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Are rapid response teams saving lives? A new study says no

JAMA article reports no difference in mortality after intervention

While a rapid response is important in trying to save lives and prevent in-hospital deaths from cardiac arrest, the vehicle for that response is now called into question. A report in the Dec. 3, 2008, issue of the *Journal of the American Medical Association* (*JAMA*) examines the effect of a rapid response team intervention on hospital-wide code and mortality rates. The conclusion: "Implementation of a rapid response team was not associated with lower hospital-wide code rates. Similarly, rapid response intervention was not associated with improvements in the clinically meaningful outcome of hospital-wide mortality."[1]

In what the authors say is the first study to look at the adult population and non-ICU code rates, data were gathered prospectively at Saint Luke's Hospital, a tertiary care 404-bed hospital in Kansas City, MO. Data represented either a pre- or post-intervention period, before or after rapid response team intervention. Before the RRTs, comprising two ICU nurses and a respiratory therapist, were rolled out, staff were educated for four months on using the intervention, and standard criteria for activation were employed.

"One of the major reasons we decided to do the study was to get a better sense of whether or not these rapid response teams have a significant difference in the hospital setting," says lead author **Paul S. Chan**, MD, MSc, of the Mid America Heart Institute and the University of Missouri. "The literature on rapid response teams has been quite mixed, and part of it is there are differences in how those studies have been performed and what was being measured, and we felt pretty strongly from the get-go that because prior studies had not measured code rates outside the intensive care rate," it was important to do that, he says.

Looking only at code rates is "just a surrogate outcome for the truly important outcome of post-survival and mortality," Chan says, and if the team had found a statistically significant decrease in either ICU or non-ICU code rates, there are multiple factors that could have influenced that, such as activation of a DNR in which the code would not be made or transfers to higher levels of care.

The Joint Commission, in Patient Safety Goal #16, asks that hospitals "improve recognition and response to changes in a patient's condition,"

and as part of its elements of performance specifies that a facility has in place an early recognition and response method suitable to the organization, though this does not necessarily mean that a rapid response team has to be the method selected.

The Institute for Healthcare Improvement in 2004, began to call for hospitals to establish rapid response teams as part of its 100,000 Lives Campaign, which has now morphed into the 5 Million Lives Campaign. **(For a list of IHI tools on implementation and measurement information, see www.ihi.org/IHI/Programs/Campaign/RapidResponseTeams.htm.)**

Could a different conclusion be made?

Although the IHI acknowledges the technical sophistication and methods used in the study, in an online discussion of the article, President Don Berwick questioned that the hospital-wide code rate per 1,000 admission could be considered statistically significant if one used the Bayesian model in looking at the p value.

Paul J. Sharek, MD, MPH, chief clinical patient safety officer at Lucile Packard, was lead author of a 2007 *JAMA* study showing a favorable effect on codes and mortality rates outside of the pediatric ICU setting in which a RRT intervention was made.[2] **(See *Hospital Peer Review*, "Study is first to show RRTs decrease pediatric deaths," July 2008, pg. 94.)**

He points to the study's primary outcome of hospital-wide code rates vs. codes outside of the ICU. "This is a big difference. Most sites who implement RRTs do so to address codes outside of the ICU setting, recognizing that codes in non-ICU settings are not likely to go as well as those in the ICU environment where ICU specialists are available immediately and have much more experience running codes.

"If we compared our primary outcome of codes outside ICU rates with this study, *both* studies showed statistically significant decreases. The mortality decreases clearly don't always occur, as has been shown in other studies as well, so this is not as surprising," he says.

Berwick concurs that the problem with the study "has to do with interpretation," specifically with the raw data comparing the pre- and post-intervention periods. "There was actually quite a dramatic effect on out-of-ICU code rates per 1,000 admissions. That code rate fell from about 11 to about eight — a major reduction," he says.

But Chan says according to their criteria, that value was not statistically significant, and "it doesn't even matter if we did [find a decrease in code rates], because we didn't change survival."

Successes in the field

The IHI reiterates that it has seen and heard from many hospitals that have had success with

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the implementation of RRTs. And **Kim Barnhardt**, RN, accreditation specialist, and **Rhonda Wright**, director of nursing administration and clinical care services, at Carolinas Medical Center-Northeast in Concord, NC, say they've seen successes since they rolled out RRTs in 2004.

"We continue to enjoy [the early] successes [with the model], and we have the data to show it. We have cardiac arrests remaining down, and mortality decreasing over the years. We're meeting the goals we've set. We're pleased with our rapid responses," Wright says.

The composition of RRTs varies from hospital to hospital, but at their facility, Wright and Barnhardt say they have found most success using a respiratory therapist and an ICU nurse. Since intensivists are in-house 24/7, they say the team can call on physician help when needed.

In addition to education on RRT activation, the two celebrate hospital successes while continuing to educate by highlighting individual successes stories once a month and sharing them with staff.

Caveats

In its discussion, the IHI cautions how the public, and particularly the media, highlight the study, by concluding that there is a no evidence supporting the use of rapid response teams. Berwick reiterates that this is a single study in a single institution and that hospitals in the field report successes that "are positive and buoyant and affirming."

"I do think when a study comes out and it's labeled as a negative study, that that can sometimes influence hospital behavior," IHI's vice president **Joe McCannon** tells *Hospital Peer Review*. "[I] think we've got to be clear that we can always learn more but that for the moment we feel that this approach and other early detection strategies are important, and we are not backing off of them."

McCannon encourages hospitals that are having successes to share those data and says that "if a preponderance of evidence suggests to us that we need to make a change in our advice to hospitals, we'll do that. But I think in this case, we feel that this approach and other early detection strategies are important ways to address failure to rescue."

Patti Muller-Smith, RN, EdD, CPHQ, a Shawnee, OK-based consultant who works with hospitals on performance improvement and regulatory compliance, says one must remember we're looking at a single study in a single institute and to look at the original intent of the RRT intervention: to focus on non-ICU patients and those data, including non-ICU codes.

"In the hospitals that are reporting globally rather than pulling out non-ICU data and data for all events," she says, "it may not really reflect how effective the teams are."

She says if one were to look at the data on patients without transfers to the ICU and non-code activation with DNR cases, you might have a different conclusion.

Chan does not discount the importance of early detection methods, but rather that rapid response teams are the most effective detection strategy. He says the research team is still looking at whether the rapid response team intervention had an effect on the use of ICU days in the hospital.

"On face value," he says, "we were not decreasing days in the ICU. What I can say is if we haven't reduced mortality, we haven't necessarily reduced code rates as much as we think we'd like to, and we may not even be decreasing utilization. And we're using resources that could be used for more effective quality improvement plans... So the question is whether we're spending time using resources for personnel and finances when other programs may have more clear benefits."

Chan, like the IHI, says further, larger studies are needed. Until then, he says, "we need to take a step back and think about whether or not we should be disseminating the use uniformly across hospitals when clearly there are other priorities on the hospital QI level."

To quality directors, Chan says, "I think we need to go back to the drawing board. Until then, each hospital needs to re-examine their own policies for quality improvement and the resources that are available to it."

Reference

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Outlying benefits of RRTs, can we discount those?

Reasons we like rapid response teams

Earlier intervention, a second pair of hands, and nurses love them — these are all reasons why experts *Hospital Peer Review* spoke with are in favor of continuing the use of rapid response teams.

While **Patrice Spath**, of Brown Spath Associates in Forest Grove, OR, admits she's always questioned if rapid response teams do actually improve outcomes, she doesn't discount the additional benefits RRTs can reap, and for those reasons she'd say "give it a try and gather the hard data later."

Among those benefits Spath considers the most advantageous to be interdisciplinary collaboration. "Nurses, RTs, MDs, etc. had to work through some often difficult territorial and clinical issues. When they get to the final process design, they'd learned a lot about one another's role on the patient care team and how best to tap into the value each discipline brings to the table," she says.

"That exercise, if done right, was a culture-changing activity for the organization. Even if patient mortality does not significantly decrease, the organization benefited."

She's concerned, though, when something becomes a standard or, as with The Joint Commission, an example of meeting a standard, "before there is good evidence to support it. Plaintiff attorneys start salivating every time something starts sounding like a patient care standard — it's another potential legal weapon regardless of the lack of scientific evidence."

Another thing about rapid response teams that experts *HPR* spoke with agree on is that nurses love them. "The nurses love it because they feel when they need help, they can get it. That tells me we've got a broken chain of command policy." Spath says, two years ago, if a nurse needed help, she could get it and wasn't encouraged to ask for help. With a rapid response team in place, nurses should be, and in many cases are, encouraged to ask for help when they feel they need it or when they see signs of a patient deteriorating.

"I do think having something 'official' makes it OK to ask for help," Spath says. "And health care professionals, from physicians to nurses to on down [the ladder], are not rewarded for asking for help."

"The staff have an alternative," says **Patti Muller-Smith**, RN, EdD, CPHQ, a Shawnee, OK-based consultant who works with hospitals on performance improvement and regulatory compliance. "And I think that that is probably one of the greatest benefits of [the rapid response teams]. If they look at a patient and feel that patient is not responding the way they would like, or the patient has respiratory or cardiac difficulties, then rather than calling a whole code, they can call the rapid response team to evaluate the patient before they do anything."

She points out that when a full code blue is called, many hospitals incur an extra charge, whereas if an RRT is activated, a full code may not have to be made. "If you're looking at dollars and cents and you look at the expense of having to do a code blue, there's probably some reduction in costs."

While the authors of the recent *JAMA* study call into question the cost of installing a rapid response team, there is no clear information on average costs of an RRT. Experts *HPR* spoke with say in many cases, there is no cost for additional staff, as most of those are already in the hospital.

Spath also points to where the RRTs are being used in the hospital. Rarely is there a team for the ICU. But don't ICU nurses need help as well? she asks. As far as their effectiveness, she says the original intent was to reduce the number of codes on the general nursing unit. And if that, in addition to providing other staff with help, becomes your goal, than an RRT could help.

Paul S. Chan, MD, MSc, of the Mid America Heart Institute and the University of Missouri, lead author of the *JAMA* study, notes the benefits of the rapid response team intervention. Standing behind the study findings, Chan says while this was not measured by the intent of the study, "There's clearly a high level of satisfaction with nurses, and the use of interdisciplinary collaboration on rapid response teams is to be lauded."

And most of those *HPR* spoke with are in favor of both continuing to use RRTs and to continue studying the effects of the intervention. They pose this question. If you were a patient in a hospital, would you rather be at a facility that has a rapid response team or one that doesn't? Their answer, most resoundingly, was yes. ■

To collaborate or not? Does it make a real difference?

Study looks at collaboratives, compliance

The intervention is membership in a group collaborative. The five measures relate to antimicrobial prophylaxis in surgical patients. The endpoint: Did being part of the collaborative help facilities comply with the measures? The conclusion: No.

"My initial reaction was a bit of surprise," says **John Gums**, PharmD, professor of pharmacy and medicine at the University of Florida, who is working on VHA Inc.'s antimicrobial stewardship program, a collaborative of sorts to help hospitals manage their own antibiotic resistance patterns. **(See *Hospital Peer Review*, "Using antibiotic stewardship programs to curb resistance in fight against HAIs," October 2008, pg. 129.)**

"I guess intuitively you would assume if you do more of something that you'll get a bigger result. In essence I think what they showed is by going above and beyond the minimum, it didn't seem to impact their outcomes," he says.

In the study, led by **Stephen B. Kritchevsky**, PhD, epidemiologist and professor in the department of internal medicine and gerontology and geriatric medicine at Wake Forest University, 44 hospitals were recruited and randomized into two groups of 22 hospitals. Hospitals in both groups received a comparative feedback report on their compliance with antimicrobial prophylaxis guidelines.[1]

The intervention group also participated in monthly phone calls to discuss prominent issues and ask experts questions and had two meetings to discuss progress in their efforts. Compliance on five Surgical Care Improvement Project (SCIP) measures, promulgated by The Joint Commission and the Centers for Medicare & Medicaid Services, were measured in the control and intervention groups.

The authors set out to study not the validity of the measures, but rather the quality improvement process itself. "I think that everyone is interested in knowing how best to achieve process improvement and there is very little research to demonstrate the efficacy of various strategies to improvement of complex processes that involve multiple departments and multiple systems," says Kritchevsky.

The collaborative model was chosen to compare to feedback alone because the group collaborative "seems to be the other sort of dominant or most popular and well known sort of alternative to comparative performance feedback," he says.

Measuring adoption of several methods of change, the study looked at the difference in adoption of these changes in the two groups and found no significant difference. In the discussion, the following changes were noted:

- proportion of doses given in the operating suite increased in the intervention group;
- proportion of doses given outside the surgical suite decline to less than 1% in both groups;
- responsibility for administering the doses shifted toward anesthesiologists, significantly more in the intervention group.

However, the groups improved their antimicrobial prophylaxis process performance to the same degree.

Gums says the study is really looking at yes/no questions — did you adopt this particular strategy or not? And it doesn't correlate the effectiveness of the individual processes to care, or to surgical-site infections, for that matter, he says. What he takes from the study is that the hospitals probably both improved documenting what they did because they knew they were being studied, and focusing on documenting your prophylaxis process is crucial. But trying to extrapolate the data to anything other than what the study is measuring would be unfortunate, he says.

Why is a study like this important?

Kritchevsky says, one reason "is there are ever-increasing sets of mandates about what levels of quality, what performance characteristics of certain kinds of care systems should be, and people can either get there efficiently or get there inefficiently, and it's hard to know, but you've got to make a decision on which way to go," and that's why research in this vein is needed more than ever, he says.

The study also says something about administration's relationship with the quality improvement department and its initiatives. Although hospital administration was not required to participate in the intervention, and if it had, Kritchevsky agrees that could have made a difference, he says anecdotally, the authors did see a correlation between success and buy-in from higher-level administration. With either group, he says, those with actively involved physicians who were respected among their management

Methods to improve your surgical antibiotic prophylaxis

One hospital 'rocks' on with antibiotic timing

With high scores on Hospital Compare to back her up, **Indun Whetsell**, RN, CPHQ, director of quality management at The Regional Medical Center (TRMC) in Orangeburg, SC, says her surgical antibiotic prophylaxis initiatives have paid off in a big way.

Her SCIP project group comprises an anesthesiologist, a CRNA, a surgeon who still practices and works as a quality advisor, surgical services (from same-day services to the operating room to the recovery room), floor representatives from two floors, and a pharmacist. The group, which in the beginning met weekly but now meets monthly, has been integral to the hospital's success.

"It's a no-holds-barred group. It functions by no rules. There's a tremendous level of trust; most of us have been around for a long time, we have a history, and you can critique and professionally disagree and it's fine," she says.

That trust enables a higher-level collaboration, and because the anesthesiologist and physician practice, they function as "great physician champions," which also has been key to success.

In meeting the challenge of always getting the right prophylactic antibiotic, Whetsell says, she developed a cheat card "that has the right antibiotic for the right surgery" and distributed that.

To make the one-hour cut time in dispensing antibiotics preoperatively, she says they began to give antibiotics on the OR table, which has helped, and they added an extra step to the timeout process to ensure the antibiotic is indeed the right one.

When they began, she says the orthopedists were "very reluctant to change their postoperative antibiotic orders." They preferred running antibiotics for 36 hours rather than 24. But she stayed with them on the importance of reducing the time and continued to put the evidence-based literature supporting that right in front of them.

"Today they are phenomenal," she says. "They give us a start time so we don't have any excuses for not doing it right. It's been a tremendous change in practice."

She also began doing more concurrent monitoring, which hadn't been done before, giving the recovery room responsibility for tying up any loose ends. Her mantra has been "did you do everything right for every patient every time?" She maintains a list of doctors from each quarter who achieved "perfect care."

According to Hospital Compare data on TRMC:

- percent of surgery patients who received preventative antibiotic(s) one hour before incision: 92% of 308 patients;
- percent of surgery patients who received the appropriate preventative antibiotic(s) for their surgery: 94% of 313 patients;
- percent of surgery patients whose preventative antibiotic(s) are stopped within 24 hours after surgery: 89% of 299 patients;
- percent of surgery patients whose doctors ordered treatments to prevent blood clots (venous thromboembolism) for certain types of surgeries: 92% of 355 patients;
- percent of surgery patients who received treatment to prevent blood clots within 24 hours before or after selected surgeries to prevent blood clots: 90% of 355 patients.

The two biggest components to her success?

One is keeping literature supporting evidence-based practices in front of the staff who needed to see it.

And two, she says, "We had the right people at the table. We had two physicians who lived and breathed it, who didn't mind physician education. We have a strong clinical group who's not intimidated." ■

and peers seemed to improve more.

The Trial to Reduce Antimicrobial Prophylaxis Errors (TRAPE) was funded by a grant from the Agency for Healthcare Research and Quality, with additional support from the Centers for Disease Control and Prevention. Other sponsors and collaborators included The Joint Commission and the Society for Healthcare Epidemiology of America.

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Disclosing MRSA rates: What should you say?

Risk managers advises open disclosure

A recent article in *The Seattle Times* tells the tale of a woman who inadvertently learned she had methicillin-resistant *S.*

aureus (MRSA) while in the hospital from a nurse making an offhand comment. Since then, that woman, Jeanine Thomas, has been pushing for further disclosure from hospitals on MRSA.

Rick Boothman, JD, chief risk officer for the University of Michigan Health System, says open disclosure and conversation is critical in dealing with this issue. If what he says is true and Thomas had learned about her diagnosis in a different way, she could have left the hospital feeling much better about her care.

"Patients are far more forgiving than we give them credit for, but you've got to give them a chance to understand," he says.

He relates a situation that he frequently sees in dealing with patients at discharge who refuse to leave. "I almost always start out by saying to them, 'What do you want to stay here for? This can be a very dangerous place. It's a collection of very sick people, and there's only so much you can do to prevent the spread of infection and very bad bugs.'"

Historically and continually, he says, the medical community has not done a good job in informing people about the problems with resistant infections at hospitals. "So we're great at trumpeting advances, but we're not very good, and I'm not sure why, about informing the public of how difficult it is to render the care that we render, whether it's complications like infection or other problems. So sensitizing the public to the difficulty of these issues is an important step," he says.

Putting things in context for patients, and the public, is important to both mitigating your risk for liability and to providing good and compassionate patient care. It is human nature, he says, to try to put things together and make a conclusion, "to make sense of what happens to us." If you don't talk openly with patients, he says the likelihood that they "will put it together in a way that is both inaccurate and contrary to your interests" is much greater. "If you don't give them the tools to have a deeper and more accurate understanding, they make the best with what they have."

Doctors, without support, should not be expected to talk one on one with the patient because it's simply too emotional, he says. At Michigan, professional staff are available for help 24/7.

"We are fully committed to this notion that ultimately we serve ourselves, our staff, our institution better through honesty than we do covering things up. And that's really the goal," he says. "Because once someone's hurt, and I don't mean to minimize their problem, but the problem's already happened, and the best we can do is our best to make it right. The very best thing we can do is make sure nobody gets hurt again." ■

Could TJC's antibiotic standard get you sued?

Requirement results in 'a host of legal problems'

An elderly man comes to your ED and is admitted to the hospital with severe dehydration and fever of unknown origin. Two days later, an X-ray reveals pneumonia.

When the patient is discharged with the diagnosis of pneumonia, this triggers the person collecting core measures data to check the patient's chart. They will find that the patient did not get the antibiotics within the six-hour time frame required by The Joint Commission.

"But that wasn't the diagnosis at the time the patient was in the ED. That is one of the problems with the standard," says **Angela F. Gardner**, MD, FACEP, assistant professor in the division of emergency medicine at University of Texas Medical Branch, Galveston, TX, and former director of risk management for Dallas-based EmCare. "When you make the discovery is the appropriate time to start the antibiotics."

The Joint Commission expanded the required timeframe from four to six hours; the change was effective in October 2007.[1]

"This is, frankly, astounding," says **Jesse M. Pines**, MD, MBA, assistant professor of emergency medicine and epidemiology at the Hospital of the University of Pennsylvania in Philadelphia. There is even less evidence of an association between a six-hour window and survival than a four-hour or eight-hour window, he adds.

The root of the problem is that The Joint Commission's standards were developed by specialists, without the involvement of emergency physicians, according to **Frank Peacock**, MD, vice chief of emergency medicine at The Cleveland (OH) Clinic Foundation. "Pulmonologists don't work in the ED, and they have no clue about what goes on. You get unintended consequences when you have somebody who doesn't work in an ED making the rules," he says.

The data behind The Joint Commission's antibiotic standard are "far from definitive," according to Pines.

The standard is based on two large retrospective studies of Medicare patients, all age 65 and older, admitted with pneumonia.[2,3] These studies found a link between a reduced mortality rate and patients getting antibiotics within four hours and eight hours, respectively.

However, there are a number of issues with these studies that bring their conclusions into question, says Pines. "People can sit at home for days before coming to the hospital with pneumonia. To think that giving antibiotics a few hours sooner really makes a difference does not make good sense, unless the patient comes in critically ill. There may be something else driving the difference in death rates. Some other factor that is unmeasured in these studies may be responsible."

Pines hypothesizes that the patient's presentation accounts for the differences in mortality rates; specifically, he points out that patients with an atypical presentation of pneumonia get later antibiotics.[4]

"When patients don't have a cough, it takes longer to diagnose the pneumonia, and thus, antibiotics are delayed," says Pines. "The clinical presentation says something about how the host is responding to the infection. I would guess that this is likely a stronger factor in the association between antibiotic timing and mortality, than anything related to delays in antibiotics."

Christopher Fee, MD, assistant clinical professor in the department of emergency medicine at University of California San Francisco, agrees that there may be other variables that were unaccounted for in the studies. For example, it may be that patients who received more rapid antibiotics were cared for in hospitals that provide better care in a number of other ways, such as better nursing care or adherence to other practice guidelines. "Thus, the time to antibiotics may be a surrogate for overall better care," says Fee. "This was not measured or controlled for."

According to Pines, "what is clear is that the group that makes recommendations to CMS [the Centers for Medicare & Medicaid Services] on these rules has a vested interest in keeping these timing guidelines in place," says Pines. "This is because people on the committee that make the recommendations to CMS on this also happen to be the authors that wrote the original papers. It seems like a classic example of academic conflict of interest."

Current pneumonia guidelines from the American Thoracic Society (ATS) and Infectious Disease Society of America (IDSA) recommend that antibiotics be administered as soon as possible after the diagnosis is confirmed, preferably while the patient remains in the ED. In other words, ED physicians should not confirm the diagnosis but then send the patient to the inpatient floor without giving the first dose of antibiotics, says Fee.

Pines says the problem is that The Joint Commission "jumped the gun" and declared that early antibiotics in pneumonia be the standard of care before there was sufficient evidence. "This may create a host of legal problems," he says.

Likely to come up during a lawsuit

"When a lawsuit happens for a patient with pneumonia who was admitted through the ED, I'm sure the lawyers are going to look at whether they got early or delayed antibiotics," says Pines.

Pines adds, however, that it would be difficult for an attorney to link any specific bad outcome to a delay in antibiotics, unless it was delayed by days or weeks. "The problem is they have certified early antibiotics in pneumonia as a care standard before the evidence was there to really support this assertion," he says. "Therefore, there may be cases that inappropriately point to delayed antibiotics as causative in a bad outcome."

If such a case were to go to trial, Pines says that ED experts would need to argue that there is no definitive link between early antibiotics and survival rates in pneumonia patients. "Juries might have a hard time understanding the subtleties of why the studies are not definitive."

Fee says he is not aware of any lawsuits that have occurred for failing to meet this standard. "Even The Joint Commission and CMS acknowledge that it is unrealistic, and likely harmful, to expect that 100% of pneumonia patients will receive antibiotics within the window, since doing so means that many other non-pneumonia patients would have been given antibiotics to achieve such a goal," he says.

Regardless of that, if a lawsuit occurs and antibiotics weren't given within six hours, the ED physician would have to explain this to a jury. "The jury may or may not decide that it was a good reason. Many of these cases are not black and white. It is going to be very difficult for people to understand," says Gardner.

A few years ago, Gardner cared for an 82-year-old man who had broken his hip falling out of his wheelchair. After examining him, she sent him for a chest X-ray — a routine practice for any patient with a broken hip because they may have to go to the OR.

When the X-ray came back two hours later, it showed pneumonia. Gardner wrote the order for antibiotics, which were given at four hours and 45 minutes — at the time, outside the timeframe required by The Joint Commission.

"It was not the diagnosis that he came with. There was nothing I could have done differently; he had no symptoms whatsoever to lead you to believe he had pneumonia," says Gardner. While no lawsuit ensued, Gardner says if one had occurred, she would have been in a position of having to defend why she hadn't followed the guidelines.

In addition to the six-hour timeframe, The Joint Commission is allowing EDs to document "diagnostic uncertainty" to indicate that the diagnosis of pneumonia was not clear at the time of the patient's arrival to the ED. If a physician documents "suspected pneumonia," this would fall outside of the reporting requirement because there was not a definitive diagnosis in the ED.

"The infuriating part of this is that these new guidelines have added new administrative hassles like this, and they really do nothing to help improve the actual quality of ED care," says Pines. "And the guidelines might actually be hurting people by providing incentives to physicians to give antibiotics when they are not sure."

If the ED physician suspects pneumonia after the evaluation, he/she should give the antibiotics, advises Fee. However, if their suspicion is relatively low and they have no objective data to support the diagnosis — the patient has a normal or unchanged chest X-ray, normal labs, normal lung exam, and no hypoxia or fever — then they should simply not include pneumonia as a final diagnosis. "They can include it in their differential or medical decision making, but the case will be excluded from The Joint Commission/CMS reporting if pneumonia is not one of the final ED diagnoses," says Fee. "You also cannot include 'consolidation,' 'infiltrate,' or 'possible pneumonia' there, or it will be eligible for core measures reporting."

Risk of inappropriate antibiotics

Clearly, The Joint Commission standard has changed the practice of ED physicians; across the country, rates of early antibiotics in pneumonia are on the rise.[5]

"The problem is that there is no clear evidence that this benefits patients," says Pines.

Pines points to an unintended consequence of the requirement — that ED patients with pneumonia-like illnesses such as congestive heart failure (CHF) and chronic obstructive pulmonary disease (COPD) are getting antibiotics when they don't need them.

No one would argue that giving antibiotics to a patient with pneumonia is the right thing to do, as soon as the diagnosis is confirmed, says Fee. "The problem is with identifying these patients within the given time window, and the lack of convincing evidence that receiving antibiotics within that window really impacts mortality," he says.

Establishing an artificial time window creates pressure to give antibiotics to a patient who may have pneumonia, but in whom the diagnosis remains uncertain and is pending further evaluation, such as a chest computerized tomography scan. "This has the potential to cause ED physicians to administer unnecessary antibiotics," Fee says.

The problem, says Peacock, is that now, "everybody who might have pneumonia gets antibiotics."

"It's not good medicine, but that's what we do in the United States," says Peacock. "We are in an epidemic of *C. diff* infections now, which is very rare to get without an antibiotic-associated event. And here we are, putting patients at risk for diseases to comply with a rule that is really poorly thought out. Patients can get an allergic reaction or diarrhea from antibiotics for a pneumonia they don't even have."

Fee adds that he doesn't think that lawsuits involving ED physicians failing to meet the six-hour timeframe are likely to increase. In fact, he envisions the opposite scenario. What if a non-pneumonia patient, such as a CHF patient, is given antibiotics purely out of pressures about time?

"If the patient suffers an adverse event because of it — an allergic reaction, volume overload exacerbating the CHF, or interaction with their Coumadin — this could lead to a lawsuit," says Fee.

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Matching nurses, skill sets spells ED success

Triage staffed by nurses with experience, interest

Although EDstat, a new eight-bed area that was added to the ED at Reston (VA) Hospital Center about a year ago, is only open from 11 a.m. to 11 p.m., it has helped to improve the performance of the entire ED. For example, in early spring 2007, before the new area opened, the percentage of patients who left the ED before treatment ranged from 2%-2.5% (statistics were measured monthly). Today, that has been reduced to 0.3%-0.4%.

In addition, time from arrival to triage was 18.59 minutes before EDstat, and 5.17 minutes after implementation. Door-to-doc time was 56.89 minutes prior to EDstat, and 34.07 minutes following implementation.

These results come as no surprise to **Sherry Hawkins**, RN, quality improvement coordinator for the ED. They've increased the number of beds from 22 to 30, Hawkins says. "We see everyone immediately, and treatment is started quickly," Hawkins says. "They get right to that bed. It's almost like an assembly line."

While the ED leaders credit much of the improvement to the superior processes the EDstat has brought, they also point to the staff as a key component of its success. That staff, they point out, not only possessed a specific set of skills that were needed, but they also actively expressed the desire to work in the new section. Although the department still has a triage area, the triage nurse's primary job is now to do a rapid-fire sorting of patients, immediately placing them on a bed in the EDstat area or the main ED. Patients with conditions that quickly can be cared for, such as minor lacerations, orthopedic injuries, and uncomplicated respiratory and gastrointestinal complaints, are sent to the EDstat area.

As the EDstat plan was taking shape, the managers of the ED recognized that nurses would require a very specific skill set to be qualified to work there. It's an area that requires a significant amount of focus and attention, says **Kendra Cline**, MSN, assistant director of the ED and ED educator. "You have to have excellent assessment skills so the patients can move quickly," she says.

This is the *raison d'etre* of the EDstat. Any

CNE *questions*

1. In the *JAMA* study on rapid response teams, did the research team find a statistically significant difference in non-ICU code rates between the pre- and post-intervention periods?
A. Yes
B. No

2. In the study led by Stephen B. Kritchevsky, the proportion of doses given outside the surgical suite declined in which group?
A. feedback-only group
B. feedback and collaborative group
C. both groups
D. neither group

3. Jesse M. Pines says The Joint Commission jumped the gun when it declared early antibiotics in pneumonia patients as a standard.
A. True
B. False

4. The triage process at EDstat involves which of the following?
A. brief history
B. chief complaint
C. reason the patient came to the hospital
D. all of the above

Answer Key: 1. B; 2. C; 3. A; 4. D.

CNE instructions

Nurses participate in this continuing education program by reading the issue, using the provided references for further research, and studying the questions at the end of the issue. Participants should select what they believe to be the correct answers, then refer to the list of correct answers to test their knowledge. To clarify confusion surrounding any questions answered incorrectly, please consult the source material. After completing this semester's activity with the **June** issue, you must complete the evaluation form provided in that issue and return it in the reply envelope provided to receive a credit letter. ■

patient that presents and does not need immediate intervention can be rapidly triaged and taken there. The triage process involves the chief complaint, a very brief history, the reason the patient came to the ED, "and what they look like, just enough information to know what their acuity level might be," Hawkins says.

When you are able to put more experienced nurses, who are a little quicker, there, the process works better," she says. "A lot of it also has to do with organizational skills, as far as determining who needs to be seen and what needs to be done next."

Cline says, "They also have to be adept at determining which patients need to be moved to the main ED, to free up beds in EDstat. Their technical skills need to be pretty superb, too, to get things, [such as starting IVs,] done quickly and efficiently."

Although there is a technician to handle splints and other basic services, "there is only one tech and two nurses, and they have to all be very proficient and also work well as a team," says Cline. The EDstat also includes a physician.

In fact, says Cline, the ability to work well as a team "may even be more important than their technical ability."

How did ED management evaluate that ability? "It's based on knowing your employees," she says. "If they function well together, it's something you see in their day-to-day practice. In fact, some people requested to go to the EDstat and work there together."

Wanting to work in the EDstat was another important consideration in the selection process, says Cline. Initially, the concept was piloted by Cline, Hawkins, and **Teresa Kreider**, MSN, RN, the ED director, says Cline. "We did it over a three-day weekend just to see how well we could make it work," she says. Next, they piloted the concept for six weeks using staff who told them they were interested in working within that environment, Cline says. "We are blessed to have experienced nurses, and there were quite a few who could do it." ■

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Network helps EDs reduce redundant test orders

A pilot program that allows EDs and health care systems across Milwaukee to share patient information is expected to save thousands of dollars by eliminating redundant testing, while improving patient care. Officials of the Aurora Health Care System, one participant, estimate that they will save $400 every time they review test data from another

CNE objectives

To earn continuing education (CNE) credit for subscribing to *Hospital Peer Review*, CNE participants should be able to:

- Identify a particular clinical, legal, or educational issue related to quality improvement and performance outcomes.
- Describe how the issue affects nurses, health care workers, hospitals, or the health care industry in general.
- Cite solutions to the problems associated with those issues based on guidelines from The Joint Commission or other authorities and/or based on independent recommendations from clinicians at individual institutions. ■

COMING IN FUTURE MONTHS

■ Joint Commission issues sentinel event alert on technology errors

■ AHRQ reports increase in bedsore numbers

■ IHI launches initiative to reduce hospital injuries

■ AMA asks Joint Commission to reconsider disruptive behavior standard

hospital source and don't repeat the test.

The program, which is sponsored by the regional nonprofit group Wisconsin Health Information Exchange (WHIE), was launched in March 2008. So far, the EDs can share only what **Kim Pemble**, WHIE's executive director, calls "admitting transactions," including chief complaint. "In November, we will add Medicaid claims data: diagnosis, procedures, and medications paid for by Medicaid," he says. "In 2009, we will be adding lab results, pharmacy data, and transcribed documents."

Mary Paradero, RN, MSN, patient care manager for the ED at Aurora Sinai Medical Center, adds, "Right now, it tells us what other visits the patient has had, the date, which organization they went to, and how many visits they had."

Even though the program is just in the pilot phase, there are already patient safety benefits being seen, Paradero says. "Since we are able to see the prior chief complaints, if our case looks like a similar reason, we can call over to that hospital to strengthen continuity of care," she notes.

The participating EDs log onto the WHIE application just as they would any other software program. They are required to enter a password to open it, however. "What they see now is a list of the patients for whom they have a care relationship — those who have been admitted," says Pemble. "Our exchange gets the admitting information. We cross-match it around the community, aggregate the information, and put that in the history."

The ED gets to look at that information for 72 hours. "If the patient later returns to the same ED, they will again see all that history plus anything that has occurred since," Pemble explains. There was no "per-hospital" startup fee, says Pemble, although WHIE did receive a one-time contribution from the Wisconsin Hospital Association. The only ongoing contribution individual hospitals make, he adds, is "people time to support implementation of the system related to their institution."

One of the primary reasons Aurora is participating in the program is that it has already seen the benefits of its own systemwide electronic medical record (EMR), which it installed in 2006, says Paradero. "If a patient had been to another of our hospitals and, if they had a CT scan done and were back a week later, depending on what they presented with, we might not have to do another one and expose them to more radiation," she explains. Avoiding unnecessary tests also decreases a patient's length of stay, says Paradero.

The ED also is able to reinforce to the patient what had been done on the previous visit, she says. "If they were referred to a primary care physician, we can reinforce that and ask the patient if they saw 'Dr. Smith.'" ■

2008 SALARY SURVEY RESULTS

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Within the growing role of QI, technology playing a big part

In the value-based purchasing world, quality improvement professionals seen as more integral

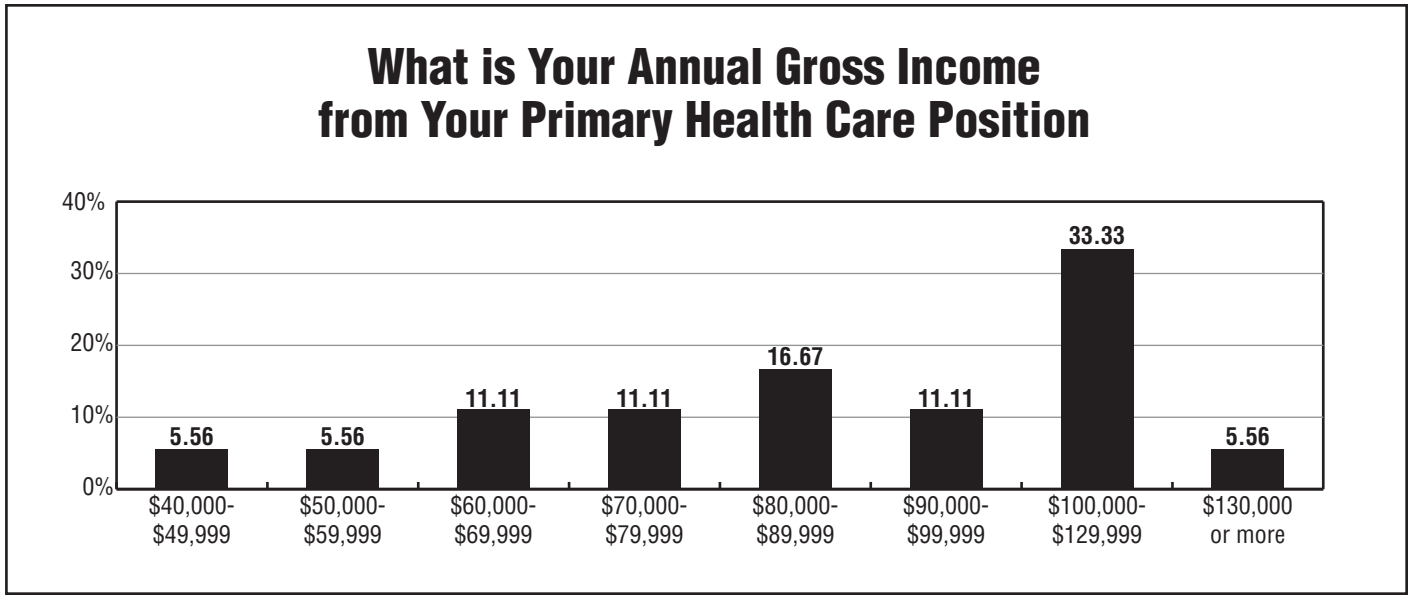
With the advent of pay for performance (P4P), what quality improvement professionals track and trend now could affect hospital reimbursement more than ever. "I think that quality has taken what I would call a stronger position in the overall hospital operations because they're providing information where choices can be made and they make an impact on the bottom line," says **Patti Muller-Smith**, RN, EdD, CPHQ, a Shawnee, OK-based consultant who works with hospitals on performance improvement and regulatory compliance.

Because of the financial impact, administrators are now more accountable themselves, so their relation to the QI department is stronger. And with that, they're tasking every department in the hospital to be more responsible for quality, Muller-Smith says.

But **Patrice Spath,** of Brown Spath Associates in Forest Grove, OR, says QI staff are not immune to the effects of today's struggling economy. Just as the banks, auto companies, and innumerable companies across the nation are feeling the effects, hospitals, too, are being affected by the losses. Spath says many hospitals are cutting employees. "I think anybody who's not working in direct patient care is vulnerable," she says.

Survey findings

Results from the 2008 salary survey, which was mailed to readers in the July 2008 issue, show the highest percentage of respondents, 33.3%, receive an annual gross income of between $100,000 to $129,000. While the 2007 results, showed about half of respondents making less than $79,999 and half receiving more than $80,000, in 2008 about one-third of those surveyed were in the former



category, with two-thirds in the greater-than-$80,000 field.

All of the experts *HPR* spoke with agreed that most QI professionals at the director or manager level are making between $100,000 to $129,000. "It's taken a good number of years to get to $100,000," says **Paula Swain,** MSN, CPHQ, FNAHQ, director of clinical and regulatory review at Presbyterian Healthcare in Charlotte, NC.

Swain moved from consulting to the hospital setting seven years ago. As a consultant, she was getting more than "what they were paying in the field at the time. It looks like now the field is catching up."

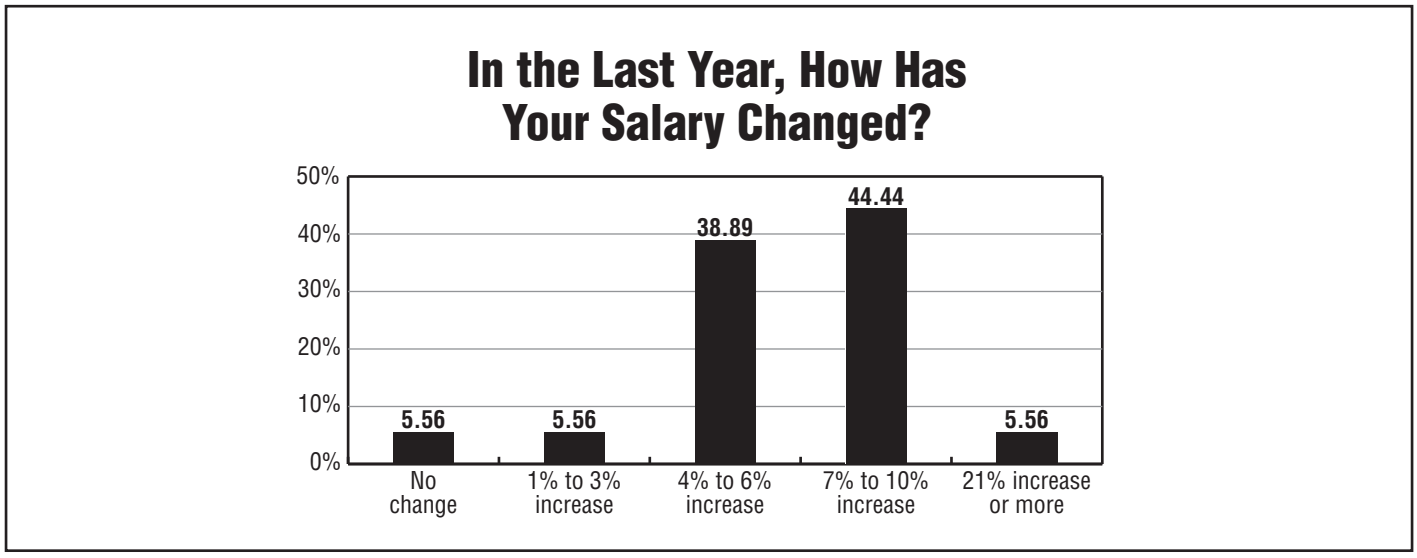
Survey findings also show:

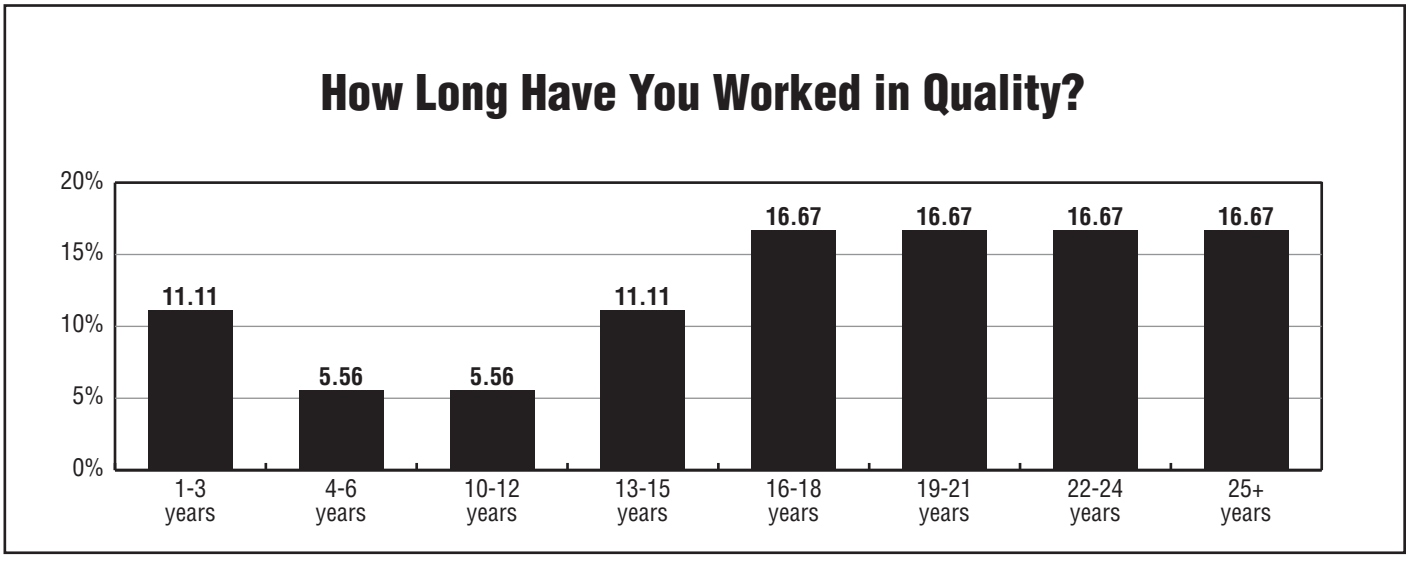
- the field is still predominantly female, with woman representing 82% of that workforce.
- most respondents were aged 46 to 55 years.
- the majority of those showing an increase in salary over the year reported receiving an increase of between 1-6%. Only 5.56% received no increase, with the same percentage also receiving either a 7-10% increase or an increase of more than 21%.
- the majority of responses, with 33%, showed an average work week of 46-50 hours; 40% worked more than 51 hours a week and 26.7% logged an average of 31-45 hours a work week.

Aging workforce

Seventy-five percent of the respondents to the 2008 salary survey have worked in health care for more than 25 years. "I think it just says that you have to have some experience, be a more mature person," Swain says.

Spath attributes it to the general aging workforce, especially in the health care arena. That 75% figure, she says, "tells me that our quality professionals are aging and the work force is aging, and it really behooves us as quality professionals to mentor the younger people to take over our





positions.

"Our educators need to make sure that incoming professionals in different areas are getting a good foundation of quality management. Our professional organizations need to make sure they're operating with beginning education and not just advanced education," she says.

Skills for the future

What's most important, Spath says, is making sure incoming professionals have "the skills that are necessary for the future." A lot of people, including herself, moved into QI because they were good at their clinical jobs, she says. Though she has training in health information management, Spath says she had no formal training in quality improvement and had to pick a lot of that up as she went along, with on-the-job training, books, and workshops.

Those jumping into quality improvement today, especially at the manager/director level, "need to hit the ground running," she says.

All of the experts *HPR* spoke with agreed that technological and analytic skills are essential to the job. "In the past," Spath says, "you would just leaf through medical records and gather what you what you wanted and write it down with pencil and paper.

"Now, you need to be able to create a data query and get information in electronic form, and it doesn't just mean you need to be able to press a button on a computer. You also need to understand how those data got into that data warehouse, what the data definitions were, and if you ask for a data query, are you getting the information you thought it you were going to get?"

Incoming professionals must have advanced health information management skills, which could be achieved through an informatics degree or certificate, Spath says.

Swain reiterates the integration of data management skills and suggests obtaining the Certified Professional in Healthcare Quality (CPHQ) certification.

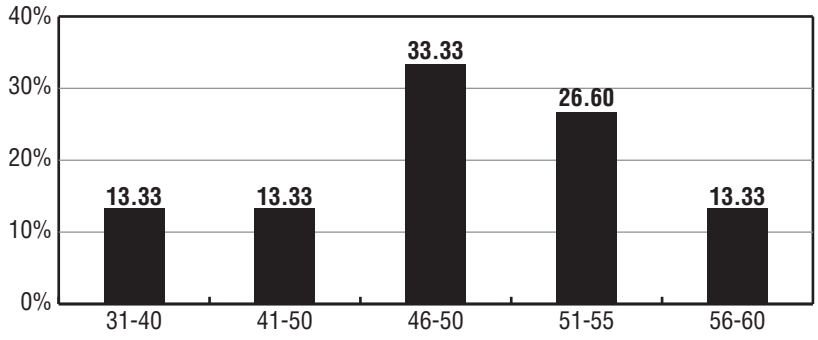
Confidence in your data management skills is integral in explaining where the hospital stands on measures, compliance, successes, and failures. If you're sitting in front of a committee and someone points to a chart at you and says, "Look at that. That point went down. We're doing better," she says you need to be able to explain it to them. For example, to say, "No. Six points make a trend. That's the only way we can say this made a difference here."

Is the C-level buying in?

Muller-Smith says with the P4P movement, there has been a push toward increased awareness of quality improvement. Previously, she says, the QI professional didn't have the clout he or she has today. With the amount of technology and the breadth of data one can extract today, we can see performance by each clinician, and those are communicated to the administration. In many hospitals she works with, she is seeing administration not only buy in to quality improvement's initiatives but to task each department to control quality within its own sphere.

Swain says Paul Wiles, president of Novant Health, of which Presbyterian Hospital is a part, "has the philosophy that quality is the thing that makes the difference. He just doesn't talk it; it's embedded in our facility everywhere." All of which makes her feel pretty good about what she

How Many Hours a Week Do You Work?



does and where she does it.

If you don't feel a fit with where you are, she says, there are "plenty of jobs" out there now. "You can decide to take the regulatory side or the P4P side, core measures side — you're always using quality improvement methodology... Now you've got more opportunity for an outlet for your skills than we've ever had in our lifetime."

Clinical or technical background required?

Bedside or business side: Where does the future hospital quality improvement professional come from?

Because of the "rich underpinnings" of all that falls under the QI professional's umbrella — sentinel events, state issues, deaths and restraints — Swain says you must have a health care background. "Experience in a clinical situation is how you frame up your responses [to hospital colleagues]. It's how you cut to the chase to teach the nurses at the bedside what the important thing is in the standard, how you go through all the gobbledygook and cut through this stuff. Because of that you have to have some sort of experience in the health care process itself. I don't think you can be looking in through the windows."

Most of the people *HPR* spoke with came from a nurse background and commented on the value of prior clinical experience in the quality director/manager role. But **Tom Knoebber**, CPHQ, Six Sigma Black Belt and director of performance improvement at Mission Hospitals in Asheville, NC, has a different opinion, and a different background. Trained as an industrial engineer, Knoebber worked with Premier/Sun Health as a management engineer/consultant, and when the hospitals merged he was brought in-house.

"So I gave a harder edge to that soft, squishy stuff, but then also picked up some of the old-fashioned QA," he says.

But then, in the mid-90s he says there was an evolution to a much more statistical focus. "So far I've seen the role change clearly with the start of CMS and the HQID project, the Premier/CMS project, and with that it really took someone who understood sampling on top of the clinical stuff," Knoebber says.

"The QA department was historically considered a transitional role for nurses away from the bedside. Today's quality specialists require a new level of analytical and clinical skills to ensure evidence-based practices are implemented and followed," he adds.

Mission Hospitals' new chief nursing officer wants a quality resource within each nursing unit. Knoebber now has 55 nursing units dealing with his data. To help them, he says he's made some simple spreadsheets where they can plug in data and a graph is created. And six months ago, the hospital implemented a computerized physician oder entry system.

For those entering the field, he emphasizes the importance of being able to work with Excel, especially working with the pivot table function, which allows you "to think three-dimensionally about data." His staff all have their Six Sigma Green Belts. It's helpful, he says, to bridge "the gap between the finance department and clinical departments."

The QI professional continues to have to do more with less, Spath says. "And doing more with less means that we need to do things in quality improvement like applying Lean technologies." QI professionals also need to learn to say no when needed and to delegate functions when appropriate, she adds. ■