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INSIDE

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American Health Consultants® is A Medical Economics Company

Benchmarking can boost efficiency, improve outcomes for your ICU

'Compare yourself to someone who is doing something better than you are'

The clinical data stored in your department's information system are priceless. The numbers paint a picture of your ICU's performance that no amount of guesswork or speculation can replace. Best of all, the data can be used to set benchmarks in key performance areas such as cost per discharge or patient satisfaction that can help boost efficiency and achieve better clinical outcomes, according to proponents of hospital benchmarking.

The challenge, however, lies in getting other hospitals to share their numbers with you for comparison. Another potential problem involves determining which set of data is suitable for comparison and which numbers are not. Will you be comparing apples with oranges?

Consultant **Sharon A. Lau** says clinicians shouldn't be too concerned about these differences.

"In fact, you want to compare yourself to someone who *is* different and doing something better than you are. You can learn from them," says Lau, a principal with the Los Angeles office of Medical Management Planning,

EXECUTIVE SUMMARY

Setting benchmarks in critical care can open the door to best practices in some of your most important service areas, including time-to-medication and readmission rates. But benchmarking works best when there is sufficient financial and outcomes data from other sources to use in emulating the best-run ICUs. That problem is being solved because:

- Hospitals see the value in benchmarking and are beginning to show interest in sharing their data.
- Children's hospitals are gathering performance data and setting their own benchmarks as a group.
- Nurse managers are adept at working with data and are familiar with key performance indicators, which help in comparing their units with others.
- The number of organizations nationwide that provide benchmarking data and assistance is growing.

a benchmarking research firm in Bainbridge Island, WA.

A number of resources now exist to help clinicians make intelligent calculations about their performance. The growing interest in health care benchmarking in recent years has led to a wealth of data. Government agencies, medical societies, accounting firms, and many trade organizations have begun to collect data for comparison. The Internet can also help you find many sources as well.

However, you may have to perform a wide-scale search because much of the information pertinent to critical care or other hospital specialties is fragmented or presented in aggregate statistics. Many agencies and benchmarking information sources don't keep large amounts of critical care-only performance data.

"The field is still largely in its infancy stages. There are data out there, and the availability is improving," says **Mary E. Kingston**, RN, MN, director of The Best Practice Network, a benchmarking resource formed by a partnership of 30 health care organizations. The American Association of Critical Care Nurses in Aliso Viejo, CA, and the Society of Critical Care Medicine in Anaheim, CA, are members.

But retrieving the data, even selectively and after some searching, can yield enough information for a reasonable benchmarking study of your ICU. And you can use as much of it as you like in an "adopt or adapt" fashion that allows you to use a broad set of indicators or use the information piecemeal, says Lau. **(See box on benchmarking resources, p. 39.)**

In critical care medicine, key indicators in benchmarking are known to most nurse managers. They include measures of nurse hours worked per patient days and time to medication. They also can include cost per admission and discharge, in-hospital infection rates, readmission rates, and adverse drug events.

The goal is to select indicators that will reveal your performance gaps, Kingston says.

The same national interest in pursuing health care benchmarking also has spawned a number of claims about what in fact benchmarking can and should do. Unfortunately, it hasn't motivated hospitals to view the discipline as mutually beneficial or encouraged them to share their performance information with each other, says Lau.

Hospitals should view the effort as an opportunity that eventually benefits all hospitals, she adds. Benchmarking is a quality tool that can be used to set targets to shoot for, which can guide you to where you want to be, Kingston says. The effort should lead to the development of best practices that ultimately benefit patients.

If you determine what makes the best hospitals work in a given clinical area and borrow from them, your own hospital can benefit from the knowledge transfer.

Much of the process is data-driven, and there has to be a willingness by ICUs to share their data. But hospitals guard much of their information for competitive reasons. A paradox inherent in hospital benchmarking reveals that institutions most likely to share their data amicably are the ones seemingly least threatened by the potential competition posed by the other facility. Yet one of the purposes for benchmarking has been to help hospitals become more competitive with each other.

Children's hospitals are an exception, according to Lau. The National Association of Children's Hospitals and Related Institutions (NACHRI) in Alexandria, VA, collects data from about half of its 151 member institutions and shares the information with members.

The group charges members a fee to meet research costs, but the information covers a gamut of useful performance indicators, including average daily census, average worked hours and paid hours per patient day, and several patient-severity indicators such as morbidity and mortality data.

The indicators are presented in a unit-by-unit comparison, and are available in five reports comprising:

1. An executive-level graphical report.

2. A management-level tabular report.

3. A hospitalwide performance overview.

4. A comprehensive report that covers additional indicators such as staff education and unit leadership activities.

5. An overall hospital comparison by specific criteria such as types of patients, level of computerization, trauma center, or nurse labor organizing.

Participants use special software to download the reports. They can obtain the data in a form to compare themselves to a group of hospitals or to only one facility. The identities of the hospitals are not kept secret, says **Greg Frongello**, NACHRI's director of applied consulting services, however, member hospitals have to sign a disclosure agreement not to identify the hospitals.

The association also sponsors 10 focus groups

Selected National Benchmarking Data Sources

- Agency for Health Care Policy and Research, U.S. Department of Health and Human Services, 2101 E. Jefferson St., Rockville, MD 20852. Telephone: (301) 594-1364.
- American Hospital Association, One N. Franklin St., Chicago, IL 60611. Telephone: (312) 422-3000.
- The Best Practice Network, American Association of Critical Care Nurses, 101 Columbia Ave., Aliso Viejo, CA 92656-1491. Telephone: (800) 809-2273.
- Center for Healthcare Industry Performance, 1550 Old Henderson Road, Suite S-277, Columbus, OH 43220-3626. Telephone (614) 457-1777.
- Emergency Care Research Institute, 5200 Butler Pike, Plymouth Meeting, PA 19462-1298. Telephone: (610) 825-6000.
- Ernst & Young LLP, Health Care Benchmarking Services, 1200 Skylight Office Tower, 1660 W. Second St., Cleveland, OH 44133-1454. Telephone: (216) 747-1986.
- Health Care Financing Administration, U.S. Department of Health and Human Services, 7500 Security Blvd., Baltimore, MD 21244-1850. Telephone: (410) 786-3000.

in specific areas such as emergency medicine, radiology, and critical care. The groups, consisting of some 400 individuals and 56 member facilities, meet quarterly to cover new issues, set best practice standards, and review benchmarking criteria.

Children's hospitals are in a position to share their performance data more openly partly because they belong to a tightly knit community of specialty facilities, Frongello says. "Many of the critical care practitioners train with each other. There's a great sense of camaraderie and mutual interest in children's medicine," Frongello adds.

Adult hospitals should emulate these values, adds Lau. Yet, once you begin to benchmark remember that it's an ongoing process without necessarily short-term expectations.

"It's a kind of quest," remarks Kingston. The discipline is relatively new, and the values deemed the best by some benchmarking standards are changing quite rapidly.

Clinicians need to be discriminating in the way they view even the best benchmarking data. "There's a lot of benchmarking out there that doesn't actually reflect the best we can do. A lot of it just isn't good enough. I wouldn't be satisfied with it," Kingston concludes.

(Editor's note: Next month's issue of Critical Care Management *will feature a report on an Institution for Healthcare Improvement survey tracking cost and quality outcomes in critical care.)* ■

Case management program is a home-grown success

Nurse practitioners focus on discharge planning

Developing a case management program at Mission St. Joseph's Health System essentially from scratch highlights how nurses can work together as leaders to effect change and improve patient care.

For years, nurse managers in the neonatal intensive care unit (NICU) at the Asheville, NC-based hospital worried about their length-of-stay numbers. Between 1994 and 1995, the average length of stay (ALOS) for their most delicate preemies under DRG 386 ranged around 126 days.

Administrators of the 35-bed unit said that number was too high. The solution lay in something that at the time was largely untried in critical care but was being discussed with growing

EXECUTIVE SUMMARY

Nurses in the NICU at Mission St. Joseph's Health System in Asheville, NC, demonstrated they could build their own patient case management system from scratch. The improvements led to a sharp drop in average length of stay and per-case charges.

- Having nurse practitioners act as case managers and focus on discharge planning helped achieve better performance.
- Hospital supported the effort, and teamwork from a fully invested nursing and medical staff made the work easier.
- Key areas of change involved simplifying documentation, bringing parents into the process, and achieving practice consistency.

respect in health care. The tool was called case management, and it was achieving results in other acute care departments around the country.

But the nursing staff at Mission St. Joseph's were working at a disadvantage. Although they generally understood case management principles from attending conferences and seminars, they didn't know exactly how to implement a program.

Everyone brought something to the task

For one, the staff weren't sure whether they should try to match the national average on ALOS, if one even existed, or set inflexible targets for reduction. But if ALOS could be lowered by a certain amount, they could thereby reduce per-case charges.

Coincidentally, hospital administrators were looking for ways to cut costs, delve into clinical pathways, and operate the 800-bed institution more efficiently. Impetus was added for the department to look for solutions, recalls **Terri J. Forsyth**, RN, MSN, CPNP, a former neonatal case manager at Mission St. Joseph's who is now at Children's Hospital of the King's Daughters in Norfolk, VA.

After nearly two years of hard work beginning in 1993, length of stay in NICU dropped significantly, falling to 105 days in 1996 from 126 in 1995. Charges per case also fell by a surprising 24% to $186,000 from $245,000 in the same period, according to figures supplied by the hospital.

Much of the credit goes to unit director Ginny Raviotta, RNC, MN, and clinical specialist Anne Ramirez, RNC, MSN, who laid the groundwork for the project and "really got the entire nursing staff's acceptance," Forsyth recalls. But everyone brought something to the project. "We were all determined to make it work."

In 1994, one of the nurses' goals was to "establish expected outcomes that would allow us to measure the unit's effectiveness," according to **L. Ann Maney**, RN, CNNP, a nurse practitioner who, along with Forsyth, was hired to help with the project's implementation.

Instead of looking at the problem from the point of admission, which would have been the logical place to start in a med-surg department, the case management team decided to focus on the end stage of the patient stay by concentrating on discharge planning.

They wanted to effect changes when the preterm baby was out of immediate danger and considered to be in an "intermediate convalescent stage," which was about one to two weeks before discharge. Ironically, this group of patients was the most vulnerable to a lengthy hospitalization primarily because their management at the time was left to nurse practitioners, and there weren't enough NPs to ensure optimum discharge planning, Maney says.

At the beginning, the team adopted five goals taken from earlier groundbreaking work:

1. Discharge patients within an appropriate length of stay.

2. Establish expected outcomes.

3. Promote collaborative practice, coordinated care, and continuity of care.

4. Use resources appropriately.

5. Promote nurses' professional development and satisfaction.[1]

In effect, the plan was to achieve appropriate discharge and prevent readmission, Maney says.

A key ingredient in the case management model was the development of a clinical path, an interdisciplinary plan of care that would outline patient problems, health care interventions, and expected outcomes within an anticipated time frame.[2]

Another factor was the assignment of case management duties to NPs. "Rather than have the hospital case management department oversee the task, it was felt that nurses should do it," says Forsyth.

The year before, in 1993, Raviotta and Ramirez formed a work group consisting of a bedside nurse, clinical specialist, neonatologist, nurse manager, pharmacist, nutritionist, social worker, and outreach coordinator, among others. The group, informally designated the clinical path team, identified three areas for improvement: the unit's documentation, parental education (in preparation for patient discharge), and the creation of practice consistency.

The unit's documentation had to be streamlined and simplified. "There was paperwork everywhere. We had documents for this and documents for that. And in parental teaching, we thought we could do a lot more. The work with parents was usually left for last and took place only a few days before discharge," Maney says.

Patiently, the team began to pull together information about forming clinical paths and case management programs, which they gathered at conferences and from their own brainstorming. After extensive patient chart reviews and discussions within the work group, the team reached two conclusions.

In addition to focusing on the end rather than the beginning of the hospital stay, the team concluded that efficient discharge planning was hampered by the different practice methods of the NICU's three neonatologists on staff at the time. By meeting weekly with the physicians, the team was able to draft a clinical path, "The Convalescent Discharge Planning Path for the Stable Pre-Term Infant>1,500 Grams." **(See form inserted in this issue.)**

The path, which has undergone several changes, was designed to function like an interdisciplinary plan of care. The babies chosen for case management had to meet the following categories:

1. Weight of ≥1,500 g and stable physiologically in room air.

2. Age range from eight weeks born at 24 weeks of gestation with a birth weight of less than 750 g to two days born at 35 weeks of gestation and weighing more than 2,000 g at birth.

Common goals involving daily care were agreed upon and followed to avoid variances in care.

During daily rounds, nurse case managers would make assessments and complete a written progress report using a problem list and plan-of-care format. The assessment would be reviewed with a bedside nurse and the attending physician.

The case manager would also write orders to ensure the baby's progress on the path. One of the benefits of following the path was that it consolidated the paperwork and eliminated the need for separate nurse care plans, kardexes, discharge sheets, and teaching sheets, Maney explains.

The manager would also work with the patient's family on the path, including current problems and discharge plans. During extremely busy periods in the NICU, case managers had to back up the bedside nurses.

The paths would be examined daily, and staff members would address variances to ensure consistency of care. At weekly meetings, the staff also reached decisions on babies who ultimately did not meet the path's criteria or those who should be added because they might benefit from the protocol.

In addition, case managers closely monitored pertinent data on the population, including length of stay, per case charges, readmission rates, quality improvements, treatment variance, mortality, and morbidity to study changes in response to the path.

"We received the support of the hospital's case management department, but they pretty much let us run with it," recalls Forsyth. But department committees including quality improvement and nursing research pitched in with guidance. Revisions to the path and outcomes assessments went on for weeks.[2]

Careful attention was paid to discharging the babies only when it was deemed appropriate, Maney says.

When case managers submitted their findings for publication in 1997, ALOS was down sharply and per case charges showed that case management could be cost effective.

However, though promising, the results were qualified by the fact that case management wasn't implemented until April 1995. The effects on measured length of stay and per-case charges were not realized until later that year. Therefore, the comparison between 1996 and 1995 did not measure two full years.

In addition, the unit did not measure outcomes or readmission rates. And at the time, hospital administration reportedly indicated that results following case management could have been better, Forsyth says reluctantly. Nonetheless, Maney says, the team demonstrated that case management in the NICU does work if properly implemented.

In fact, the effort was considerable given the nature of neonatal intensive care, a view supported by others in hospital case management.

"In some settings, case management is extremely difficult to pull off," says veteran nurse **Deborah S. Smith**, RN, MN, a case management expert and executive vice president of American Medical Systems, a health care management consulting firm in Los Angeles.

"Whenever the [patient] cases are complex and long-term, case management shines. But it doesn't get easier."

That fact, which has become well-known to nurses at Mission St. Joseph's, has spurred its nurse case managers to continue their efforts in hopes of getting better. The unit is reworking the path all the time. "It's a work in progress," a confident Maney concludes.

References

1. Zander K, Etheridge ML, Bower KA. *Nursing Case Management: Blueprints for Transformation.* Waban, Massachusetts: Winslow; 1987.

2. Forsyth TJ, Maney LA, Ramirez A, et al. Nursing case management in the NICU: Enhanced coordination for discharge planning. *Neonatal Netw* 1998; 17:23-34. ■

Experts argue for earlier nutritional aid for patients

Extubated cases should be fed within 36 hours

Patients who get insufficient amounts of protein and other nutrients while in the ICU can suffer severe physical problems. Research indicates that critically ill patients in general should be given well-planned nutritional support sooner rather than later.

There are evidence-based reasons for earlier feeding. Patients who receive insufficient protein while in the ICU are three times more likely to suffer from systemic disorders including severe skin and muscle tissue breakdown compared with patients who receive appropriate levels of enteral nutrition. The presence of bacteria in the intestinal lining and the incidence of gastrointestinal infection also run high.

These patients generally take longer to be weaned from intubation; their overall recovery is much slower, and they are likely to remain in the ICU much longer, according to **Ann-Marie Hedberg**, DrPH, RD, assistant director for nutritional services at St. Luke's Episcopal Hospital in Houston.

But in setting proper nutritional support standards, how can nurses make appropriate assessments? How can they ensure that patients are not being overfed or underfed? And in the absence of good assessment tools, which condition — overfeeding or underfeeding — carries more serious medical implications for the patient?

Experts recommend early patient feeding

In the ICU, there is a tendency either to overfeed or underfeed patients, particularly those who are on ventilator support, are extremely weak, or suffer from severe trauma or post-operative complications. As a general rule, these patients normally require high caloric intake. And they require that feeding begin as early as possible to prevent muscle catabolism, says **Elaine B. Trujillo**, MS, RD, senior clinical dietitian at Brigham and Women's Hospital in Boston.

It's better to begin feeding early rather than late. Nurses should encourage physicians to begin writing nutrition orders as part of a formal enteral feeding protocol as soon as it is deemed that the patient either needs the nutritional support or can tolerate it, says Hedberg.

With extubated patients feeding should begin within 36 hours. If nurses wait a day or longer, the patient's intestinal tract may begin to suffer, which may then require the less-favored TPN (total parenteral nutrition) feeding, says Hedberg. As an alternative, TPN always carries the risk of higher infection rates in the digestive tract because of disuse.

TPN easier but not as beneficial

Many nurses prefer TPN partly because of the messiness associated with using fluids and disposing of waste materials in enteral feeding. But TPN, while convenient, isn't as beneficial to the patient because enteral feeding more closely approximates real food in nutritional content, Trujillo adds.

An internal study conducted at St. Luke's found that pulmonologists in general were delaying enteral feeding to extubated patients by as long as two weeks out of concern for potential formula reflux, or backing up of fluid into the lungs. But part of the reason that the delay went unchanged was that no one individual established consistent practice parameters on tube feeding, Hedberg recalls.

Today, the hospital requires that all new critical care nurses and medical residents get training in departmental TPN and enteral feeding standards.

Most hospitals do a good job of monitoring patients' nutritional needs in the ICU. But assessment standards and criteria vary widely from hospital to hospital. And national guidelines, while readily available in the medical literature, aren't always followed uniformly by physicians. (A Medline or Index Medicus search can lead to recent research-based nutritional guidelines.)

Unit nurses should work with the department's dietitian in monitoring patients' daily nutritional needs and communicating those needs to the attending physician. Verbal communication is always better than looking for information in the patient's record because the dietitian may not always make notations about daily changes in the chart, Trujillo says.

In a week, the changes may amount to something significant. Furthermore, the mode of feeding required also can change from one day to the next, says Trujillo, It can go from intravenous feeding, or TPN to the much-preferred enteral, or tube feeding. If so, physiologically the patient's

The Subjective Global Assessment

(Select appropriate category with a check mark, or enter numerical value where indicated by "#")

A. History

1. Weight change
   Overall loss in past 6 months: amount = # _____kg; % loss = # _____
   Change in past 2 weeks: _____ increase
   _____ non change
   _____ decrease

2. Dietary intake change (relative to normal)
   _____ No change
   _____ Change _____ duration = # ____ weeks
   _____ type: ____ suboptimal solid diet ____ full liquid diet
   ____ hypocaloric liquids ____ starvation

3. Gastrointestinal symptoms (that persisted for > 2 weeks)
   _____ none _____ nausea _____ vomiting _____ diarrhea _____ anorexia

4. Functional capacity
   _____ No dysfunction (eg, full capacity)
   _____ Dysfunction _____ duration = # _____ weeks
   _____ type: _____ working suboptimally
   _____ ambulatory
   _____ bedridden

5. Disease and its relation to nutritional requirements
   Primary diagnosis (specify) _____
   Metabolic demand (stress) _____ no stress _____ low stress
   _____ moderate stress _____ high stress

B. Physical (for each trait specify: 0 = normal, 1 + = mild, 2 + = moderate, 3 + = severe)
   # _____ loss of subcutaneous fat (triceps, chest)
   # _____ muscle wasting (quadriceps, deltoids)
   # _____ ankle edema
   # _____ sacral edema
   # _____ ascites

C. SGA rating (select one)
   _____ A = Well nourished
   _____ B = Moderately (or suspected of being) malnourished
   _____ C = Severely malnourished

Source: Detsky AS, McLaughlin JR, Baker JP, et al. What is subjective global assessment of nutritional status? *JPEN* 1987; 11:8-13. Used with permission.

responses will probably change noticeably too, Trujillo adds.

At Brigham and Women's, a software algorithm is used by nurses and physicians to determine the appropriate nutritional support plan for a given patient via a series of questions that helps them select the appropriate nutrient mix and their levels. Presented in a decision-tree form, physicians can go through the algorithms and execute an order on the same program.

Any hospital can develop a similar set of algorithms with information obtained from various Web sites on the Internet. But the process requires the help of an information specialist, and the facility needs to have a sufficiently sophisticated information system infrastructure to create such a program, according to **Rita Zielstorff**, corporate manager for information systems research and development at Partners HealthCare System, which owns Brigham.

Indeed, technology can help match a patient to a proper feeding regimen. Calorimetry monitors, considered the gold standard by critical care dietitians, have been used for years.[1] But the equipment is expensive to buy (at an average cost of $20,000) and maintain. As a result, they are only available at the largest institutions.

The machines are usually used only for the most seriously ill patients. They determine a patient's energy expenditure and therefore his or her caloric need by measuring the amount of oxygen the patient takes in and the expended carbon dioxide level. Dietitians use the tool to make accurate nutritional assessments.

But with experience, a medical team can approximate the work of calorimetry, says Hedburg. The margin of difference, according to some research, is about 200 or better calories, she states. By applying their medical knowledge and experience, nurses can make reasonable assessments on patients. Discerning subtle changes in the patient's condition provide clues, she adds.

Changes in blood pressure, for example, respiratory rate, skin color, or oxygen levels may denote certain activities in the body. But they also could mean the nutritional regimen needs adjustment. Check with the dietitian and physician on these changes as part of a visual assessment, Hedberg advises.

Is continual feeding a good idea?

Monitor the patient hourly if necessary and recheck not only the amount but the composition of the formula. Trujillo advises that nurses use a subjective assessment tool to track patient responses to nutrient support. **(See subject assessment chart on p. 43.)**

Finally, determine whether continual feeding is a good idea. An intermittent enteral flow may help provide the amount the patient needs and prevent overfeeding compared to a continuous flow. As a general rule, however, it is safer to overfeed than underfeed an unstable patient, says Trujillo.

But each condition carries consequences. Overfeeding can increase carbon dioxide production and slow ventilator weaning. It can also result in metabolic complications such as hyperglycemia, which can lead to nosocomial infections.[1] Underfeeding will inevitably lead to starvation, increased morbidity, and death.

Experts don't know exactly how vitamins, minerals, and other nutrients act in various disease states. But they do know that proteins are essential in preventing hypercatabolism in critically ill patients. They also know that vitamin and mineral requirements are often overlooked in the critically ill.

The goal, according to researchers, should always be to achieve nutritional support that comes as close to the patient's actual metabolic requirements as possible.[1]

Reference

1. Trujillo EB, Robinson MK, Jacobs DO. Nutritional assessment in the critically ill. *Crit Care Nurs* 1999; 19:67-78. ■

ICU nurses should stay on top of Y2K compliance

Nurses can walk a tightrope on liability

First came the health care industry's official statement: Don't worry. Most likely hospitals and health clinics are going to be year 2000 (Y2K) compliant by year's end. Patient safety will not be compromised.

The message was clearly intended to calm fears and prevent panic.

Then in February came a congressional report. It reversed the health care barometer on Y2K. "The $1.5 trillion U.S. health care industry is one of the least prepared for problems that might arise from the Year 2000 computer glitch," cried an article in *The Wall Street Journal*.

The news report was about congressional findings. It echoed a Senate report, which stated that the situation in health care "carries a significant potential for harm." The congressional report was based on a nine-month investigation conducted by the Senate Special Committee on the Year 2000 Technology Problem. It evaluated several industries on Y2K readiness, including health care.

The story was carried by major television and radio news organizations, but hardly raised an eyebrow outside the industry. Many inside the medical community were equally unmoved.

Within nursing, apathy about Y2K may be understandable. After all, why should nurses bother about computer glitches? Information officers and computer technicians are paid to worry about such things.

But exactly the reverse is the case, according to **Sally Raphel**, RN, MS, director of nursing practice for the American Nurses Association in Washington, DC. Nurses have a direct stake in Y2K compliance. And in some respects, critical care nurses face a major Y2K concern.

The more technology dependent a patient-care unit is, the higher the probability that something could go wrong. It's just common sense, according to a growing consensus of health care organizations, including the American Hospital Association (AHA) in Chicago.

CCUs highly exposed due to high technology

The impact of Y2K problems isn't going to be limited to tardy paychecks, incorrect dates on automated patient records, insurance claims, or medication orders. Those are bad enough, Raphel claims.

In the worst case, the Y2K problem could trigger a temporary breakdown of vital computer-driven medical equipment such as intubation and incubator monitors that are designed to keep patients alive.

The Joint Commission on Accreditation of Healthcare Organizations in Oak Brook Terrace, IL, which sets hospital operating standards, has stated that "the problem could cause computers and computerized, date-sensitive biomedical equipment to shut down with possible serious impact on patient care."

On the other hand, a doomsday scenario is far from likely across health care locations, says **Michael Stewart**, who has written extensively about Y2K for American Nurse magazine. Nevertheless, CCU nurses should be aware of certain implications.

For one, the stakes are much higher for them compared with non-urgent care departments due to their critically ill patient load. For another, like all clinicians, ultimately CCU nurses will be held legally and professionally responsible for what happens to their patients, whether or not Y2K factors go from mere concern to serious consequences.

Nurses are being advised to actively participate in Y2K preparations. And in doing so, they should be heedful of liability factors, Raphel advises. Don't put yourself in the position of being the one held responsible by the hospital, if and when something goes wrong in your department, she adds.

It's always better to be prepared, even if nothing happens, says Stewart. The following advice may serve to initiate thoughtful preparation regarding Y2K for your department:

- **Equipment checks.** Make certain that all biomedical devices and other systems involved in patient care such as heart monitors and infusion pumps are checked. But make certain they are debugged and later tested. The follow-up is vitally important, advises the National Patient Safety Partnership, a Washington, DC-based nonprofit group that tries to prevent health care related adverse events.

Hospitals are large institutions. In the rush to complete compliance, CCUs may be overlooked or left for last. It isn't likely, but don't take the chance.

- **Protect your turf.** If you're a bedside nurse, ask if someone is looking into Y2K compliance for your unit. No one may be thinking about the ICU. Rank and file nurses aren't expected to participate personally in Y2K compliance planning. And they shouldn't have to, says Raphel. However, nurses can show support and keep administrators alert by asking questions and staying on top of developments as they trickle down from management.
- **Protect yourself.** Make certain a written report is prepared and kept whenever any piece

AHC offers health care Y2K reference resource

American Health Consultants has published the *Hospital Manager's Y2K Crisis Manual,* a compilation of resources for non-technical hospital managers. This 150-page reference manual includes information, in nontechnical language, on the problems your facility will face, potential fixes, and possible consequences, including:

- Will your computers and software work in 2000?
- What does Y2K mean for patient care?
- What will happen to your medical devices?
- How can you make sure your vendors are Y2K compliant?
- Are you at legal risk due to Y2K?
- Are you prepared if Y2K delays HCFA payments?

The *Hospital Manager's Y2K Crisis Manual* is available now for $149. For more information, contact American Health Consultants' customer service at (800) 688-2421, or go online at www.ahcpub.com. ■

of equipment in the unit is handled by technicians for Y2K modification, says **Maureen Mudron**, JD, legal counsel for the AHA in Washington, DC.

The document should identify the specific equipment, what was done to it, by whom, and the time and date of the work should appear on the report. The signature of the unit manager and the technicians who performed the work should appear on the report but are not essential.

This is important, because if harm should result to a patient due to equipment failure, an attempt will be made to assign responsibility not only to the manufacturer but to the hospital and individual practitioner, Mudron warns.

• **Keep yourself and your staff informed.** For example, find out whether inquiries about equipment debugging have been sent to vendors. Part of the industry's compliance efforts has involved getting biomedical equipment vendors, distributors, and manufacturers to do their part to provide assistance to hospitals in making equipment modifications.

But the industry is reportedly lagging in doing so. Less than 50% of manufacturers have responded to requests concerning whether their equipment is likely to fail at the onset of Y2K, according to the U.S. Food and Drug Administration (FDA) in Washington, DC. The FDA is requesting information from some 16,000 manufacturers concerning 700,000 known medical devices.

• **Help all staff with new equipment procedures.** Request that the administration develop new, specific procedures for using biomedical and non-biomedical equipment during Y2K compliance transition periods if they are needed, Mudron says. Make certain all unit personnel are aware of any new procedures for using the equipment under the Y2K compliance changes.

Most equipment will not require new operating procedures, but if they do, the staff should be immediately instructed.

• **Develop unit-specific contingency plans.** The hospital will likely have contingency plans under development, says Mudron. But make your own. What if certain patient-care monitors or computers stop working at 12:01 a.m. on January 1, 2000? Does the night shift know what to do? Will unit managers on duty know?

Ask for administration guidance in developing specific options such as having back-up equipment ready that isn't linked to the hospital's main computers or scheduling additional nurses and physicians to handle emergencies on the night shift.

Planning and executing a mock scenario for determining what is needed during an equipment failure also can be on your administration wish list.

Above all, make certain the hospitalwide Y2K compliance plans are clear and practical for your own unit. Finally, the appropriate role for nurses and unit managers is to remain somewhere "in the middle" regarding their involvement on Y2K, says Raphel. Don't take the lead, but don't remain in the shadows either.

The responsibility for Y2K compliance should not fall on nurses' shoulders regardless of how involved or concerned one may be, Raphel warns. ■

Study casts doubt on some high-tech ICU investments

Is state-of-the-art technology for the ICU worth the investment regardless of the price tag? A group of clinical researchers hypothesized that it would indeed be worth the expense. They based their belief on the theory that computerized technology would result in better clinical outcomes, which would justify a hefty financial investment.

But when they tested the theory, the research team from the University of Edinburgh in Edinburgh, UK, found that the presence of at least one type of technology, which half of all ICUs have expressed interest in, had hardly any effect on improving patient outcomes.

COMING IN FUTURE MONTHS

■ How to adopt and implement an effective mentor program for your ICU

■ Step-by-step self-assessment to ensure proper documentation

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■ New research on pain management in critically ill patients

■ Six effective ways to track and reduce your ICUs infection rates

Some 50% of ICUs in the United States are reportedly eyeing the potential of investing in online physiologic trend monitoring, a highly convenient but expensive computerized monitoring system that provides real-time, continually updated trends on physiologic patient data.

Computer monitors physiologic indicators

The data is displayed on a computer screen and provides ongoing trend data based on readings of major physiologic indicators such as a patient's heart and respiratory rate, blood pressure, and chest drain levels at one time. The readings are displayed in graphical form and run horizontally across the computer screen in a manner similar to an electrocardiogram readout tape.

The system could alert a medical staff to sudden changes in the patient's physiological condition earlier than the conventional, regularly updated display of individual physiologic values presented in tabular or spreadsheet form, according to a study in *Critical Care Medicine*.[1]

But a randomized, controlled trial of the system was unable to show "any benefit to patients from the introduction of the computerized" trend monitoring.

The results led **Jon N. Meliones**, MD, an intensivist at Duke University Medical Center in Durham, NC, to conclude that physiologic "data presented in this manner does not significantly add to the daily management of patients."[2] The study was conducted in a neonatal ICU.

One possible reason given by Meliones is that ICU personnel generally interpret and assimilate trend data as they occur regardless of whether the data are presented in computerized or tabular versions.

The findings raise questions about the cost and benefits of adding some forms of expensive new technology to the ICU. "The cost/benefit ratio of adding new technology must be accurately assessed before we purchase these expensive products," Meliones says.[2]

References

1. Cunningham S, Deere S, Symon A, et al. A randomized, controlled trial of computerized physiologic trend monitoring in an intensive care unit. *Crit Care Med* 1998; 26:2,053-2,059.

2. Meliones JN. To monitor or not to monitor. *Crit Care Med* 1998; 26:1,951. ■

Intensivists get reprieve on controversial drug bill

Critical care providers are breathing easier — at least for the moment — following a decision by lawmakers to withdraw a controversial measure from the federal budget that would strip physicians of their license for using potentially lethal medications on patients for pain relief, including those who are terminally ill.

The measure, dubbed the Lethal Drug Abuse Act, was introduced recently into a package of wide-ranging legislation as part of the proposed Consolidated Omnibus Budget Reconciliation Act. If enacted, Measure S. 2151 would have required federal authorities to revoke the license of any physician who intentionally prescribes or provides medication that results in a patient's death. The bill in its present form does not

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specifically affect critical care nurses.

However, the Society of Critical Care Medicine (SCCM) in Anaheim, CA, and several other health care groups opposed the measure, according to opponents of the bill, because the law would have interfered with a physician's ability to properly manage a patient's pain and suffering.

Physicians were especially concerned about situations involving strong pain-controlling drugs such as morphine that have a "double effect" of relieving pain but potentially causing complications in the respiratory system in extremely critically ill patients.

Bill would stunt efforts to ease suffering

The SCCM also opposed the measure on the grounds that it would allow the government to enter into "sensitive patient care issues that are most appropriately handled between the patient, the patient's family, and their physician," according to SCCM.

Lisa Parks, an SCCM spokeswoman states, however, that her group's opposition was not based on efforts by lawmakers to discourage illegal acts of physician assisted-suicide directly related to the actions of Michigan physician Robert Kevorkian, MD.

The bill attempts to address assisted-suicide, "but it's more of a reaction to the recent passage of an Oregon law that legalizes assisted-suicide," Parks informed *Critical Care Management*.

Critics of S.2151 expressed concerns about the ability of providers to render humane medical care to patients, including terminally ill cases. They worried that the bill's passage would undermine efforts to decrease pain and suffering of patients at the end of life.

Although its author, Sen. Don Nickles (R-OK) withdrew the bill, it is likely to be reintroduced during the current legislative session, observers say.

The issue has been at the forefront of physician ethical concerns in the wake of the enactment of the Oregon law in 1997, which legalizes physician-assisted suicides. In the law's first year, 15 terminally ill people died after taking physician-prescribed lethal medications.

A study published in *The New England Journal of Medicine* found the decision by individuals to end their lives was not related to pain and suffering but in most cases involved concerns about loss of autonomy or control of bodily functions.[1]

Health care professionals are concerned that S. 2151 will hamper physicians' efforts to relieve pain and suffering especially among patients who are hospitalized and under direct physician care.

Reference

1. Chin AE, Hedberg K, Higginson GK et al., Legalized physician-assisted suicide in Oregon — the first year's experience. *NEJM* 1999; 340:577-583. ■

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. ■