explains.

In the recent test, UPMC Presbyterian had test subjects with each of the known hospital isotopes on them. They sat by the detectors, and they did not set them off. “We also had small quantities of acceptable levels of isotopes of interest, and those people carrying them *were* detected,” Greenberger says. “In other words, the system could differentiate between those isotopes that should not be in the hospital and those that should. There were no false positives or negatives.” ■

Should you be worried about radiation?

ED managers have several reasons to be concerned about radiation in their department, says Joel S. Greenberger, MD, professor and chair-

man of the Department of Radiation Oncology at University of Pittsburgh Medical Center.

“What we’re worried about in radiation counterterrorism involves three different scenarios,” Greenberger explains. “First, with a nuclear bomb everyone will know about it. When first responders arrive, the ED will already know that casualties need to be screened.”

The second scenario involves dirty bombs, and “it would not be obvious immediately if radiation was involved,” he says. In such situations people would come in with blast, burn, or pressure injuries (i.e., concussion). People who are evacuated to the ED might be treated like any other trauma victims; for example, they might be taken for a CT scan. “If radiation is on their clothing or on them, it could contaminate the hospital and take the equipment out of service,” Greenberger says. “You can’t use a [CT] scan that has radioisotopes in its cracks and crevices because the next patient would be contaminated.”

A third possible scenario would have its origin far away from the ED, he says. “This involves a willful clandestine dispersal of radiation,” Greenberger says. So, for example, someone might take radioactive materials and dust into a highly populated environment, such as a large football game, or go to the top of a building and open a bag of such materials so that people below would inhale it. “If such a person goes to visit a loved one in the ED, you would want to detect it on their clothing,” says Greenberger. Even if they inhaled it, with an effective detection system, “they would set off if they came into the ED,” he notes. ■

‘Pull to full’ speeds up flow

Initiative wins ED recognition

It’s always an honor to win an excellence award, but the EDs in the Carolinas Healthcare System that recently were recognized for service excellence under the J.D. Power and Associates Distinguished Hospital Program also can point to specific areas in which they stood out. J.D. Power says it bases the award on five drivers: speed and efficiency; dignity and respect; comfort; information and communication; and emotional support.

Clearly the ED leaders did not sit down one day and say, “We should target dignity and respect,” but the ED leaders at Carolinas Medical Center — Union, Monroe, NC, say that often initia-

EXECUTIVE SUMMARY

The ED at Carolinas Medical Center-Union, Monroe, NC, has implemented several processes and strategies in recent years that have earned it recognition for service excellence.

Some of those strategies are:

- when beds are available, “pulling” patients straight to the back and performing triage in the room;
- introducing point of care devices for troponin, which cut 40 minutes off diagnostic time;
- creating a spreadsheet that tracked length of stay and patients leaving without being seen, broken down by shift.

tives overlapped more than one of these drivers. **Missy Baker**, RN, BSN, SANE, director of the ED/Clinical Decision Unit, and **Thomas Doohan**, MD, medical director, emergency services, agree that one recent initiative certainly focused on speed and efficiency, but at the same time improved patient service.

Baker says, “A couple of years ago we were really struggling, and some of us got together and discussed what we could do differently from the nursing standpoint. We implemented a triage bypass process: ‘pull to full.’” Basically, she explains, “if you have beds available, you do not keep patients in the triage area. You pull them straight back and do triage in the room.” This process is triggered whenever two or more beds are available, Baker says.

“We also implemented standing orders, where the doctors listed specific complaints for which we could get some tests started prior to the doctor seeing the patient,” she says.

Another method for improving speed and efficiency involved the development of a spreadsheet that enabled the staff to look at length of stay and patients who left before being seen and break down those numbers by shifts, Baker says. “The charge nurse, the triage nurse, and the physicians that ran the department that day would share the data with the whole facility,” says Baker. “We’d look for trends and see if things needed be changed or if we were working well as a team.”

One finding from the spreadsheet was that the second shift needed additional providers, she recalls. “We added a physician’s assistant on Sunday through Tuesday, our busiest days, and increased the number of nurses on the floor during the second shift from 10 to 12,” Baker says.

The department also has addressed lab turn-arounds, such as the administration of troponin for chest pain. “We considered the impact of putting point-of-care units in instead of sending out to

the lab,” Baker says. “We got our time down from 60 minutes to 20.”

Patients are ‘family’

Doohan says that when it comes to dignity and respect, “I treat patients as I would treat my own family member. And that doesn’t only apply to patients, but also to the family members who are in the room.”

He also tries to instill that approach in the staff. “This involves personal coaching by myself to the physicians and Missy with the nurses and ancillary staff,” Doohan says. “In our meetings, we also encourage the staff to treat people better.”

Baker says, “We listen to the patients. They see it as respectful when we do not go in and interrupt, but listen carefully to what their thoughts and feelings are. I think that makes a huge difference.”

When it comes to comfort, Doohan says pain management is an important consideration and comes into play most often with chest pain and abdominal pain. Again, he adds, comfort includes family members. “We not only want to make the patient feel more comfortable, but we want the family to feel comfortable that the patient is getting the right treatment,” Doohan says.

This comfort level is accomplished in part by setting appropriate expectations, he says. “So, for example, if the patient has appendicitis, we’ll tell the family that we have excellent surgeons who can take care of the problem and, hopefully, the patient will be back on their feet in a few days,” Doohan says.

Baker says, “We make sure to go over the plan of care with them. We also ask if they have any questions at the end of our interaction. By answering any questions they have, it can allay fears and make them feel more comfortable.” ■

Patient reps give support

As part of their ongoing effort to provide patients with emotional comfort, dignity, and respect, the ED at Carolinas Medical Center — Union, Monroe, NC, has patient representatives go around to each room and interact with the patients and family.

“Sometimes we do not have positive outcomes,” notes **Thomas Doohan**, MD, medical director, emergency services. “We do a really good job of

dealing with patients in times of need. We take them to a specific counseling room, and they are catered to by the nurse, physician, and patient representative, who for the most part are at their side throughout the interaction.”

Missy Baker, RN, BSN, SANE, director of the ED/Clinical Decision Unit, says, “These individuals are trained to handle any stressful situation and to round on patients to make sure we’re providing the care they need.” While the representatives do not necessarily have counseling degrees, several are chaplains. ■

Special unit not a ‘drunk tank’

Name reflects a more respectful attitude

Like many EDs, the one at Norwalk (CT) Hospital has an isolated room to the rear of the department where intoxicated people are brought to sober up. But don’t you dare call it a “drunk tank.”

Connecticut state law is the reason that this state might be ahead of the rest of the nation in having EDs manage intoxicated patients. By Connecticut law, no person can be incarcerated if they have a blood level over a minimum limit. If he/she does, monitoring and testing must be performed in an ED until the blood alcohol value falls below the legal limit. This law results in a larger number of intoxicated patients in the ED than in other states without such a law.

“We changed the name to Behavior Control Unit when we built our new ED several years ago,” says Michael Carius, MD, FACEP, chairman of the Department of Emergency Medicine. The unit is not just for intoxicated patients, Carius says. They might be psychiatrically compromised individuals who require ongoing supervision. “It also removes the stigma of ‘drunks’ and simplistic

EXECUTIVE SUMMARY

The Behavioral Control Unit in Norwalk (CT) Hospital is located behind the ED, so that other patients, especially children, are not exposed to the intoxicated patients who are brought there. To ensure optimal care for all concerned:

- Unit patients must at least be arousable, with no signs of significant trauma, such as a compromised airway or abnormal vital signs.
- One enclosed room is included for patients who require seclusion.
- “Sitters” monitor the patients and alert ED staff or security if patients are acting out.

SOURCES

For more information on separate units for intoxicated patients, contact:

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attempts to categorize people,” he adds.

The unit is located in a “pocket” behind the nurses’ station, says Carius. “It’s sort of like a dorm room,” he explains. “On the far wall are three bays separated by a curtain, and each bay has a stretcher in it.” In the far left corner is a bathroom with a shower, and on the near wall on the left-hand side are two more bays with two stretchers separated by curtains, he adds. “On the right is a single enclosed room with blinds for someone who really needs seclusion and the elimination of all visual and auditory stimuli,” Carius notes.

Of course, safety is a major concern. Lorraine Salavec, MS, RN, CEN, service line director for the ED, says, “The room has safety curtains. If you yank on them, they come right down. The bathroom has to have toilets and sinks affixed to the wall, so nothing can be pulled off the wall and used as a weapon.” There are no plastic bags in the unit — just linens, she adds. There is also emergency equipment such as oxygen and suction devices in the safety panel.

Originally, says Carius, patients were sent directly to the unit depending on arrival mode, such as by police or ambulance, but it was learned that some people were being sent inappropriately who might not be medically stable. “Now, every patient who comes in needs to be evaluated and medically cleared and then sent there,” he says. Medical clearance is up to the ED physician, Carius notes. “The typical patient is someone who comes in intoxicated on alcohol, is at least arousable, may have some slurred speech, and has no signs of significant trauma, such as a compromised airway or abnormal vital signs,” he explains. “They go there to be monitored until he or she has sobered up.”

While in the unit, patients are monitored by a “sitter,” a non-medical person hired by the hospital. They have no professional responsibility, but they will report any potential problems. “They will report it right to the charge nurse,” says Salavec. “There is also a panic button, in case somebody is very violent and you need help

quickly from security.”

If patients start to act out but are not an immediate threat, an ED staff member will address them and let them know “they have a very small opportunity to correct,” Salavec says. “If they do not, you bring them into the main ED where they can be observed and have more intensive nursing care.” ■

Behavioral unit helps staff

The Behavioral Control Unit behind the ED at Norwalk (CT) Hospital does more than provide a service for intoxicated patients. It provides benefits for the ED staff and patients in the main unit as well.

“It gives you additional space,” notes **Lorraine Salavec**, MS, RN, CEN, service line director for the ED. “We’re often short on space in the ED. It also segregates these patients from the rest of the patients, which is important because we are a community hospital, so we see children — people of all ages.” It would “not be too pleasant,” she notes, to have a 7-year-old in the ED next door to a drunken person who is acting out.

Basically, the unit provides these individuals a place to sober up, Salavec says. Staff members provide minimal care for them, she says.

Once these patients are sober, they are discharged just like any other ED patient, says **Michael Carius**, MD, FACEP, chairman of the Department of Emergency Medicine. “The only exceptions would be if, for example, they say that they’d like to go through an active detox program, or they say they’ve really been depressed and have been thinking about hurting themselves and would like to talk to a counselor or doctor,” Carius says. “At that point, we would get a psych consult.” ■

Use interventions, curb unnecessary imaging

Study: Patients don’t understand benefits, risks

While experts might differ regarding the extent of risk posed by radiation exposure from computed tomography (CT) scans and other imaging procedures, there is broad consensus that this risk should be minimized, especially in young patients. (See story on imaging procedures in children, p. 35.) However, it’s clear that curtailing the unnecessary use of imaging is particularly challenging

in EDs where the need for a quick diagnosis often will overshadow such concerns and where there is generally much less time to delve into a patient’s imaging history. Provider-focused interventions, including education as well as safety precautions, are important in curbing unnecessary radiation exposure, but there is new evidence that patient-focused education can make a difference as well.

“We don’t always know what patients have had done before they come to us. We are often limited to our own medical records,” explains **Brigitte Baumann**, MD, MSCE, head, division of clinical research, emergency medicine, Cooper University Hospital, Camden, NJ. “If a patient has been to another hospital [previously], they may not be forthcoming or may not be aware of what was done because they don’t remember or realize what type of issue they had.”

In such cases, it is difficult to guide patients appropriately regarding future imaging studies, allows Baumann, but that’s just problem number one, she emphasizes. The other problem is that many patients just aren’t satisfied with their ED evaluation unless an imaging study is completed. “This touches on how confident patients are in their medical evaluation. Sometimes if you have a patient who is very demanding or feels they need imaging done, [physicians] can feel pushed to do that type of study more,” she says.

After observing this type of patient behavior firsthand and hearing of instances when patients were receiving multiple scans within a short time, Baumann decided to look into the issue. He conducted a cross-sectional study of 1,168 patients who came into the ED complaining of abdominal pain. Using a 100-point scale, patients were asked to indicate what their confidence was in a medical evaluation with and without ancillary testing. The

EXECUTIVE SUMMARY

A new study shows that ED patients have more confidence in their medical evaluation when a CT study is included but that they have scant understanding of the radiation exposure. Patient-focused education could be effective at curbing unnecessary use of imaging as well as the pressure clinicians might feel to order such studies.

- Study findings show that patients routinely underestimate the amount of radiation that is associated with CT scans and that many patients have a poor recollection of their imaging history.
- Consumer-focused interventions prompt patients to track their own imaging history on cards that they carry with them.
- Radiology and technologist champions can help implement safety precautions that minimize radiation exposure.

results were fairly clear. The median confidence level for evaluations without testing was 20, but that number jumped to 90 when laboratory testing and CT were included in the evaluation.¹

However, Baumann also determined that patients have a poor understanding of the radiation exposure associated with CT, with more than 70% of the study participants underestimating the radiation dose of CT when compared with chest radiography. Also, study results show that many of the participants had a poor understanding of their imaging history. Out of the 365 patients who reported that they had never undergone a CT, researchers found that 39% of this group had a CT documented in the hospital's electronic medical record (EMR).

Explain risks, benefits to patients

Baumann's findings suggest that patient-focused initiatives could play a strong role in improving safety and minimizing the use of unnecessary imaging in the ED setting. She points out that in many cases, a brief conversation with the patient about the benefits and risks of a CT scan is enough for the patient to back off demands for imaging when a more conservative approach is available.

Baumann recalls a recent case where this type of intervention worked well. "I had a patient who came in who had a history of kidney stones. She was upset and clearly in pain. She was probably having another stone crisis, but her pain had only been there for six to eight hours," explains Baumann. "She was very adamant about having a CT scan. She wanted to know what was going on."

However, the patient informed Baumann that she had undergone about six scans in the previous three years, so Baumann explained the risks posed by radiation exposure from repeated scans and proposed an alternative treatment plan.

"After our conversation, she was amenable to watching and waiting, and giving it a little bit of time," Baumann says. "We sent her home with some pain medication and also some other medication that would help to flush out the stone ... because many patients do end up passing stones on their own."

Get patients to track imaging history

Northwest Community Hospital in Arlington Heights, IL, plans to take the concept of patient education one step further by creating a "radiol-

SOURCE

For more information on reducing radiation exposure in the ED, contact:

• **Brigitte Baumann**, MD, MSCE, Head, Division of Clinical Research, Emergency Medicine, Cooper University Hospital, Camden, NJ. E-mail: baumann-b@cooperhealth.edu.

ogy passport," a card that patients can carry with them that details their imaging history as well as how much radiation exposure is attributed to each study, explains **Allan Malmed**, MD, the vice chairman of radiology at Northwest.

However the hospital has taken several other steps to minimize radiation exposure from the use of CT. For example, whenever a study is ordered, the technologists are trained to check to see whether the patient already has undergone the same study. If the study already has been conducted, the technologists relay this information to the ordering physician, says Malmed.

The hospital also has set all of its CT scanners to use 60% of the radiation level recommended by the American College of Radiology. Malmed explains that the image quality is good enough to provide physicians with the information they need while delivering added safety for patients. In addition, Malmed is adamant about using shields to cover eyes, breasts, and other body parts so that they are not exposed unnecessarily to radiation, and he has trained staff to narrow the focus of the CT scan so that the scan includes only the area that the physician needs. "Most of these steps are invisible to the patient, but the right things to do for safety," he says.

Malmed acknowledges that it took time to get staff on board with all of these steps. It helps to have a physician champion, a technologist champion, and administrative support, he says. Furthermore, he recommends regular audits to make sure the staff is consistently adhering to the practices.

COMING IN FUTURE MONTHS

■ Reserving a place in the ED — for a price

■ The case for utilizing physical therapists in the ED

■ How patient navigators can optimize efficiency

■ Re-thinking patient flow through the ED

REFERENCE

1. Baumann B, Chen E, Mills A, et al. Patient perceptions of computed tomographic imaging and their understanding of radiation risk and exposure. *Ann Emerg Med Online*, Dec. 14, 2010. Doi:10.1016/j.annemergmed.2010.10.018. ■

Time to raise awareness on pediatric imaging?

Children are considered at higher risk from radiation exposure associated with imaging procedures such as CT scans, but they nonetheless frequently undergo such procedures, according to a new study published in the *Archives of Pediatrics and Adolescent Medicine*.¹

The retrospective study identified 355,088 children under age 18 in five regions to track how frequently imaging procedures were used over three years. Researchers found that more than 436,711 procedures were performed on 150,930 of the children, all of whom received at least one procedure. One-fourth of this group received two or more imaging procedures, and 16% underwent three or more procedures.

The most common procedure performed in the study group was chest radiography, although 8% of the children received a CT scan during the study period, and 3.5% received more than one CT scan. Routine x-rays use much lower doses of radiation than CT, so the use of CT in children is of particular concern, noted the authors. Based on the study data, the researchers reported that the average child in the study would be expected to receive seven procedures using radiation by age 18.

The findings suggest more awareness about the frequent use of these tests may be needed, says, the lead author of the study, **Adam Dorfman, MD**, clinical assistant professor of pediatrics and communicable diseases and clinical assistant professor of radiology at the University of Michigan Medical School in Ann Arbor. He further pointed out that while imaging tests are a critical component of good medical care, the high number of tests raises questions about whether providers are being judicious in their use of the technology.

REFERENCE

1. Dorman A, Fazel R, Einstein A, et al. Use of medical imaging procedures with ionizing radiation in children. *Arch Ped Adolesc Med*. Online Jan 2011. Doi:10.1001/archpediatrics.2010.270. ■

CNE/CME QUESTIONS

31. According to Kate Ellingson, PhD, an epidemiologist with the Centers for Disease Control and Prevention, there are several effective strategies that can be used when implementing a hand washing compliance initiative. Which of the following are among them?

- A. Feeding back data to your staff
- B. Basing solutions on root causes
- C. Greater availability of dispensers
- D. All of the above

32. According to Ahmed Stowers, MD, medical director of the Porter Adventist Hospital ED, when the registrar receives information from a patient via the iTriage application, they must share that information with:

- A. The triage nurse.
- B. The nurse manager.
- C. The charge nurse.
- D. One of the attending physicians.

33. According to Joel S. Greenberger, MD, professor and chairman of the Department of Radiation Oncology at University of Pittsburgh Medical Center, traditional radiation detectors commonly register false positives for several isotopes. Among them are:

- A. Iodine.
- B. Iridium.
- C. Isotopes used in nuclear medicine.
- D. All of the above

34. According to Missy Baker, RN, BSN, SANE, director of the ED/Clinical Decision Unit at Carolinas Medical Center — Union, her department's "pull to full" patient flow strategy is triggered when:

- A. There is at least one empty bed.
- B. There are at least two empty beds.
- C. There are more than two empty beds.
- D. At the discretion of the charge nurse.

35. According to Lorraine Salavec, MS, RN, CEN, service line director for the ED at Norwalk Hospital, several safety precautions have been taken in the Behavioral Control Unit. Which of the following is not among them?

- A. Safety curtains
- B. Plastic bags
- C. Toilets and sinks affixed to the wall

36. In some instances, it can be difficult to guide patients about future imaging studies. Why?

- A. Patients become demanding or belligerent.
- B. Providers lack knowledge about radiation exposure from CT.
- C. Providers don't know what imaging studies a patient has had previously.

CNE/CME INSTRUCTIONS

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

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CNE/CME ANSWERS

Answers: 31. D; 32. C; 33. D; 34. B; 35. B; 36. C