

Critical Care MANAGEMENT™

The essential monthly resource for critical care and intensive care managers and administration

March 2000 • Volume 4, Number 3 • Pages 25-36

IN THIS ISSUE

Special Report: Do-It-Yourself Research

CCUs use simple steps to fill research void

How well is your ICU measuring up? When applying performance-measurement tools to the ICU, answers can be elusive and frustrating. In critical care, a scarcity of good research tools contributes to the problem. Plus, efforts are often hampered by too little time, too few resources, and a lack of confidence and expertise. However, some nurses advocate using simple approaches. Fundamental 'pencil-and-paper' options that focus on existing factors within a unit can reveal important facts about patient utilization and cost. Cover

ICU nurses working harder in changing environment

ICU nurses are working harder than ever and facing increased challenges in patient care, not only in their traditional clinical roles, but in ethical and legal areas, as well. Those are the findings of the latest nursing role delineation study conducted by the American Association of Critical Care Nurses Certification Corp. in Aliso Viejo, CA. 27

Research tool fails to lure ICUs despite wide appeal

Acute care nurses in Iowa say they've found a way to properly classify and describe virtually the entire range of what bedside nurses do for patients with a 7-year-old research tool. The Nursing Interventions Classification system, which has been around since the early 1990s, is said by proponents to be the most effective means of documenting nursing care. 29

In This issue continued on page 26

NOW AVAILABLE ON-LINE!

www.ahcpub.com/online.html

American Health Consultants® is A Medical Economics Company

Special Report: Do-It-Yourself Research

Faced with lack of tools, CCUs use simple steps to fill big research void

Experts advocate small, practical programs

How well is your ICU measuring up? The question is on everyone's mind. But when applying performance-measurement tools to critical care, getting answers can be elusive and frustrating, according to many nursing researchers.

"ICUs are undergoing enormous change. Yet, there isn't a lot out there for them to use effectively," says **Gayle Whitman**, RN, PhD, a critical care nurse and director of the Health Care Outcomes Center at the University of Pittsburgh School of Nursing.

A lack of research tools that are easily adaptable to critical care units (CCUs) is only one problem. Too little time, too few resources, and poor confidence and expertise in the research process are additional factors facing nursing administrators, experts say.

Getting management's support and the sizable cost and staff time involved in developing effective programs also can be daunting, especially for smaller hospitals.

But Whitman and other veteran researchers argue that CCUs can still investigate their own track record without necessarily undertaking long, arduous internal research.

Much of what has already been done has been published and is available in the medical literature, says **Lisa J. Massarweh**, RN, MSN, CCRN, an assistant professor of nursing at Kent State University in Ashtabula, OH.

In This issue continued from page 25

Automated drug dispensers still need personal attention

Automated drug dispensing systems bring the pharmacy to the ICU in the form of a computerized drug cabinet. The devices, now in use at the University of Mississippi Medical Center, are convenient for nurses and help pharmacists keep better track of ICU medication needs. But the Institute for Safe Medication Practices warns that automation can cause some nurses to become complacent about double-checking meds. 30

ICU to home care transition requires communication

ICU patients who will be discharged to home with complex problems and equipment — such as ventilators — need the attention of case managers as early in their care as possible, case managers say. ICU nursing staff are in an ideal position to initiate discharge planning and help families prepare for the transition to home care. The key is consistent communication between nurse managers and case managers. 33

JCAHO begins surveying for new pain standards

The Joint Commission on Accreditation of Healthcare Organizations is beefing up the pain management standards for hospitals, calling for more attention to pain assessment and patient education. The upgraded standards will be a part of surveys conducted this year, and the commission will determine how much weight to give them beginning with surveys conducted in 2001. 34

Molecular 'glitch' leads to post-op heart failure

Researchers have taken a major step toward unlocking the secrets of a form of heart failure frequently seen in the ICU after open heart surgery. A molecular glitch brought on by the loss of blood flow to the heart can cause weakened heart muscles, and lead to heart failure hours — or even days after surgery. Scientists discuss their discovery, and what it might mean for ICU care in the future. 35

COMING IN FUTURE ISSUES

- **Innovation:** Is there room in your ICU for unconventional nursing practices? Believe it or not, there is
- **Herd instincts:** The ins and outs of planning and executing group interviews for new nurses
- **Melting pots:** How to create and implement a patient-focused cultural sensitivity program
- **AIDS:** Do HIV-infected patients still pose a safety threat to CCU nurses? What you should know
- **Staffing:** The latest debate over cross-training to address staff shortages

Although the statement risks repeating what's obvious, it's surprising that most hospitals fail to exploit those resources, experts say.

Administrators can use what's been published as a template for conducting their own unit's research. The effort is particularly useful when assessing organizational performance involving factors such as length of stay (LOS).

That's because the data involved are readily accessible and more clearly defined than the clinical patient data, Whitman argues.

Research can help determine outcomes

Organizational research can yield important performance-related facts, such as the department's average LOS in determining positive, targeted outcomes. It can also help explain the reasons for discharge delays and the effectiveness of current nurse discharge planning.

Indeed, Massarweh conducted her own assessment of nursing unit performance characteristics a few years ago in a study of three CCUs within the same hospital. The effort was part of her graduate work in nursing at Gannon University in Erie, PA.

The study used previously published research as the basis for assessing key nursing characteristics such as leadership, intra-unit communication, coordination, and problem solving. Clinical team cohesion and perceived unit effectiveness completed the six studied parameters.¹

Massarweh used the parameters in a survey of the three CCUs to assess how nurses felt about organizational processes and managerial practices. Using the template made the work a lot easier, she says.

The template came from a groundbreaking national study of ICU nursing conducted in the early 1990s.²

The call by nursing leaders to rally around research has never been greater. "Where evidence-based practice is available, it must be universally disseminated and applied so that all patients may benefit," exclaimed Grif Alspach, RN EdD, the editor of *Critical Care Nurse*, in a recent editorial.³

Yet, faced with those pressures, CCUs, as a whole, don't have a strong record on internal research, Whitman notes. Much of it is spotty and the findings are often conflicting, Massarweh adds.

Yet, the CCU is a setting that is continually evolving, Whitman says.

The latest trend study conducted by the

ICU nurses work harder in changing environment

Jobs are revamped in response to change

ICU nurses are working harder than ever and facing increased challenges in patient care — not only in their traditional clinical roles, but in ethical and legal arenas, as well.

A greater emphasis on complex technology, managed care, and increasing populations of sicker patients are all challenging conventional ICU nursing skills and forcing changes in professional standards that have traditionally defined the ICU nurse.

Those factors run throughout critical care and are affecting nurses in all specialties, including adult, pediatric, and neonatal care.

Those are the findings of the latest nursing role delineation study conducted annually by the American Association of Critical Care Nurses (AACN) Certification Corp. in Aliso Viejo, CA.¹

Those issues have come to the forefront in our profession in recent years, and the latest delineation study now bares this out, says **Melissa Biel**, RN, MSN, executive director of the AACN Certification Corp., which sponsors the critical care registered nurse (CCRN) certification exam.

The study revealed several common themes among all patient age groups, including:

- an increase in psychosocial issues in relation to patient care not only with patients but also with patients' families;
- growing awareness by nurses of ethical and legal dilemmas in ICU patient care;

- increased use of technology and new clinical procedures;
- new leadership opportunities for nurses in working with multidisciplinary teams and unlicensed personnel;
- changing patient demographics;
- shorter lengths of stay, increase in patient-to-nurse staffing ratios, and sicker patients as a function of managed care payment policies.

As for psychosocial issues, according to the study, nurses are finding themselves working with families who have a history of poverty and homelessness.

Mental illness, drug abuse, and domestic abuse are now common for patients and patients' families, particularly in neonatal ICUs, the report stated.

These conditions have increased the number of cases of shaken baby syndrome, iatrogenic withdrawal, and other abuses.

Study respondents indicated that ICUs are seeing older and sicker patients who are more acutely or critically ill and suffering from comorbidities.

Patients also are taking more medication than in the past and using more technology. Nurses are also seeing a greater role played by insurance in determining when patients decide to seek medical care.

According to Biel, the findings of the latest study will be incorporated into the blueprint used by AACN in its CCRN certification exam.

Reference

1. Biel M, Eastwood J, Muenzen P, et al. Evolving trends in critical care nursing practice: Results of a certification role delineation study. *Am J Crit Care* 1999; 8:285-290. ■

American Association of Critical Care Nurses (AACN) in Aliso Viejo, CA, finds compelling evidence that critical care nursing is indeed evolving.⁴

Evidence of drastic change

The study, which AACN conducts annually, found several common themes this year affecting ICUs nationwide, among them the growing effects of technology and managed care.

Added to the list are concerns about patient psychosocial factors, and ethical and legal

issues directly affecting nurses and patients. **(For specifics on the AACN study, see related article, above.)**

While professional groups such as ACCN are pushing for better nurse training and higher certification standards to address those changes, there's been little in the way of formal intelligence-gathering available to support those initiatives, Whitman observes.

In assessing mortality and morbidity, the best-known and most widely cited tool in the ICU has been the Acute Physiology and Chronic Health Evaluation (APACHE), a prognostic scoring system

now in its third generation.

But APACHE III isn't perfect, and although it helps as an aggregate scoring system it doesn't necessarily reflect individual CCU conditions, observes **Lynn Kelso**, RN, MSN, CCRN, an assistant professor of nursing at the University of Kentucky in Lexington.

Other similar scoring systems have included the Simplified Acute Physiology Score II, and the Mortality Prediction Model II. But nothing like them has evolved in measuring organizational performance in the ICU, Whitman observes.

In the absence of anything similar in organizational research, it appears nursing and finance departments have used and interpreted indicators such as length of stay, nursing hours per patientday, and cost to discharge in different ways, nurses say.

The American Hospital Association in Chicago and a handful of consultants and accounting firms routinely publish national hospital utilization benchmarks. But they fail to focus specifically on ICUs, Whitman notes.

"For the hospital, these data are quite useful. But they lose a lot of their specificity when they get down to the ICU level," Whitman says.

And "not one consistent method is currently used to assess quality among and within critical care units (CCUs)," Massarweh says.

In her own research, Massarweh found that nurses from the three CCUs that were studied held markedly different views toward their own unit's work. She also found that units vary widely among themselves, even within the same institution.

Fundamental research works

As a result, it was difficult to make broad generalizations about nursing quality for a whole hospital. But it is feasible to study each unit separately, Massarweh concluded.

Similarly, as a nurse manager, Whitman investigated the reasons for delayed discharges of certain cases from her unit. At the time, the ICU's LOS was reported to be as much as 30% to 40% higher for certain post-operative cardiac cases.

A large group of patients was exceeding the average one-day stay in the ICU and five days in a step-down common to most cases.

Simply by reviewing the medical records within a selected window of time, Whitman says she isolated 30 patients who were responsible for increasing the unit's average LOS.

The reason, she found, was that the patients were all suffering from post-op atrial fibrillation, indicated by dysrhythmia and minor respiratory complications. However, Whitman never suspected that the problem lay in the nursing care.

A little investigative work mulling further through the files determined that physicians and nurses were applying a wide range of different criteria in administering the required loading dose of digoxin for those cases.

The medication ordering and dosing variability all fell within a certain parameter, but were wide enough to cause marked differences in LOS, Whitman stated. Some physicians would wait to use a second drug often up to 48 hours before cardioverting the patient. Others waited much less time. Once discovered, clinicians went to work to establish a set, agreed-upon protocol for proper dosing intervals prior to cardioverting.

The incident proved that quality research doesn't have to be complex or all encompassing, Whitman notes. Not always, but "sometimes, a simple pencil-and-paper task can yield good answers," she says.

What's important is that you have sound ideas concerning what you are looking for and are realistic about the resources you'll need to find it, says Kelso.

Sometimes, simplicity is best

Although often limited in usefulness to a CCU, national associations can help scratch the surface when studying areas, such as effective pain management and parenteral feeding techniques. The Internet is a vital resource for those initial investigations, advocates say.

"Look for the best that's out there. It doesn't hurt to try to emulate others. More often than not, they're happy to share information with you," Kelso concludes.

References

1. Massarweh LJ. TQM in critical care. *Nurse Manage* 1998; 29:48F-48I.
2. Shortell S, et al. Continuously improving patient care: Practical lessons and an assessment tool from the National ICU Study. *Quality Review Bulletin* 1992; 18:134-140.
3. Alspach G. When the 'evidence' in evidence-based practice is ignored: A time for advocacy. *Crit Care Nurse* 1999; 19:10-14.
4. Biel M, Eastwood J, Muenzen P, et al. Evolving trends in critical care nursing practice: Results of a certification role delineation study. *Am J Crit Care* 1999; 8:285-290. ■

Widening use of NIC in nursing fails to lure ICUs

Standardized language can boost outcomes research

Acute care nurses in Iowa say they have found a way to properly classify and describe virtually the entire range of what bedside nurses do for hospitalized patients. Now, they say, they can measure with greater certainty the effectiveness of nursing care on patients.

The system, Nursing Interventions Classification (NIC), has been in existence for more than seven years. Yet, relatively few critical care nurses outside the state have ever worked with it.

Proponents of NIC argue the system has a variety of valuable applications for ICU nurses. For example, as a standardized tool it can help create reliable patient outcomes studies and be utilized to conduct intelligent nurse competency testing.

NIC can also serve as the basis for creating well-defined patient care plans and total quality management programs within a unit, or across patient-care departments, a hospital, or an entire integrated system.

As a standardized language for nursing care, nurses in unrelated specialties can refer to the system for virtually any nursing procedure in acute care and can communicate the same language consistently across several departments.

Best of all, it answers a call for a clear, standardized language that for once properly communicates what acute, critical care, and other nurses do for patients.

Before NIC, nursing from a standardized language standpoint was a big empty box. No one knew exactly what nurses were doing or were supposed to do, says **Joanne McCloskey-Dochterman**, RN, a professor of nursing at the University of Iowa College of Nursing, and one of NIC's co-authors. It's opened up doors that were previously closed for all nurses, she adds.

Roughly similar to a coded index of patient care procedures, somewhat like the Physicians' Current Procedural Terminology coding system but with an emphasis on nursing, NIC defines an entire range of bedside practices.

It breaks them down into categories going from the broadly general to the specific.

Presented in an indexed form, NIC classifies some 486 nursing interventions by label names

into seven distinct domains. Interventions range from alkaline acid base management (NIC 1914) to hemodynamic regulation (NIC 4150). (See a section of one of the domains, inserted in this issue.)

The domains form categories from basic and complex physiological to behavioral, patient safety, and communitywide public health domains. There is even one on family support issues.

Once defined by their domain, the interventions fall into one of 27 distinct classes, including electrolyte and acid base management, perioperative care, and thermoregulation.

In turn, each intervention lists between 10 and 30 activities that involve nurses at the bedside. Each intervention is introduced by an alphanumeric code, such as 2G (domain 2, Class G) followed by a unique four-digit numeric code such as 1200. The combination identifies the domain, its corresponding class, and the intervention itself. For example, total parenteral nutrition is classified as 2G 1200.

Well-suited for critical care

The heart of the system is composed of the definitions and nursing activities that explain each intervention. Between 10 and 30 related activities define each intervention. For example, the activities that describe intervention 2590: intracranial pressure (ICP) monitoring include:

- assist with ICP monitoring device insertion;
- provide information to family or significant other;
- calibrate and level the transducer;
- irrigate flush system;
- set alarms;
- obtain cerebrospinal fluid drainage samples, as appropriate.

NIC can be quite useful in acute and critical care because so much of what goes on in the ICU is concrete and well-defined, compared to other nursing activities, says **Ellen Cram**, RN, MA, associate director of nursing for intensive and surgical services at University of Iowa Healthcare (UIH). The teaching hospital operates seven ICUs with more than 62 beds.

For managers, business and financial concerns are classified under a separate domain described as "Health System," and include discharge planning, fiscal management, staff development, documentation, and staff supervision.

According to the Center for Nursing Classification at the University of Iowa, where NIC was

developed in the early 1990s, some 250 health care organizations nationwide currently use NIC.

However, the system has yet to become a household term among nurses, especially in critical care, a problem that has stumped NIC's developers. We don't really know why it hasn't taken on wider appeal among ICUs, acknowledges McCloskey-Dochterman.

At UIH, the critical care department, among others, uses NIC to support its nursing care plan and to track patient data and help with documentation, says Cram.

By using the interventions as a standard reference tool, the nursing staff has been able to achieve two important tasks. Nurses are able to tailor the care uniformly throughout the department.

Everyone is working on the same page, says Cram. But individual nurses can also differentiate the care according to individual patient needs without straying too far from sound nursing practice.

The reference tool works quite well, particularly with the hospital's post-operative cardiac patients and those undergoing mechanical ventilator weaning. Because the patients need careful monitoring to watch their progress, nurses resort to the NIC activities when documenting each of their interventions.

The activities are carefully recorded in the patients' records, where even subtle nuances in the care plan are properly recorded, Cram notes.

Before NIC, no one was certain what nurses were actually doing and to what extent they were being effective, says Cram. NIC has taken nursing out of the realm of invisibility, she adds.

Administrators are planning to take NIC one step further. Soon, the hospital will be using the system to track a large body of patient data hospitalwide.

The information will be analyzed using the NIC coding system to determine differences in nursing care that have resulted in improved patient outcomes. The language will be invaluable in aiding the data analysis, adds Cram.

At 220-bed Kern Medical Center in Bakersfield, CA, nursing officials have also integrated NIC into their nursing care plans.

In the past, our care plan descriptions ran 200 words long and were vague, says **Linda O'Hotto**, RN, Kern's nursing information systems coordinator.

The standardized language, O'Hotto says, has enabled nurses to identify a patient problem. For example, a blood gas exchange impairment in the

patient, and set an expected outcome.

Using NIC, nurses can implement a care plan that employs the published interventions and increase the likelihood of achieving predictable results based on the knowledge that it's been done that way in the past.

The difficulty with the system lies in its universal acceptance. People have to buy into it for it to work properly, admits McCloskey-Dochterman.

NIC has worked best in a committed, interdisciplinary environment in which there is administration support and a commitment to engage large numbers of clinicians and allied professionals.

Another problem to date has been in its implementation. At present, the system exists in book form. A word processing version of it exists among a handful of software vendors.

But the tool isn't downloadable for seamless integration into a hospital's existing software or database systems. That process is now in the works, McCloskey-Dochterman says.

For more information, contact: Barbara Head, RN, PhD, project manager/ research associate, Center for Nursing Classification, University of Iowa, College of Nursing, 492 Nursing Building, Iowa City, IA 52242. Telephone: (319) 335-7051. Web site: www.nursing.uiowa.edu/cnc. ■

Automated dispensers need personal attention

Don't forget that routine double-check

As hospitals roll out automated drug dispensing to departments, ICU employees are learning that the machines can be a real timesaver and convenient, as long as precautions are taken to prevent errors.

The Institute for Safe Medication Practices (ISMP) warns that automation doesn't take the place of a nurse's careful eye, ensuring that the medication being administered is correct and in the proper dose.

"When nurses pull out medications from something that's automated, they tend to think that because it's automated, it's right," says **Hedy Cohen**, RN, BSN, vice president for nursing for ISMP, a Huntingdon Valley, PA-based nonprofit organization that educates health care practitioners about adverse drug events and their prevention.

"But it's a human being that's stocking these

little drawers,” Cohen says. “It’s not that nurses don’t look at the label, but they think they’re going to see something and their eyes just confirm what they think they’re going to see rather than reading the label.”

Cohen says the ATM-like drug dispensing units first were seen as a way to secure narcotics and more easily bill for them by patient. Now, they’re used for a growing number of routine medications.

Devices in use in hospitals include drawer modules that allow for drug storage either in individual drawers or in a drawer that allows a mix of different drugs, says **Kevin Newton**, vice president and general manager for Diebold, whose Cranberry Township, PA-based MedSelect division manufactures a line of the drug dispensing machines. Another product, a unit dose module, only doles out the necessary dose for a particular patient at a particular time.

In each case, access is controlled by requiring a nurse to swipe a card and type in an identifying number. From there, the nurse can enter a patient’s ID number, and choose from a list of that patient’s medications, or the nurse can call up a general list of all the drugs stocked in the unit.

When a selection is made, a drawer will open, or in the case of a unit dose module, the requisite number of pills will drop into a slot.

Easy use can lead to drug errors

But ISMP warns that ease of use can lead to errors using the drug dispensing units.

The problem, Cohen says, is that as some nurses get used to the convenience of the units, they may begin to overlook their routine double-checks — particularly for drug interactions or patient allergies.

While this information is maintained on patient charts and even in hospital pharmacy systems, the drug-dispensing units themselves don’t necessarily remind nurses of those dangers.

Cohen says nurses must also check that the drug they’re pulling out of a drawer is the drug that they think it is, and that the dosage they are using is correct.

Newton agrees. “If errors do happen, it’s a case of nurses blindly trusting what was dispensed by the machine. The nurse still needs to do the final check.”

As the use of the drug dispensing machines has evolved, so have the safety features that help prevent errors.

Newton says the earliest drug dispensing

systems, which tended to be used mostly for narcotics, included computer prompts that required nurses to count the drugs in a drawer both before and after removing a dose to help assure correct counts. While drawer-type units still have that feature, unit-dosing modules do not require it, since they count out the amount needed.

The University of Mississippi Medical Center in Jackson, which began a trial program with the MedSelect system in 1997, now has automated nearly all its nursing units, says **Wayne Carpenter**, BP, pharmacy supervisor. “It’s our goal to automate every site that’s reasonable to do.”

Carpenter says the University of Mississippi Medical Center has configured its drug dispensing system to help eliminate some of the potential for errors.

Pharmacy technicians who load the drugs into the automated cabinets are careful not to put similar-looking drugs next to each other, and the cabinets’ narrow drawers don’t allow for too many confusing choices in one place.

“We have arranged them so that if you’re going after a little white tablet in a given drawer, you’ve got a choice of one,” Carpenter explains. “It helps the pharmacy people in the loading, and it would help the users — nurses, doctors, or whoever — whenever they’re removing the drug.”

Newton says newer software that can be added as a feature to the MedSelect system uses specially controlled drawers and flashing lights to carefully direct pharmacy technicians to put drugs only in the proper drawer.

ICUs still find advantages to automation

But some suggest that units go even further to ensure safety.

Patricia Lee, MS, a practitioner in residence on the staff of the American Society of Health-System Pharmacists in Bethesda, MD, previously worked for Pyxis Corp., a major manufacturer of automated systems, and was an educator in the pharmacy departments at the University of California at San Diego and San Francisco.

To help avoid errors, Lee suggests using a bar code system that can verify a drug is being administered to the proper patient, and configure drawers so that each drug is in a separate, secure area.

Most importantly, she says, don’t allow nurses to override the system, allowing access to drugs without a medication order or answering all of the safety questions posed by the computer.

Steps to Prevent Medication Errors

The Institute for Safe Medication Practices recommends the following steps when using an automated drug dispensing system to help prevent medication errors:

- **Consider systems that require pharmacy order entry before nurses can remove drugs from automated dispensing cabinets.** Do not allow nurses to override this feature. If overrides are allowed, develop a list of drugs or drug categories, such as antibiotics, that shouldn't be removed without pharmacy notification and clearance.
- **Consider using a system with barcoding capability for drug stocking, retrieval, and administration.**
- **Carefully select drugs to be stocked in cabinets.** Consider the needs of each unit, staff expertise and familiarity with specific drugs, and the age and diagnoses of patients being treated.
- **Minimize the drug supply and stock drugs in the smallest doses and containers possible.**
- **Establish maximum dose ranges for "high-alert" medications, and place this list on automated dispensing cabinets for reference.**
- **Educate staff to remove only a single dose of the medication ordered.** If not used, return the drug to pharmacy for replacement in the automated dispensing cabinet. Staff should never return drugs to cabinets.
- **Develop a check system to assure accurate cabinet stocking.** Checking could be accomplished by pharmacy staff members, or by staff on patient care units if they are supplied with a daily list of items added to the cabinet for verification.
- **Place allergy reminders for specific drugs, such as antibiotics, opiates, and NSAIDs, on appropriate drug storage pockets or drawers.**

Source: Institute for Safe Medication Practices, Bethesda, MD.

"It can be possible to short cut any system, no matter how good or secure the system is," Lee says. "But don't try to do it."

Despite the issues raised by automation, Lee still sees advantages in the automated systems and finds advocates among the ICU nurses she's worked with.

"It probably goes back to the fact that they've had to search for drugs so much," she says. "I think nurses are delighted to have the drugs there

and to know that they're there."

Maxine Freeman, BSN, MSN, CCRN, director of nursing for critical care at the University of Mississippi Medical Center, says the machines can save valuable time in an emergency, allowing nurses to get medications without having to send an order down to pharmacy and wait for the drugs to come back.

"In a hospital this big, the pharmacy is open 24 hours a day and manned 24 hours a day, but still it may take up to 30 minutes to get an emergency medicine from the pharmacy, and the nurse may have to go down there herself to get it," Freeman says. "So, when you really are in a crunch and you need something, it's nice to know that it's there."

In fact, Freeman says the system at the University of Mississippi Medical Center can actually help decrease errors, in the form of delayed doses.

"Many times (without automation), you go to give your 9 o'clock meds and there will be one or two of them that are missing," she says. "You never know if somebody borrowed that for another patient or if it didn't get put in the drawer by pharmacy. That drug would be delayed because you would have to wait to get it from [the] pharmacy."

The automated setup also allows pharmacy and nursing to keep careful track of where and when meds are being dispensed, and respond to the unit's changing needs. Carpenter says it's already helped his pharmacy better predict off-peak needs in the ICU.

In the ICU, plans are to eventually have the automated units dispensing all medications, Freeman says, describing a system that would include unit doses.

"At some point, we will have a system whereby you put the patient's name in, and a drawer will open and all the 9 o'clock meds are there. But we're not at that point, yet."

She says the only problem that has arisen in the rollout came when pharmacy began adding medications to the automated system that nurses weren't used to finding there.

Some medications, such as ACE inhibitors in the cardiac unit, might be in the automated system, but others might be elsewhere, which can be confusing for nurses, Freeman says. "It was when they started mixing it up, when they started putting some of the routine meds in the machines, that it got difficult for the nurses. When we get it finalized and everything is in one place, it will be easier."

Carpenter says that when the system is fully implemented, only a few medications won't be

automated — primarily custom-prepared doses or those that are very rarely used. Those drugs already can be delivered to the floor from the pharmacy by a small robot. The robot, which carries a floor plan of the medical center on a computer chip, makes 30-minute rounds to designated locations, dispensing newly ordered drugs, or other unusual pharmacy deliveries.

Carpenter says by introducing all of that automation to the pharmacy system, the pharmacists themselves are free to do more important work, including consulting on the floors and providing patient education. “Eighty percent of the things we do are routine,” he says. “If we can have that 80% run on automatic, we can use our people on the 20% where they are most valuable.” ■

ICU to home care transition requires communication

Patients often go home sicker with complex needs

When patients with critical illnesses who require complex interventions are transferred from the ICU to home care, early assessment and consistent communication between nurse managers and case managers can help ensure that the patient and caregivers are truly ready for the transition.

“The nurse manager often will be the first to identify a patient that’s appropriate for case management,” says **Kathleen Moreo**, RN, Cm, BSN, BPSHSA, CCM, CDMS, CEAC, president of the Case Management Society of America. “They can play a big role in the internal referral process.”

With the increased role of managed care, patients often have less time in the hospital and in step-down units that allow for a longer transition to home. Patients also are increasingly going home with ventilators and other complicated equipment.

The role of the case manager, Moreo says, is to ensure that when patients and family leave the hospital, they are ready to take on their role in the patients’ recovery. To accomplish that, case managers work with a variety of sources, including ICU nursing staff, home health staff, and case managers for insurance companies.

Anne Llewellyn, RN, C, BPH, SHA, CCM, CRRN, CEAC, is a partner with Moreo in Professional Resources in Management Education Inc.

in Fort Lauderdale, FL. She also works in critical care at Imperial Point Medical Center, also in Fort Lauderdale.

With experience in case management and respiratory intensive care, she sees both sides of the case management/ICU nursing relationship.

“When you work with critical care patients, you have everything at your fingertips,” Llewellyn says. “To be able to discharge a patient — especially one who’s medically complex — to home, you have to be able to make that transition and make sure that’s safe. Sometimes, we don’t understand all the issues that go into that.”

Communication starts on intake

Llewellyn and Moreo say nursing administration should begin looking at patients as soon as they enter the unit with an eye toward what will happen when they leave. They say it’s never too early to start speaking with case management when it appears that a patient might end up needing home care upon discharge from the hospital.

“I think the biggest thing is being proactive,” Llewellyn says. “When you know a medically complex patient has been admitted — maybe the patient is a new stroke, maybe they’re going to remain on a ventilator, they have COPD [chronic obstructive pulmonary disease] — you need to start planning.”

Not only can an early start help smooth the transition to home care, it can give case managers the time to make the case to a payer that the patient needs step-down care before going home.

Being alert to subtle signs

Pat Orchard, RN CCM, CHE, assistant vice president for case management services for Virtual Health System in Voorhees, NJ, takes it a step further. She says every patient should be assessed for possible case management needs upon admission. That doesn’t mean, however, that every ICU patient will require case management. “It depends on what the needs are, and a person’s physical needs may be very different from their psychosocial needs,” Orchard says.

As an example, she points to a young person admitted to the ICU after surgery who rebounds quickly and can start making decisions regarding his own care as someone who may not need case management. On the other hand, a patient with a lot of comorbidities, a complex illness, perhaps elderly with social issues, may need

case management more. A likely candidate for case management might be a patient with congestive heart failure who is also diabetic, resulting in poor circulation and poor eyesight, Orchard says.

Orchard says that as care progresses in the ICU, nurses can give case managers important information about the coping skills of the patient and the family members who eventually will care for him.

“They see the family dynamics, they see the patient dynamics, they see things that might draw attention to possible discharge needs,” she says. “They may see it on the very first day.”

Important signals might be the way families deal with physicians, nurses, and others in the unit. Do they argue over unexpected things? Are they highly emotional?

“All the coping mechanisms of the family are very important,” Orchard says. “It may seem inconsequential to the ICU nurse who is handling the issues at the time, but it also gives you a hint as to how the family is going to cope on down the line in transitioning the patient through the system.”

Making the rounds

Ideally, this communication with case management should be a daily routine through a mechanism — such as mini-case conferences and mini-rounds — consisting of the case managers and the nursing staff. It’s also important to hear about what goes on over the weekend, Orchard says.

Although case managers tend to take the lead in patient and caregiver education, ICU nursing staff also play an important role, particularly in teaching the family to perform specific skills.

Nurses can also start early educating family members about what is expected of them, Llewellyn says. Many families know, for example, that home health nurses, therapists, and other professionals will be visiting the house, but don’t realize the family probably won’t have help around the clock.

One important job of the case manager is to follow up with the patient after he or she has settled in at home, to see if there are any problems or complications.

That information can be useful for nursing administration, as well, Moreo says.

“We need to find opportunities to come together to review retrospectively what has occurred, or concurrently what is going on,” she

says. “It’s a staff education process. If this happened with Client A and Client C comes in with some of the same comorbid issues, you may be able to tell the staff, ‘Watch for this issue because this could be coming up.’”

“As part of the case manager’s follow-up phone call when they document that data, wouldn’t it be appropriate for them to copy that information to the nurse manager on the outcome that they found after the patient went home?”

Moreo also suggests that case managers be invited to regular inservicing in the ICU, so that they’re up to date on issues that might present themselves with patients.

It’s all part of communicating among departments to help smooth the way for patients, she says. “In hospitals, what we do not do well is interface well from department to department. We interface about the things we have to — the JCAHO requirements, some staffing issues — but we’re not too good at advocating department to department on behalf of patients.”

[Editor’s note: To contact Moreo or Llewellyn at Professional Resources in Management Education Inc., call (954) 436-6300; or e-mail Katmoreo@aol.com or annllew@gate.net.] ■

JCAHO begins surveying for new pain standards

New pain assessment and management standards instituted by the Joint Commission on Accreditation of Healthcare Organizations (JCAHO) will become a part of surveys conducted this year, and could be part of the Joint Commission scores for hospitals and other agencies beginning in 2001.

The standards, which have been endorsed by the American Pain Society, call for the following additions to the JCAHO accreditation manual for hospitals. They include:

- **Requiring hospitals to include a commitment to pain management in their mission statements, patient bill of rights, or service standards.** One implementation example included in the manual is a statement posted in patient care areas in a community hospital. The statement informs patients that they have a right to information about pain and pain relief measures. It tells patients they can expect quick response to reports of pain, state-of-the-art pain management, and that “your reports of

pain will be believed.”

The notice also lists patient responsibilities, including communicating with doctors and nurses about pain, response to pain relief, and any concerns a patient may have about taking pain medication.

- **Provisions for assessment and management of pain of all patients.** This would include an initial assessment, periodic reassessment, and post-procedure monitoring.

Examples of implementing that standard could include recording pain intensity readings during admissions, asking screening questions regarding pain, and evaluating competency in pain assessment during staff orientation.

- **Addressing the appropriate use of patient-controlled analgesia, spinal/epidural, or IV administration of medications and other pain management techniques, through policies, staff orientation, or other means.**

- **Addressing pain and pain relief in patient and caregiver education.** Examples offered include publications that stress pain management and review of computer-generated information sheets that are distributed with medication.

Susie McBeth, JCAHO's associate director, department of standards, says the pain management additions stemmed from a concern that patients' pain continues to be undertreated. "We had standards in the manual that really related more to the dying patient, even though it was implied that all patients should really have good pain management."

She adds the standard regarding pain assessment is key to proper pain care. "Really listening to the patient is the important part of it," McBeth says. "You really need to listen to the patient and don't bring your own bias into it about how much pain you think that patient is feeling."

JCAHO to offer resources

Surveyors will be asking about pain management during surveys conducted in 2000, but scores from those standards won't affect accreditation. McBeth says JCAHO will use the information as feedback to determine how much weight the standards will carry in 2001. "This is the year for people to implement the standards and get ready, and we just want to kind of see where everybody is."

In the meantime, the Joint Commission will try to assist in the education process this year by offering publications, two pain management "summits" tentatively scheduled for May and

July, an educational video, and other programs.

The commission is also seeking information from hospitals that have developed successful pain management programs, to use as case studies. For more information, write the Joint Commission on Accreditation of Healthcare Organizations at One Renaissance Boulevard, Oakbrook Terrace, IL 60181-4294. Telephone: (630) 792-5000. Web site: www.jcaho.org. ■

Molecular 'glitch' leads to post-op heart failure

Research into the cause of a nearly universal heart failure that occurs after open-heart surgery could lead to preventive measures that might impact ICU staff, says **Anne Murphy**, MD, a pediatric cardiologist at Johns Hopkins University,

Critical Care Management™ (ISSN 1070-4523) is published monthly by American Health Consultants®, 3525 Piedmont Road, N.E., Building Six, Suite 400, Atlanta, GA 30305. Telephone: (404) 262-7436. Periodical postage paid at Atlanta, GA 30304. POSTMASTER: Send address changes to Critical Care Management™, P.O. Box 740059, Atlanta, GA 30374.

Subscriber Information

Customer Service: (800) 688-2421 or fax (800) 284-3291.
World Wide Web: <http://www.ahcpub.com>. **E-mail:** customerservice@ahcpub.com. **Hours of operation:** 8:30-6 M-Th, 8:30-4:30 F, EST.

Subscription rates: U.S.A., one year (12 issues), \$275. Outside U.S., add \$30 per year, total prepaid in U.S. funds. One to nine additional copies, \$220 per year; 10 or more additional copies, \$165 per year. Call for more details. Missing issues will be fulfilled by customer service free of charge when contacted within 1 month of the missing issue date. **Back issues**, when available, are \$46 each. (GST registration number R128870672.) Continuing education credits: \$50.

American Health Consultants is accredited as a provider of continuing education in nursing by the American Nurses Credentialing Center's Commission on Accreditation. Provider approved by the California Board of Registered Nursing, Provider Number CEP 10864 for approximately 18 contact hours.

Opinions expressed are not necessarily those of this publication. Mention of products or services does not constitute endorsement. Clinical, legal, tax, and other comments are offered for general guidance only; professional counsel should be sought for specific situations.

Photocopying: No part of this newsletter may be reproduced in any form or incorporated into any information retrieval system without the written permission of the copyright owner. For reprint permission, please contact American Health Consultants®, Address: P.O. Box 740056, Atlanta, GA 30374. Telephone: (800) 688-2421.

Editor: **Howard Kim**, (626) 357-2286, (HKim383995@aol.com).
Group Publisher: **Brenda Mooney**, (404) 262-5403, (brenda.mooney@medec.com).
Executive Editor: **Susan Hasty**, (404) 262-5456, (susan.hasty@medec.com).
Managing Editor: **Coles McKagen**, (404) 262-5420, (coles.mckagen@medec.com).
Production Editor: **Nancy McCreary**.

Editorial Questions

For questions or comments, call **Howard Kim** at (626) 357-2286.

Copyright © 2000 by American Health Consultants®. **Critical Care Management™** is a trademark of American Health Consultants®. All rights reserved. The trademark **Critical Care Management™** is used herein under license.

who led the research team.

Murphy's team found a small molecular glitch that leads to "cardiac stunning," an acquired heart failure that affects nearly anyone who has the blood supply to the heart temporarily shut down through open heart surgery or use of a heart-lung machine.

Researchers note that cardiac stunning is the reason that heart patients must spend an entire day in intensive care after surgery.

Research focuses on abnormal protein

In the study, published in the Jan. 21 issue of the journal *Science*, scientists looked at an abnormal form of a protein, troponin I (TrI), that is part of the heart muscle cell's contracting machinery. The damaged protein is missing amino acid building blocks.

Through experiments with mice, the team showed that insertion of the damaged TrI actually caused the mice to develop enlarged hearts, a response to weakened heart muscle.

Murphy says heart cells deprived of oxygen have a sudden increase in calcium, which sets up production of enzymes that shorten the TrI protein molecules. That, in turn, causes heart contraction problems.

The disorder can last anywhere from hours to days. Patients usually are given adrenaline or a similar drug to strengthen the heart beat. Some patients, particularly those with complications, can die.

Although the research so far has not produced a treatment for the condition, Murphy says it points the way toward possible future prevention. She says that if clinicians can anticipate stunning, then perhaps they could pretreat surgery patients to avert TrI shortening.

Such therapies are at least a few years away, she says. "I think what that means for the future is that this can now be a therapeutic target. Both our group and I'm sure pharmaceutical groups can actually target therapeutics toward avoiding injury to the troponin I protein or ways to avoid the cardiac dysfunction when the protein is injured, in order to devise a specific therapy for myocardial stunning."

Condition common in ICUs

Murphy says ICU staff may have been aware of the syndrome for years without knowing what it was called.

EDITORIAL ADVISORY BOARD

Leslie J. Albrecht
MS, RN, CCRN
Program Manager, Critical Care
Elmhurst Memorial Hospital
Elmhurst, IL

Kathleen J. Arnold, RN, MS, CNA
Adult Critical Care Nurse Manager
Swedish American Health System
Rockford, IL

Kay Ball, RN, MSA, CNOR, FAAN
Perioperative Consultant/Educator
K & D Medical
Lewis Center, OH

Suzette Cardin
RN, DNSc, CNA
Director of Cardiac Care
Unit/Observation Care Unit
UCLA Medical Center
Los Angeles

Kathy Guentner, RN, MSN
Unit Director/MICU
University of Pittsburgh
Medical Center

Judith Lower, RN
Nurse Manager, NCCU
Johns Hopkins University Hospital
Baltimore

Justine L. Medina, RN, MS, CCRN
Clinical Practice Specialist
American Association of Critical
Care Nurses
Aliso Viejo, CA

Vickie Mullins Moore
MSN, RN, CNA, CHE
Vice President, Operations
Chief Nursing Officer
St. Joseph's Hospital
Atlanta

Suzanne K. White, MN, RN,
FAAN, FCCM, CNA
Senior Vice President
Patient Services
Chief Nursing Officer
St. Thomas Health Services
Nashville, TN

"Obviously, the ICU is where you see it frequently," she says. "Nurses know that when their cardiacs come back from the operating room, they're most likely going to have some cardiac dysfunction.

"Now, they can be aware that there are specific abnormalities that may be targeted in the future, so that when patients get to the ICU after open-heart surgery or after an aborted heart attack, they'll be in better shape." ■

CE objectives

After reading each issue of *Critical Care Management*, participants in the continuing education program should be able to:

- identify particular clinical, administrative, or management issues related to the critical care unit;
- describe how those issues affect nurse managers and administrators, hospitals, or the health care industry in general;
- cite practical solutions to problems that critical care/intensive care managers and administrators commonly encounter in their daily activities. ■