

Healthcare Benchmarks and Quality Improvement

The
Newsletter
of Best
Practices



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Hospitals advised to play it safe when it comes to H1N1

It's uncertain whether a more virulent form will return in the fall

Just when you thought it was “out,” it pulls you back in — the H1N1 virus, that is. After dramatic headlines and dire warnings from the World Health Organization (WHO) in the early days of this global outbreak, hospitals and infection control specialists swung into action. Facilities such as Clarian Health in Indianapolis temporarily restricted non-essential patient visitors at its downtown hospitals. In addition, Clarian asked families to limit the number of people accompanying patients to the emergency department; outpatient surgery waiting rooms and procedure areas; and primary care and specialist physician offices.

After those early days, however, things seemed to have settled down. The numbers of new cases appeared to be leveling off, and we were assured that the rising number of total cases was simply due to confirmation of lab results from samples that had previously been submitted.

But as we go to press, a middle school administrator in Queens, NY, has died as part of a new outbreak, and concerns are being reignited. According to WHO, there have been 8,480 confirmed human cases of swine flu in 39 countries, including 72 deaths. The United States has reported 4,714 laboratory-confirmed cases,

Key Points

- Review, drill on your existing response plans and look for any “holes” that may exist.
- Survey your staff to determine if you will have adequate coverage in the event of a pandemic.
- Make sure supplies are adequate and staff education is up to date.

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including four deaths; Mexico has 2,895 cases and 66 deaths; and Canada has 496 cases, with one death. Infection control experts, however, put this into perspective by pointing out that in a typical year about 36,000 people die in the United States from “normal” seasonal flu.

Still, health care professionals are taking no chances, especially because the flu pandemic of 1918 started in a similar, relatively benign fashion, and then returned with a vengeance in the fall of that year. “It looks now like a new but another seasonal flu virus,” says **Katherine West**, BSN, MSED, CIC, infection control consultant at Infection Control/Emerging Concepts in Manassas, VA. “It remains to be seen what will

happen come fall and in the southern hemisphere over the next few months. Right now we are in a preparatory mode, not in an emergency response mode.”

“I think we got lucky, in that it’s not very virulent,” adds **Colleen Connelly**, RN, BSN, emergency preparedness manager, University of Utah Hospital in Salt Lake City. “Still, it’s an excellent opportunity for all of us in disaster preparedness and pandemic flu preparedness to test our plans and see where the holes are, and to make appropriate adjustments to be ready for the fall.”

Even the Centers for Disease Control and Prevention (CDC) continues to voice caution. “It’s uncertain at this time how severe this novel H1N1 outbreak will be in terms of illness and death compared with other influenza viruses,” says the CDC on the opening page of a special section on its web site devoted to the outbreak (www.cdc.gov/h1n1flu/).

Because this is a new virus, most people will not have immunity to it, and illness may be more severe and widespread as a result. In addition, currently there is no vaccine to protect against this novel H1N1 virus. The CDC anticipates that there will be more cases, more hospitalizations, and more deaths associated with this new virus in the coming days and weeks.”

One of the challenges for quality managers and other health care professionals is that, because this is a new strain, organizations such as the CDC are adapting as they go. “Things have been changing very quickly on the interim guidelines — like who should be getting anti-viral drugs,” notes West. “Stronger attention is being paid to pregnant women; some states are cutting back on testing.”

The interim guidelines, found at www.cdc.gov/h1n1flu/guidelines_infection_control.htm, cover key issues such as:

- implementation of respiratory hygiene;
- hygiene/cough etiquette;
- implementation of facility contingency plans;
- interim infection control recommendations;
- patient placement and transport;
- limitation of health care personnel entering the isolation room;
- isolation precautions;
- respiratory protection;
- management of visitors;
- duration of precautions;
- surveillance of health care personnel;
- management of ill health care personnel;

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Editorial Questions

For questions or comments, call **Steve Lewis** at (770) 442-9805.

- stewardship of personal protective equipment and antivirals;
- environmental infection control;
- facility access control;
- administration of the current 2008-09 seasonal influenza vaccine.

But interim guidelines “are just interim,” cautions West. “I can’t stress that enough; before you hop on and spend a lot of money, step back a bit, see what needs to be done now, and what you think may change given the scope of what’s going on.”

Review your plan

One of the key areas of preparation, West says, involves looking at your current response plan and making sure that all the people affected by the plan are aware of everything they have to do. “For example, a lot of hospitals make plans but do not include the fire rescue people who would be bringing patients to the hospital; they need to be consulted and included,” she advises.

In addition, she says, your hospital should not only have its own plan, but it also needs to know what the state plan says and, if it’s in a border region, what its neighboring states are doing.

Vigilance over the summer and into the fall is critical, West continues, and quality managers will play an important role. “They have a responsibility to do compliance monitoring and to make sure preparation requirements are being met,” says West. “Education and training should be taking place, and they need to make sure that fit testing for respirators has taken place; they are the check and balance people.”

West cites one CDC official who warned that people who are now pushing preparation off to the side will be scrambling if and when H1N1 comes back. “People who think we are really prepared are in a dream world,” says West. “This is a good reminder to sit up and take notice.”

Ron Wince, founder and CEO of the Mesa, AZ-based consulting firm Guidon Performance Solutions Inc., agrees, noting that problems may exist in areas that have not been focused on. “For example, most hospital microbiology labs will not be ready to handle the influx of requests for diagnosis,” he notes. “Everyone is talking about patient flow, but they’re not thinking of a huge backlog in *this* area, and lab managers are very

Will your staff come to work?

One of the greatest challenges during a pandemic may be ensuring that you have adequate staffing, warns **Katherine West**, BSN, MSED, CIC, infection control consultant at Infection Control/Emerging Concepts in Manassas, VA.

“I saw a survey of nurses in the San Francisco area where more than 50% said they would not come in, so this is where we have to begin preparation,” West says. “We have to assess our own workplaces hardcore and see who would come to work.”

It’s important, therefore, to survey your own staff, West says — but to do it in ways that will not identify them. “You have to somehow get an honest assessment,” West says. “You can get all the plans in the world, but if you do not have adequate staff, it is problematic.”

In addition, she says, it’s important to survey staff readiness at home. Have they planned for child care, elder care, or pet care? “You need to make sure people have been doing that preparation,” West asserts.

“Probably one of the most important things is transparency with staff; it’s the only way to get people to come to work,” adds **Colleen Connelly**, RN, BSN, emergency preparedness manager, University of Utah Hospital in Salt Lake City. “If things are bad, you have to tell them they’re bad.”

Connelly surveyed her hospital staff about two years ago. “Our positive responses were higher than the national average, but in the people who said they might not report, it was all about helping them take care of their family,” she notes.

What can be done to ease their concerns? “If there’s a big pandemic, and even grocery stores are affected, you should have arrangements with food suppliers to set up a general-store-type facility in your hospital — like they did in Toronto during the SARS outbreak,” she says. “We have a plan to do that; we also have a pet plan and a family care plan.” ■

nervous.”

Quality managers who are familiar with the Toyota Lean methodology really can make a difference here, Wince suggests. “People can

really improve their turnaround time and streamline processes using those tools," he offers.

Looking for 'holes'

Connelly and her team have been spending a good deal of time looking for "holes" in their response plan. "We've tried to uncover things we may not have planned for," she explains. "So, for example, I had a lot of stockpiled equipment, including N95 masks but did not have a good plan for distribution so that will get added to the plan. Even though in our community clinics they had those supplies within 48 hours, some of the smaller clinics did not get them until later — and I want to be better at that, pushing them out more effectively."

One thing that *did* work, she says, was the communication plan. "We also did a significant amount of N95 fit testing, and that will help for the fall if it comes back," she adds

Connelly also is looking at revising the care of hospital employees who may contract the virus. "We're going to work with our ED," she shares. "They did great; they were seeing the staff in fast-track. We were glad to see them do it, but since they treated them like they do all patients, perhaps they did not need to go to the lengths they did. We're looking at different processes, like having employees contact the employee health department, which would activate an employee health team to go either to the ED or a clinic to do the exam and diagnostic tests necessary and thus use the space of another area."

Connelly adds that she and her team took notes during every drill and "looked at what we did, the problems that arose and the things we struggled with. We will go back and revisit those issues and come up with supplements to the plan."

She also sees an important role for quality managers. "Quality folks are fantastic with organization and getting the word [out], so they can help with the communication piece," she notes. "I also think they could be involved in compliance and processes. Our plan, for example, unfolds in phases, with different tasks and actions occurring in each of those phases. If they became familiar with each individual plan, they could help facilitate movement in the appropriate direction. There's so much planning, and so many people came up with the plan and wrote it down, but nobody reads it; they could help by just being

familiar with the skeleton framework and guidelines."

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NQF endorses practices for safe lab medicine

Focus is on processes that occur before, after testing

The National Quality Forum (NQF) has endorsed a set of practices to improve the safety and quality of laboratory services. Past quality improvement efforts, notes the NQF, have focused on the analytic phases of laboratory testing, but very little quality improvement has focused on the pre-analytic and post-analytic phases of laboratory testing. The need for such a focus is clear, says the NQF, because "evidence indicates that errors occur during this time at uncommonly high rates — pre-testing error rates are as high as 75%, and post-testing error rates are as high as 31%."

"One example of a pre-testing error would be a specimen mix-up," offers **Paul Valenstein**, MD, director of clinical microbiology and quality management at Saint Joseph's Mercy Hospital in Ann Arbor, MI, and co-chair of the steering committee that enumerated these practices. "We perform a perfect analysis with an extremely accurate result, and it's on the wrong patient because the tube was mislabeled."

An example of a post-analytic error, says Valenstein, would be having a urine culture result become available *after* the patient has been discharged. "The report goes to the hospitalist, who ignores it because the patient has been discharged, and the outside physician never sees it," Valenstein suggests. "Again, you have a perfectly good result — not going to the caregiver who

Key Points

- Specimen mix-ups can cause errors even if the tests were performed properly.
- More standardized approach can improve quality and safety.
- Lab leadership is a key component in addressing processes.

needs it.” Avoiding such errors, he says, “is all about communication and defining expectations — inputs and outputs.”

The newly endorsed practices focus on communication and safety specifically within these areas and are intended to help labs adopt a more standardized approach for pre- and post-testing and thus provide safer and higher-quality care. The practices are:

1. Laboratory Leadership — Leaders of organizations that participate in test ordering and leaders of clinical laboratories should collaboratively ensure that specific expectations regarding communication to and from the laboratory are met.

2. Patient/Specimen Identification — Standardized policies, processes, and systems should be implemented to ensure the accurate and legible labeling of laboratory specimens.

3. Sample Acceptability — Collection and processing facilities should ensure that acceptable specimens are collected using appropriate techniques.

4. Test Order Accuracy — Organizations should implement systems to ensure that all test orders are accurately communicated to laboratory staff in a timely manner.

5. Verbal Communication — For verbal or telephonic reporting of critical test results, verify the test result by having the person who is receiving the information record and read back the complete test result.

6. Critical Value/Result Reporting — Communicate critical laboratory results to the individuals who require them and appropriately document them in a secure, confidential, accurate, and timely manner.

Keys to implementing practices

For each of these practices, says Valenstein, the NQF has general expectations as to what should be done, although each facility will customize them to fit their unique needs. So, for example, for practice #1 (lab leadership), “What we are try-

ing to say here is if you need to communicate — and you do — and if there is not a specific industry standard, you have to know who is supposed to do what,” he explains. “You need to establish whose job it is to figure out if blood ever got drawn; if the order reached the lab but was never collected: Who keeps track of that?”

Communication is a two-way street, he continues, noting that “there is not a great industry standard on who should make sure every order is followed up on.”

In the outpatient setting, he says, “We feel it is the responsibility of the ordering physicians to be sure you get results for every order.”

However, he continues, “In the inpatient setting it’s not so simple.” In his facility, he says, the lab monitors every order that comes in. “If the specimen does not arrive, we notify the nursing station,” he explains, adding that the nursing station could perform the function just as well. “You just have to make sure the ball is not dropped,” he says.

A good place to start, Valenstein adds, is standardizing read-backs. However, he says, that is just “a very narrow part of the problem.” The bottom line, he says, is that “you must recognize that communication is a problem that can’t be solved only within the lab; both sides need to be responsible.”

Standardizing patient/specimen identification

When it comes to identification, says Valenstein, “As a general rule if you want it done right, you have to make the system redundant.” However, he adds, it’s critical to pay attention to the details. “The Joint Commission, for example, has said you need two identifiers on every specimen,” says Valenstein. “But you could put two identifiers on the label and then put the label on the wrong container.” One solution, he says, is to always label specimens in proximity of the patient. “That means, ironically, that the purchase of a bar-code system could be worse than having a cheaper printer placed in every patient’s room,” he notes.

Another system involves “check digits,” a system that credit card companies use that enables them, for example, to determine the credit card number using the last number on the card and employing an algorithm. The bottom line, Valenstein says, is “you can’t rely on human vigilance. That will only get you to 98% or 99% accuracy.”

A key issue to remember about practice #3, says Valenstein, is that the cost of a contaminated sample is considerable. "In the lab it's only \$20 or \$30," he says, "but it can cost the hospital considerably more because the patient will be given antibiotics they otherwise would not have needed, and their stay is longer."

Effective interventions, he continues, include providing feedback about individuals' contamination rates as well as those of the different departments in the hospital. In fact, he says, in his facility "we have a competition among the units to see who can be the best."

Accuracy is a challenge

Test order accuracy can be challenging, Valenstein concedes. "Sometimes the order the doctor writes is not the order the lab gets; for example, there are errors in reading others' writing," he notes. "Some thought direct physician order entry would solve that, but when you get to weird or esoteric tests, it can sometimes make things worse if you don't put in 'help' screens."

The problem, he says, is "there are about 6,000 different tests, and nobody can keep them all in their heads." If unusual testing is needed, Valenstein suggests "the old system where you call up the lab or pathology and ask what works best. [Computerized physician order entry] in the main is a good thing, but it's not a panacea. The system that works the best is to have someone check the paper requisition against the computer orders."

TJC has impact

The Joint Commission has a significant impact when it comes to the final two practices, Valenstein says. The verbal communication practice, for example, directly reflects the commission's "read back" guidelines.

Critical value/result reporting is a little more complicated, says Valenstein. "The Joint Commission invented a new concept — the critical test — that I am not a fan of," he says. "There is no guidance on what is to be considered critical."

In addition, he says, "It can be surprisingly difficult for people in the lab to know who to call. If they call a nurse, which is most common, she has to turn around and call the doctor." In short, he says, "Standards need to be developed

by the NQF or preferred practices have to be defined and processes in place to make it clear who is caring for the patient. When patients are discharged, for example, they are more often than not cared for by a different physician. Doctors also go on vacation. So, if it's a critical result, it's not always obvious who to give it to." Having a process for identifying that person is all the more important, Valenstein says, because "failure to find that person is the cause of many malpractice cases."

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Hospital discharge process can be more efficient

Nursing satisfaction rises, turnover drops

While hospital discharge planners make certain each patient's discharge and transition in care are handled with quality of care and safety in mind, it's the job of hospital operations chiefs to make certain the entire process runs smoothly and efficiently.

A poorly run discharge process might result in high nursing dissatisfaction and turnover, bed census swings between high vacancies and overcrowding, and wasteful resource spending.

For instance, when nurses feel their staff-to-patient ratio is too high, they are unhappy and will not stay long at their jobs, says **Michael Bundy**, MBA, vice president of operations support at Wellmont Health System in Kingsport, TN.

At another Tennessee hospital, Bundy had overseen a discharge process restructuring that resulted in a major change in nursing turnover rates.

"We went from 100 vacancies and 70 contract nurses to 12 vacancies and no contract labor," Bundy says. "We were saving hundreds of thousands of dollars."

The 544-bed hospital also saw a decrease in its length of stay (LOS) from an average of 5.2 days with a case mix acuity level of 1.6 to an average LOS of 4.4 days with a case mix acuity level of

Key Points

- A poorly run discharge process can result in nursing dissatisfaction, swing between high bed vacancies to crowding, and wasteful resource spending.
- Hospital examines nurse-patient ratios and makes changes that lead to lower turnover rates.
- “Holy Grail” of discharge planning process is measuring the time from when the physician writes an order to the time the patient is accepted on the floor.

1.7, Bundy says.

“So, the hospital had a higher acuity level with a shorter length of stay and still maintained all beds full,” he adds.

The hospital’s volume has remained high, above 90% of beds occupied, despite the economy having impacted demand through surgery postponements, Bundy notes.

“We are seeing a decline in volume, but we’re still above 90%,” he says.

Before making changes in discharge operations, the hospital’s discharge process was caught in a cycle of inefficiency; the hospital had too many patients waiting for inpatient beds, so the nurse-to-patient ratio was kept high. The high ratio led to nursing dissatisfaction, high turnover, and workflow problems.

For instance, nurses would keep well patients in beds because these patients didn’t take as much work and would ease the pressure caused by high nurse-patient ratios.

“Or the nurses would discharge patients in the evening, so they didn’t have to do another admission on their shift,” Bundy says. “So, they’re holding those patients in bed, but I have to manage the whole hospital, and the emergency room is backing up.”

Since there was a strong demand for more beds, nurses were given more patients, which led to their feeling overwhelmed, and the cycle continued.

The solution was to reach an agreement with nurses, Bundy notes.

Bundy agreed not to give them a higher ratio of patients than the nurses thought would impact quality of care. But in exchange, the nurses would make all of their discharges early in the afternoon, so that when the emergency department began needing beds, there would be enough

available.

“So now we’ve reduced risk, and it’s much less stressful,” Bundy says. “It worked extremely well, and we kept the ratio down.”

This was the chief reason the nursing turnover rate dropped dramatically, and it’s led to other positive outcomes, he says.

A better discharge process also improves patient safety, Bundy says.

“Timely discharges are the answer to patient safety,” he says. “The longer a patient is in the hospital, the more likely there will be a medical error or a nosocomial infection or fall.”

Patients and physicians respond to the improved process by frequenting the hospitals that handle patient flow better.

“When you improve the discharge process, customer service goes up, and then the demand for the beds goes up, so you’ve created new demand,” Bundy explains.

While this can put more pressure on a hospital and its discharge process, it’s a better pressure since the revised discharge process eliminates waste.

“You get all of the wasted days out and continually improve the cycle and remove barriers that prevent nursing staff from getting patients out,” Bundy says.

Creating a more efficient discharge process begins with understanding what drives the hospital’s bed demand, Bundy notes.

For instance, in the hospital that is emergency department-driven, it might make sense to have an early afternoon discharge time, because the emergency department starts to pick up patients who need inpatient beds in the afternoon, he explains.

But if a hospital picks up more inpatients from surgeries and is a surgical suite-driven facility, then the discharge timeline is very different. The hospital might then need to make certain beds are available by 11 a.m., Bundy says.

And even this varies according to which types of surgeries are most commonly performed.

“You need to know the bed demand down to the type of procedure that day,” Bundy says. “You could need beds at 9 a.m., or for some surgeries, you might not need beds until noon.”

It’s also essential to collect data, develop metrics, and hold people accountable for inefficiency and discharge bottlenecks.

One important metric is the time the patient is admitted, measured from when the physician wrote the order to the time the patient is accepted

on the floor, Bundy says.

“That’s the holy grail of the discharge process,” he says.

So each month someone should be analyzing demand for beds by assessing the average time patients are admitted and how many minutes lapsed before the patient was in a hospital bed, he adds.

“You have to make sure you have beds available, and you have to make sure the discharge process works,” Bundy says.

For example, these are some metrics that could be measured:

- What is the average discharge time?
- What percentage of patients need a bed at 11 a.m.?
- What percentage of patients can be transferred to a bed at 11 a.m.?
- How long are admitted patients being held in the emergency department?
- How long are post-surgery patients being held in the post-anesthesia care (PAC) unit?
- How many times were surgeries postponed because the PAC unit was full?
- Where is there the greatest demand for resources?
- How well is the hospital meeting the resource demand?
- How many transfers could the hospital accept in a month?
- What is the turnaround time for X-rays?

“You put everything on an Excel spreadsheet, so it doesn’t take anyone with special training to see the numbers day by day,” Bundy says.

Even when a hospital makes these discharge process changes, it will continue to be necessary to make adjustments and improvements, he says.

“In tertiary care, the discharge process is never complete,” Bundy says. “You can always find inefficiency.” ■

Scale measures quality of hospital discharge process

Brief questionnaire is valid

Researchers have developed various tools to give discharge planners and physicians objective ways to determine whether patients are ready to be discharged from the hospital to home.

One new tool, called B-PREPARED scale, pro-

vides a brief but thorough system of measuring a patient’s readiness.

The new tool is based on a scale developed by **Karen Grimmer-Somers**, PhD, associate professor, Centre for Allied Health Research, University of South Australia, North Tce, Adelaide, Australia.¹

The B-PREPARED scale was administered one week after discharge and can be used to evaluate a hospital’s discharge interventions and for quality improvement efforts.

“Dr. Grimmer and her group had done focus groups to get down the qualities that would measure what we value,” says **James F. Graumlich**, MD, FACP, associate professor of medicine and clinical pharmacology and interim chair in the department of medicine at the University of Illinois College of Medicine in Peoria.

“But the scoring system wasn’t optimal for what we wanted to use in our particular research,” Graumlich notes. “If there was no response, it would give a missing response score, and that turns out to be problematic when doing statistics, so we changed the scoring response system.”

For example, in the original scoring system, if a person was asked whether he or she received information about medication side effects and had no response because he or she wasn’t sent home with any medication, then the person would be missing points on that question, Graumlich explains.

“In our system, that person would be considered satisfied and would get the highest score,” he adds.^{2,3}

When Graumlich and co-investigators validated their new scoring system in the study patient cohort, they found that the new scoring system discriminated quite well between patients who did well after discharge and those who did not do well and returned for emergency department (ED) visits.

“It also correlated with whether patients were satisfied with the information they received about medications,” Graumlich says.

The recent study also showed that the Australian questionnaire, which was developed for patients over 65 years, was valid for people who are at high risk and younger than 65 years, Graumlich says.

“Certain people who are younger have a lot of readmissions for diseases like HIV infection, sickle disease, multiple sclerosis, and others, and we didn’t want to exclude those people,” he

explains.

The 11-item B-PREPARED scale includes such questions as “Before you were discharged from hospital, was there any other information you would have liked while you were in the hospital to prepare you for coping at home?”²

There are at least 15 frequently used standard assessment tools available for nurses, therapists, and social workers, including the Functional Independence Measure (FIM), the Mini Mental Scale, the Elderly Mobility Scale (EMS), and others.¹

And there are survey instruments designed specifically for hospital discharge, including the Readiness for Hospital Discharge Scale and Care Transitions Measures, Graumlich notes.

One advantage of the B-PREPARED tool is that it is among the shorter questionnaires, he says.

“The more questions you have, the less practical it becomes to administer to people and to get them to answer all the questions,” Graumlich says. “One of the choices we made in our design was to make the scale practical to see if we could get meaningful information out of a shorter questionnaire.”

Hospitals that discover a problem with their discharge process through their more general patient satisfaction surveys might want to use the B-PREPARED instrument to pinpoint what those problems are, he suggests.

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TJC makes it clear: Get surgical smoke out of OR

The air is clearing in the nation's operating rooms, as The Joint Commission (TJC) places a greater emphasis on evacuating smoke from electrocautery procedures.

In the accrediting process, hospitals have long been required to manage “risk related to hazardous material and waste.” In the 2009 Environment of Care standard, The Joint Commission added a note for clarification: “Hazardous gases and vapors include, but are not limited to, glutaraldehyde, ethylene oxide, vapors generated while using cauterizing equipment and lasers, and gases such as nitrous oxide.”

This is the first specific mention of surgical smoke in TJC standards, although the National Fire Protection Association (NFPA) code addresses smoke detectors and scavenging of waste anesthetic gases. TJC requires hospitals to comply with NFPA codes.

“We have always interpreted the smoke that's generated from these procedure [as a hazard],” says Jerry Gervais, CHFM, CHSP, BSME, associate director and engineer in the Standards Interpretation Group of TJC. “Organizations didn't make that connection so we wanted to be very, very clear about it. The hospital should have a written policy on how they're handling this issue,” he says. “By having a written policy, they can require compliance by all employees. They can write in the required safety precautions and hold them accountable.”

AORN says reduce exposure

The “clarification” by TJC comes on the heels of a 2008 position statement by the Association of periOperative Registered Nurses (AORN), urging hospitals and surgery centers to reduce exposure to surgical smoke and bioaerosols released in laser and electrosurgical procedures.

In March 2009, the Canada Standards Association issued a voluntary “Plume Scavenging Standard” that provides guidance on systems that evacuate surgical smoke from electrosurgery procedures. Hospitals frequently tout their “smoke-free” campus. Now, the “no-smoking” rule will include the pungent smoke produced when tissue is burned, say OR nurses who have advocated for greater attention to the issue.

Vangie Dennis, RN, CNOR, CMLSO, clinical manager of procedural nursing at Gwinnett Medical Center in Duluth, GA, and a member of the AORN Surgical Smoke Evacuation Task Force, says, “I think the biggest challenge we have is getting the message across to the surgical team that what they're doing has cumulative long-term effects, just as secondhand cigarette

smoke does. If you take a look at the constituents of cigarette smoke, it's identical to surgical smoke, only we have additional components," including viable bacteria and viral particles, she adds.

Equipment lacking, nurses report

"Health hazard evaluations" conducted at three hospitals by researchers from the National Institute for Occupational Safety and Health (NIOSH) detected formaldehyde, acetaldehyde, and toluene in surgical smoke, though not above recommended or permissible exposure limits. OR employees complained of irritant symptoms.

Yet too often, hospitals don't have adequate smoke evacuation equipment, says **Kay Ball**, RN, PhD, CNOR, FAAN, a nurse consultant/educator in Columbus, OH, and chair of the AORN Surgical Smoke Evacuation Task Force. Lack of equipment was the No. 1 barrier to complying with smoke evacuation recommendations that was cited in a survey of 777 nurses she conducted as part of her dissertation. "Hospitals need to get smoke evacuation devices for every surgical suite," she says. "There are still a lot of people who are not evacuating surgical smoke."

Other barriers included the noise of the equipment, lack of support from physicians, and complacency of the staff. Freestanding ambulatory surgery centers are more likely to evacuate smoke than hospitals, as are larger or urban facilities, Ball found.

To implement smoke evacuation, begin with a committee that includes OR leaders or "champions," advises Dennis. The committee can conduct an assessment and determine the needs and concerns of OR staff and physicians, she adds.

For example, if surgeons are concerned about noise or interference with their procedures, investigate products that are insulated and that can be easily incorporated into the OR, Dennis points out. "We addressed the loudness. We made sure the staff understood you didn't have to turn it up to 100%," she says. "On a small smoke-generat-

ing procedure, 20% [power on the smoke evacuator] is enough."

Educating your staff

Conduct a trial of the new products, and educate staff about how to use them and why evacuating surgical smoke is important, says Dennis. She conducts education annually. One resource for providers is AORN's surgical smoke toolkit, which includes a sample policy and procedure, competency skill checklist, tips for compliance, and a link to vendors.

After implementing a new policy, hospitals should follow up with observations to check for compliance, Dennis says.

Changing habits can be difficult. While facilities typically implemented smoke evacuation along with new laser technology, they have been slow to make smoke evacuation routine in electrosurgical procedures. But facilities are getting the message, says Ball.

"I want to make 2009 the year of smoke evacuation," she says. "I want everyone to realize you can't breathe this in. We need to protect the air of the surgical nurses." ■

Team meetings spur quick results

Generating projected revenue increases of \$20 million to \$24 million is impressive enough, but accomplishing the task in less than a year is really remarkable. How did The Medical Center of Central Georgia in Macon do it? By laying a solid foundation with the help of Elm Grove, WI-based Compiron Healthcare Solutions.

"Starting in June 2008, we sat down with them and our nursing group, our medical director, and our administration, and at the very beginning we developed what metrics we wanted to improve and determined our baselines," recalls **Barb Stickel**, MSN, RN, senior

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vice president and chief nursing officer. “We wanted to increase volume, improve quality of care within our core measures, and look at patient satisfaction — because any time you make changes, you do not want to adversely impact patient satisfaction.”

The implementation phase was completed in December 2008, and it clearly has succeeded. In addition to boosting revenue and reducing the percentage of patients who leave before treatment, Stickel reports that core measures “are just about running at 100%.” These include giving aspirin and beta-blockers to heart attack patients within 90 minutes, and blood cultures and antibiotics for pneumonia patients within four hours.

As wait times dropped, patient satisfaction scores climbed from the ninth percentile to higher than a 90th percentile ranking. “Our task force selected five questions for every patient to be asked,” says Stickel, noting they included topics such as wait time, overall experience, and confidence and trust in their doctor.

The staff are able to keep track of their performance thanks to a dashboard developed with Compiron. “We have a weekly dashboard of our metrics, which shows us what the baselines were and what our targets are,” Stickel explains. “We still look at them. We don’t want to get complacent.” ■

ED/hospitalist plan improves throughput

Collaboration also reduces diversions

A new plan for admitting patients from the emergency department (ED) at Johns Hopkins Bayview Medical Center in Baltimore jointly developed by an ED physician and a hospitalist, decreased ED throughput for admitted patients 98 minutes (from 458 minutes to 360

minutes) from the same period a year earlier, despite an 8.8% increase in the ED census. The proportion of hours that the ED was on ambulance diversion because of ED crowding decreased 6 percentage points, or 182 fewer hours. The proportion of hours that the ED was on red alert (ambulance diversion due to lack of ICU beds in the hospital) decreased 27 percentage points, or 786 fewer hours.

“Before this plan, admissions were largely handled from house staff to house staff, which we called ‘service ping pong,’” recalls **Edward Bessman**, MD, FAAEM, FACEP, who was then an ED physician and is now chairman of emergency medicine. “There was a lot of back and forth, where physicians agreed the patients needed to be admitted, but not necessarily to their service.”

That problem has been eliminated, because now a hospitalist, in consultation with the treating ED physician, makes the final decisions for admitting ED patients to the cardiac ICU; the medical ICU; and the cardiology, pulmonary, and general medicine units. That same position, filled on a rotating basis by all hospitalists, is responsible for 24/7 bed management. ICU admissions are transferred no longer than 90 minutes after the assignment decision is made, while patients admitted to a non-ICU unit are transferred out of the ED as soon as a bed is available.

To implement the plan, Bessman and **Eric E. Howell**, MD, FHM, director of hospital care for the department of medicine, had to convince administration to take on an additional 2.4 hospitalist FTEs. “It took a while to convince various administration types that in fact if we could solve our admissions problem, we’d solve a large part the ED overcrowding problem,” says Bessman. “But we showed them that two-thirds of our admissions come from the ED, and that when it’s full, admissions fall off and ambulance diversions increase.” In fact, he says, the two actually walked administrators through the ED to show them how full the ED was.

Pointing out the “lost” admissions was critical,

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Bessman emphasizes. "You can talk about patient safety and satisfaction all you want, but if you really want something to happen, you have to frame it in terms of dollars," he says.

Howell says, "When I talked to the administration, there were internal studies we had done that showed for every two hours of diversion, you lost half an admission. We also found evidence in the literature to support the fact that diversions cost a minimum of \$1,000 an hour."

The investment seems to have paid off, Bessman says. "On the expense side we added about \$1 million, but we're in the middle of return on investment calculations, and it looks like our return will be about two to one based on incremental volume and admissions," he says. ■

Specialists are skeptical at first

It was a challenge to convince administration officials to invest about half a million dollars a year for 2.4 additional hospitalist FTEs required for a new plan for admitting patients from the ED at Johns Hopkins Bayview Medical Center in

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Baltimore. However, it was just as hard to convince some specialists to cede the responsibility for admitting patients to their units to a hospitalist, as the new plan required.

"In some institutions, coming up with the money might not be the difficult part," says **Eric E. Howell, MD, FHM**, director of hospital care for the department of medicine. "For us, it was equally difficult to gain acceptance of the decision to allow the active bed manager [hospitalist] to, in fact, triage for all divisions."

How were the objections overcome? "It was not an overnight process," he concedes. "Probably the main selling point was giving them input into our process." A medicine oversight admissions committee was created, Howell explains. Through monthly meetings, the primary departments continue to have input into the process, he adds.

"With that collaboration, they signed off on it, and ironically, now they love it," says Howell. "The cardiac intensive care unit, for example, which was one of most reluctant, has seen an increase in primary coronary infusions, and door-to-balloon times have gone down."

Edward Bessman, MD, FAAEM, FACEP, chairman of emergency medicine, says, "We made other changes at the same time, but we are now doing angio within 120 minutes 91% of the time, vs. 40% before we began. Our goal is to have 75% under 90; currently it's almost 60%." ■

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