Cᴏɴᴛᴇɴᴛs

Journal for **HEALTHCARE QUALITY** *Web Exclusives*

Who Looks After Me? The Impact of a Communication Tool on a Medical Teaching Unit

Heather L. McArthur, Sophia H. Chou, Danielle A. Southern, William A. Ghali, Jane B. Lemaire

Medical teaching units (MTUs) in academic centers are typically fast-paced and dynamic environments with frequent turnover of attending physicians, residents, and medical students, as well as numerous off-service consultants (Griffith et al., 1998; Rush, Chambers, & Keddy, 1986). This complex system can be very confusing to patients and may create a perception of poor communication or quality of care (Anderson, Allen, & Finucane, 2001; Cowan & Laidlaw, 1993; Cowles et al., 2001; Crane, 1997; Daltroy, 1993; John, 1991; Ong, Visser, Lammes, & de Haes, 2000; Yancy, Macpherson, Hanusa, Switzer, & Arnold, 2001). Knowing the identities and roles of individuals we interact with is an important foundation for effective communication, and this knowledge can influence the quality of communication (Bonds, Foley, Dugan, & Hall, 2004; Brockopp, Franey, Sage-Smith, Romond, & Cannon, 1992; Lang, 2002). In relation to this principle, studies show that patients generally prefer to know the identity and ranks of the residents who care for them because this knowledge can lead to better communication between providers and patients (Francis, Prankrants, & Huddelson, 2001; Wiseman, Wijewardena, Calleary, Masood, & Hill, 2004). In this quality improvement study, we describe and assess a simple communication tool to enhance patients' awareness of the physicians who care for them. We hypothesized that MTU patients often do not know the names or level of training of their physicians and that a communication tool could improve this deficit and thereby enhance their perception of quality of care.

Methods
Study Design
This was an interventional study with before-and-after assessments of communication and perception of quality of care. It was conducted on two medical units at a teaching hospital in

Abstract: A quality improvement study was conducted in an academic medical center to determine whether a communication tool improves patients' knowledge of their physicians and views on quality of care. An interventional study with before-and-after assessment of communication and perception of quality of care was conducted on a medical teaching unit (MTU). The intervention consisted of erasable boards, updated daily, that listed the names and positions of the MTU physicians. On the 4th and 6th days of admission a survey was conducted evaluating patients' knowledge of the MTU physicians and perceptions of quality of care. After the intervention, a significant improvement was found in patients' knowledge of their physicians ($p < .001$), but no difference was found in perceptions of quality of care. A simple communication tool significantly improved patients' ability to identify names and level of training of their physicians. However, the intervention did not appear to significantly improve perceptions of quality of care.

Calgary, Alberta, Canada. Each unit had 38 beds, of which 30 were dedicated to the MTU. A typical MTU consisted of one attending physician, two senior residents, four junior residents, and a variable number of clinical clerks (final-year medical students). Each patient was assigned to a junior resident who functioned as the primary physician. The two senior residents supervised the care of the entire team with support from the staff physician. A registered nurse, acting as the MTU care coordinator, facilitated patient-physician communication as well as discharge planning and follow-up as appropriate. Patients were assessed daily by the designated junior residents and were discussed daily in conference. The team conducted formal bedside rounds once or twice weekly.

Study Setting, Dates, and Inclusion Criteria
Between January 14 and March 10, 2002, 62 consecutive MTU patients were enrolled in the study. Inclusion criteria consisted of

Key Words

healthcare

patient satisfaction

physician-patient relationship

quality improvement

consecutive patients admitted to the MTU during the study period. Exclusion criteria included critical illness, altered mental status, language barrier with no available interpreter, and refusal to participate. On the basis of these criteria, no patients were excluded from the study. The 31 patients enrolled between January 14 and February 10, 2002, were deemed the control group, and the subsequent 31 patients enrolled between February 11 and March 10, 2002, the intervention group. Between the two periods, the intervention was introduced. The sample size and time periods for study were based on feasibility considerations and a model of rapid assessment and intervention for quality improvement rather than on formal statistical considerations.

Intervention

A multidisciplinary research team consisting of two residents, one MTU attending physician, two charge nurses, and the MTU care coordinator met to discuss barriers to communication on the MTU (Francis et al., 2001; Joos, Hickam, Gordon, & Baker, 1996). Potential solutions were considered, and an intervention was defined. White erasable boards were placed at the foot of each bed between the control and intervention periods. The boards listed the names and level of training of the MTU physicians involved in the care of individual patients. The boards were updated daily by the unit clerk or the MTU care coordinator.

Evaluation and Measurements

On the 4th and 6th days of the patients' admission, a survey was conducted by the MTU care coordinator. The survey evaluated patients' knowledge of the name and level of training of the MTU physicians. On a 10-point scale, patients were asked to rate the following categories: (a) the importance of clearly understanding who was involved in their care, (b) their satisfaction with MTU physician-patient communication, and (c) satisfaction with overall quality of care. Respondents also had an opportunity to provide open-ended comments.

Analysis

The results of patients' knowledge about MTU physicians were reported as simple proportions. Tests comparing proportions between the control and intervention groups were performed using the chi-square test. An average

score was used for reporting responses to the three 10-point scales mentioned above. Two sample t tests were also conducted to evaluate mean score differences between the two groups.

Ethics Review Board Approval

This quality improvement initiative was departmentally approved, and in our institution the ethics review board provides blanket approval to departmentally approved quality improvement projects.

Results

A dramatic and significant improvement in patients' knowledge of the name and level of training of their physicians was seen when the control and intervention groups were compared (**Table 1**). Of the 31 patients in the control group, only 14 (45%) knew the name of the attending physicians, 7 (24%) knew the name of the senior residents, and 15 (48%) knew the name of the junior residents. In comparison, all 31 patients in the intervention group knew the names of the attending physicians and senior and junior residents. In the control group, only 17 (55%), 5 (16%), and 11 (36%) patients could correctly identify the level of training of the attending physicians, senior residents, and junior residents, respectively. Of the 31 patients in the intervention group, 29 (93%), 28 (90%), and 28 (90%) could correctly identify the level of training of the attending physicians, senior residents, and junior residents, respectively. These results were statistically significant ($p < .001$).

Despite these improvements, there was no difference in perceived quality of care between the two groups. When asked about the importance of knowing who was involved in their care, patients in the control group reported a mean score of 8.5 out of 10 (median score 9), and patients in the intervention group reported a mean score of 8.7 out of 10 (median score 10). When asked about their satisfaction with MTU physician-patient communication, the control group reported a mean score of 8.2 (median score 8), and the intervention group, a score of 8.3 (median score 9). When asked about their satisfaction with overall quality of care, the control group reported a mean score of 8.9 (median score 9), whereas the intervention group reported a score of 8.7 (median score 9). Many patients giving the lower

Table 1. Percentage of Patients Who Correctly Identified Names and Levels of Training of Medical Teaching Unit Physicians

	Control % (N = 31)	Intervention % (N = 31)	Chi Square	p Value
Name Correctly Identified				
Attending Physician	45	100	23.42	<.0001
Senior Resident	24	100	39.16	<.0001
Junior Resident	48	100	21.57	<.0001
Level of Training Correctly Identified				
Attending Physician	55	93	12.13	.0005
Senior Resident	16	90	34.27	<.0001
Junior Resident	36	90	19.98	<.0001

scores had multiple comorbidities, and their comments expressed a general dissatisfaction with their hospital experience.

Discussion

The implementation of a simple communication tool on the MTU resulted in a dramatic and statistically significant improvement in the ability of patients to correctly identify the names and levels of training of their MTU physicians. The effect was most pronounced for the senior resident, likely reflecting that person's role as a supervisor and co-coordinator rather than a daily provider of direct patient care (as is the case with junior residents who interact with patients daily).

These findings are significant on a few fronts. First, a notable proportion of patients do not know the names of their physicians. This may be surprising but is likely quite typical in teaching hospitals. Second, we describe a simple low-cost solution to the problem of patients' not knowing who their physicians are. Interestingly, though, our intervention did not significantly influence overall satisfaction with care. Nevertheless, many will acknowledge that good communication is one of the fundamental elements of positive patient-physician interaction (Bischoff, Perneger, Bovier, Loutan, & Stalder, 2003; Quill, 1989).

Despite the dramatic improvement in recognition of name and level of training, we did not find any improvement in satisfaction with existing communication and overall quality of care. Because the control group scored very highly in these areas, even perfect scores in the intervention group would have been insufficient to demonstrate a statistically significant difference. One potential reason for the high

baseline level of satisfaction is the presence of a highly trained MTU care coordinator who facilitates patient education as well as continuity of care. Other potential reasons are the distribution of an informative brochure on the structure of the MTU to all new admissions and recent shifts in the undergraduate and graduate curricula toward a patient-centered approach. Some patients volunteered that face recognition was sufficient to generate baseline satisfaction in these areas, while others volunteered that knowing the names and levels of training was not profoundly important if there was an underlying perception of adequate care. Thus patients' perception of quality of care is likely multifactorial.

Although we were unable to demonstrate quantitatively any effect on the quality-of-care parameters measured, a number of subjective comments were volunteered by patients. The majority suggested that the white boards afforded an improvement to their perceived quality of care, despite the fact that this perception was not reflected in the objective rating system. Furthermore, patients transferred to the MTU from other patient units volunteered positive feedback on the use of the white board when compared with their experience on other units. Anecdotal feedback was further volunteered by family members, nursing staff, and other healthcare providers, who felt that this tool enhanced communication.

The study had a number of limitations. First, we did not use a standardized interview tool for the assessment of patients' perceptions of quality of care. We also recognize that only one aspect of communication was assessed—name recognition of the physicians with whom patients communicate. Second, because this was not a blinded

study, there may have been some bias on the part of the data collector and the patients. It is also noteworthy that the white boards were not erased at the time of the interview. This was the predetermined process, because it was believed to be more important to assess availability and accessibility of information than to test patients' long- or short-term memory.

Potential applications of the white boards include use as an orientation tool with dates of planned tests, daily scheduling, and information regarding expected date of discharge. Also, the names of registered nurses and nursing assistants involved in each patient's care can be included on the white boards (and in fact are routinely included on the white boards on our MTU, though the effect of communicating nurses' names in this way was not formally assessed in our study). Potential drawbacks of these applications are the need for committed personnel to make daily updates and the possibility that increased complexity of information may lead in some instances to increased confusion.

In summary, the application of a simple communication tool on the MTU had a positive effect on patients' ability to identify the names and levels of training of the physicians involved in their care. However, perhaps as a result of high ratings in baseline areas of perceived quality of care, no effect of the intervention on a 10-point satisfaction scale was found. However, a number of patients, family members, and healthcare professionals volunteered subjective comments on improvements in these areas, strengthening the hypothesis that communication is one of the integral components of perceived quality of care. Furthermore, a number of exciting potential applications for this simple and relatively inexpensive tool may further enhance communication among patients, their families, and their MTU healthcare providers.

References

Anderson, K., Allen, D., & Finucane, P. (2001). A 30-month study of patient complaints at a major Australian hospital. *Journal of Quality in Clinical Practice, 21*(4), 109–111.

Bischoff, A., Perneger, T. V., Bovier, P. A., Loutan, L., & Stalder, H. (2003). Improving communication between physicians and patients who speak a foreign language. *British Journal of General Practice, 53*(492), 541–546.

Bonds, D. E., Foley, K. L, Dugan, E., & Hall, M. A. (2004). An exploration of patients' trust in physicians in training. *Journal of Health Care for the Poor and Underserved, 15*(2), 294–306.

Brockopp, D. Y., Franey, B. N., Sage-Smith, D., Romond, E. H., & Cannon, C. C. (1992). Patients' knowledge of their caregivers' names. *Hospital Topics, 70*(1), 25–28.

Cowan, D. H., & Laidlaw, J. C. (1993). A strategy to improve communication between healthcare professionals and people living with cancer. I. Improvement of teaching and assessment of doctor-patient communication in Canadian medical schools. *Journal of Cancer Education, 8*(2), 109–117.

Cowles, R. A., Moyer, C. A., Sonnad, S. S., Simeone, D. M., Knol, J. A., Eckhauser, F. E., et al. (2001). Doctor-patient communication in surgery: Attitudes and expectations of general surgery patients about the involvement and education of surgical residents. *Journal of the American College of Surgeons, 193*(1), 73–80.

Crane, J. A. (1997). Patient comprehension of doctor-patient communication on discharge from the emergency department. *Journal of Emergency Medicine, 15*(1), 1–7.

Daltroy, L. H. (1993). Doctor-patient communication in rheumatological disorder. *Baillieres Clinical Rheumatology, 7*(2), 221–239.

Francis, J. J., Pankratz, V. S., & Huddleston, J. M. (2001). Patient satisfaction associated with correct identification of physician's photographs. *Mayo Clinic Proceedings. Mayo Clinic, 76*(6), 604–608.

Griffith, C. H., III, Wilson, J. F., & Rich, E. C. (1998). The effect at one teaching hospital of interns' workloads on the satisfaction of their patients. *Academic Medicine: Journal of the Association of American Medical Colleges, 73*(4), 427–429.

John, J. (1991). Improving quality through patient-provider communication. *Journal of Healthcare Marketing, 11*(4), 51–60.

Joos, S. K., Hickam, D. H., Gordon, G. H., & Baker, L. H. (1996). Effects of a physician communication intervention on patient care outcomes. *Journal of General Internal Medicine, 11*(3), 147–155.

Lang, J. W. (2002). Patient identification of caregivers' titles: Do they know who you are? *Applied Nursing Research, 15*(1), 11–18.

Ong, L. M., Visser, M. R., Lammes, F. B., & de Haes, J. C. (2000). Doctor-patient communication and cancer patients' quality of life and satisfaction. *Patient Education and Counseling, 41*(2), 145–156.

Quill, T. E. (1989). Recognizing and adjusting to barriers in doctor-patient communication. *Annals of Internal Medicine, 111*(1), 51–55.

Rush, J. P., Chambers, L. W., & Keddy, W. (1986). A study to identify who is the responsible physician for each patient in a teaching hospital. *Quality Review Bulletin, 12*(12), 426–430.

Wiseman, O. J., Wijewardena, M., Calleary, J., Masood, J., & Hill, J. T. (2004). 'Will you be doing my operation, doctor?' Patient attitudes to informed consent. *Annals of the Royal College of Surgeons of England, 86*(6), 462–464.

Yancy, W. S., Jr., Macpherson, D. S., Hanusa, B. H., Switzer, G. E., & Arnold, R. M. (2001). Patient satisfaction in resident and attending ambulatory care clinics. *Journal of General Internal Medicine, 16*(11), 755–762.

Authors' Biographies

Heather L. McArthur, MD, is a fellow in medical oncology at the British Columbia Cancer Agency in Canada. She is a graduate of the University of Toronto School of Medicine and has completed residency training in internal medicine at the University of Calgary, Calgary, Alberta, Canada.

Sophia H. Chou, MD, is a fellow in nephrology at the University of Calgary, Calgary, Alberta, Canada. She is a graduate of the University of Western Ontario School of Medicine and has completed residency training in internal medicine at the University of Calgary, Calgary, Albert, Canada.

Danielle A. Southern, MSc, is a programmer and analyst providing research support and data analysis at the University of Calgary, Calgary, Alberta, Canada. She received a master's of science degree, with a specialty in biostatistics, from the University of Calgary.

William A. Ghali, MD MPH, is a professor in the departments of medicine and community health sciences at the University of Calgary, Calgary, Alberta, Canada. He holds a Government of Canada Research Chair and is an Alberta Heritage Foundation for Medical Research Health Scholar. His research is in the areas of cardiovascular epidemiology, quality of care, and health services research.

Jane B. Lemaire is clinical associate professor in the department of medicine at the University of Calgary, Calgary, Alberta, Canada. She chairs the internal medicine specialty committee of the Royal College of Physicians and Surgeons of Canada.

A Lean Toolbox—Using Lean Principles and Techniques in Healthcare

Thomas G. Zidel

Quality improvement (QI) costs money. In fact, QI initiatives often result in large expenditures. An improvement team will often suggest the purchase of new equipment, a software package, or maybe even the expansion of the facility as a solution, because improvements made at great expense provide quick and ready solutions to the problem at hand. However, equipment like a computed tomography scanner, magnetic resonance imaging scanner, positron emission tomography scanner, and Gamma Camera generally cost in excess of $1 million. State-of-the-art information systems and facility upgrades are also very costly.

Often these expensive solutions do not even perform to expectations, which makes matters worse. For example, the task of evaluating different manufacturers' picture-archiving and communication systems (PACS) for purchase required many site visits. The intent of these site visits was to provide examples of different hospitals' satisfaction with the particular manufacturer's PACS. At every single site visit the hospital representatives expressed disappointment in one form or another with their PACS. Their discontent arose from various issues, including problems such as interfacing with the hospital's computer system, even though they were assured that the interface would not be a problem. Radiologists complained that the tools were too difficult to learn and use; many refused to use the PACS and required that the hospital provide films. Technologists complained about the time and additional effort required to prepare the images for reading. In all these cases the hospitals had to incorporate work-arounds in order to compensate for the system shortcoming, which resulted in higher costs in time, money, or labor.

In addition to the fact that many QI efforts cost money to implement and that QI initiatives do not always meet expectations, QIs often afford few or no financial benefits to the organization. Hospitals do not receive higher reimbursements because they provide superior

Abstract: The Lean principles derived from the Toyota Production System have been revolutionizing manufacturing and service industries worldwide for many years. Lean can create a balance between quality and finance by developing the most efficient and effective method of providing value to the customer. The Toyota Production System grew out of a disheartening situation, similar in some ways to the experience of many hospitals today. However, by internalizing the basic principles of Lean, Toyota has become today's quality leader, and hospitals can do the same. This article introduces Lean principles and presents some of the basic tools used in a Lean transformation. In addition, examples of the real-life application of these tools in a healthcare setting are provided.

quality. Even from the standpoint of cost cutting, QIs can fall short of expectations. Obviously, the primary purpose of QI initiatives is better quality. However, if these improvements fail to also enhance the financial condition of the institution, the approval of future improvement initiatives is endangered. Healthcare professionals in many institutions have expressed both their dedication to QI and their frustration with the financial barriers that prevent them from accomplishing the level of quality they desire.

The High Cost of Poor Quality

Poor quality is expensive. The Institute of Medicine (IOM) estimates that preventable medical errors kill as many as 98,000 patients annually (IOM, 2000). However, in almost all of these cases, it is not incompetent caregivers or lack of compassion that causes these errors but rather the complexity of the healthcare delivery system. Errors resulting from a failure to address deficiencies within the care delivery system cost hospitals an estimated $17 billion to $29 billion per year nationwide (IOM). Financial costs, however, are not the only penalty paid by hospitals for medical errors. The effect on the morale of hospital staff members and a loss of trust within the community are additional costs (IOM). When

the cost of the quality project implemented to ensure that the problem does not occur again has been added, the costs associated with poor quality become unfathomable. It is therefore vitally important that hospitals be aggressive in their endeavor to improve quality. However, initiatives targeted at preventing errors are *cost-avoidance improvements*, meaning that the savings associated with these improvement initiatives can be quantified only by estimating the number and cost of the errors which might have occurred, but haven't occurred because they've been avoided.

Consequently, organizations tend to focus their attention on issues that provide more tangible results. These efforts can be likened to fire fighting as opposed to fire prevention: the fire is urgent, but the prevention of fire is not. Therefore, these error prevention initiatives are delayed as long as the problems do not surface. With any given issue, if there's no pain, no bad press, no fines, no cost, and it hasn't been a problem thus far, it moves to the back burner. Many quality initiatives are therefore assigned a low priority and may never be implemented. Robert Wachter, a longtime safety and quality expert and chief of the medical services at the University of California–San Francisco Medical Center, in an article in *U.S. News and World Report* (July 18, 2005) titled "Saving Lives," refers to hospitals' failure to address quality issues as "an epidemic that most hospitals still don't take seriously until a high-profile disaster occurs on their watch" (p. 76). I would argue that hospitals take their inability to enhance quality very seriously but often lack the financial resources to do something about it.

Toyota and Healthcare

Striking a balance between achieving high quality and remaining financially viable is becoming a major issue for hospitals today. Given stagnant reimbursements, the rising cost of supplies and pharmaceuticals, and reduced outpatient revenues resulting from outpatient specialty ventures, financial concerns can and often do outweigh the aspiration for QI. If hospitals were like most companies, they could simply increase their selling price to compensate for rising costs and thereby secure a reasonable profit, which could in turn be filtered back into the organization to improve quality. Hospitals, however, are not like most companies.

One company that struggled with this same issue and solved the problem is Toyota, and the system they developed is known as the Toyota Production System (TPS). Toyota Motor Sales Company, Ltd., was established in Japan in April 1950 (Toyota Motor Sales Company, Ltd., 1995–2005). The decision to launch an enterprise in post–World War II Japan, when Japanese products had a reputation for shoddy workmanship, should most certainly have resulted in failure. Japan had a negative net worth and lacked natural resources (Deming, 1986). Members of the Toyota family were on the verge of bankruptcy, had no funds to invest in equipment or large inventories, but knew that in order to be successful in a global marketplace they needed to win the "battle" for quality (Japan Management Association, 1985).

As part of the allied occupation of Japan, statisticians W. Edwards Deming and Joseph Juran worked with Japanese companies and helped them implement statistical process control methods to improve the quality of their products. These methods were the genesis of what is referred to today as Six Sigma. Using statistical tools, the Japanese made great strides in QI and were soon manufacturing products of high quality. However, like hospitals today, Toyota staff members knew that providing quality without cutting costs would not accomplish their goal of being competitive in a global marketplace. The company could have increased its selling price, but its leaders were certain that success could be had only by providing a quality product at or below market prices.

Taiichi Ohno, a vice president at Toyota, was sent to America to study Western manufacturing methods. More specifically, Ohno studied what was at the time a revolutionary concept for manufacturing, the assembly line used by the Ford Motor Company. Using the ideas developed by Ford, Ohno developed a revolutionary concept of his own and today is credited with the development of the now famous TPS (Japan Management Association, 1985). In reality, however, Ohno's ideas only initiated the development of the TPS, which continually evolved over the next 50 years.

Today, the Toyota Corolla is the best-selling automobile in the world. The Toyota name has become synonymous with quality. In addition, Toyota Motor Sales Company is the second

largest automobile manufacturer in the world and is on the brink of taking over the number one position from General Motors, which has held that position since 1931 (Toyota Motor Sales Company, Ltd., 1995–2005). An awareness of the unstable beginnings of the Toyota Motor Sales Company is fundamental to an understanding of how Lean principles can help create a balance between quality and financial stability in healthcare.

Lean Principles

In 1990 James Womack, Daniel Jones, and Daniel Roos wrote the book *The Machine That Changed the World*. This book identified the gap between Toyota's quality and productivity and that of automobile manufacturers in the United States and Europe. The authors also coined the phrase *Lean manufacturing* to describe TPS because it does more with less (Womack, Jones, & Roos, 1990). The terms *world-class manufacturing, Kaizen, TPS, Lean manufacturing,* and *Just In Time* all refer to the same principles. However, since the publication of *Lean Thinking* in 1996 by Womack and Jones, *Lean* is the term most often used to describe these principles today (Womack & Jones, 1996).

What did Taiichi Ohno do that made such a difference? He declared war on waste in the workplace. Wasteful practices occur every day in factories, offices, and hospitals worldwide. By declaring war on waste in the workplace, he was able to cut costs and focus on quality. Ohno was so consumed with the idea of eliminating workplace waste that he is recognized in the book *Lean Thinking* as "the most ferocious foe of waste human history has produced" (Womack & Jones, 1996, p.15).

Waste is anything that does not add value to a product or service from the standpoint of the customer (Womack & Jones, 1996). In a hospital, value might be described as comfort, compassion, competent caregivers, or being discharged after desired outcomes have been achieved. By classifying work as value added or non–value added, waste can then be exposed and eliminated.

Lean classifies work into three identifying categories. A work-related action can be categorized as (1) value added, (2) type 1 non–value added, or (3) type 2 non–value added. *Value-added* work provides value from the standpoint of the customer. *Type 1 non-value-added* work does not provide value from the standpoint of the customer but is necessary or required. *Type 2 non-value-added* work includes actions that do not provide value or are not necessary or required (Womack & Jones, 1996). It is astonishing that in most organizations only about 10% of the daily work being performed is value added—some sources put the number as low as 5%. The other 90% of the work being performed falls into the category of type 1 or type 2 non-value-added activities (Galsworth, 1996). By eliminating as many of these non-value-added work actions as possible, a hospital can become significantly more profitable.

A simple business formula indicates that price is equal to costs plus any profit made on the product or service. The cost portion of this formula can be broken down into the three categories just discussed: value added, type 1 non–value added, and type 2 non–value added (see **Figure 1**). The underlying goal of TPS is to totally eliminate type 2 non-value-added work and minimize type 1 non-value-added work as much as possible. This undertaking results in lower costs and higher profits without the need to increase price (see **Figure 2**). By eliminating waste related to these actions, Toyota found that quality was enhanced, productivity skyrocketed, and costs plummeted.

Managers in many organizations observe that employees in their organization are busy all day, work late, and may even bring work home with them or come in on weekends. Being busy, however, is not necessarily adding value. Employees can be busy 110% of the time, but if what they are doing is not adding value from the standpoint of the customer, it is considered waste.

The interesting thing about waste is that it likes to hide. It disguises itself as work and is difficult to distinguish from the real thing. Like an iceberg, however, the portion that appears on the surface is minuscule compared with the portion that lies beneath. As one starts to chip away at surface waste, more and more waste is exposed. By continuing to eliminate this waste as it is uncovered, an organization will become Lean.

Wasteology: The Total Elimination of Waste

The employees at Toyota have developed the concept of identifying and eliminating waste into a science that they refer to as "wasteology." In his crusade to eliminate waste, Taiichi

Figure 1. Cost + Profit = Price

Note. Cost consists of (1) value-added work, (2) type 1 non-value-added work, and (3) type 2 non-value-added work.
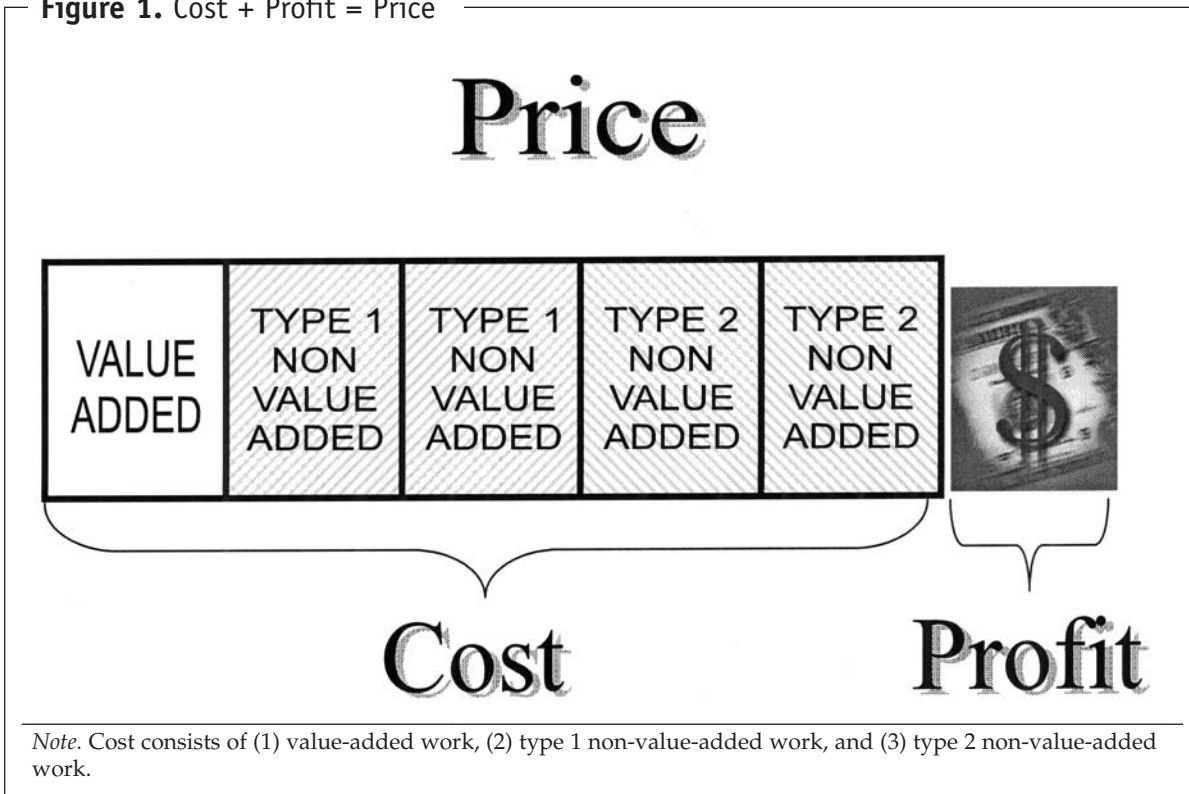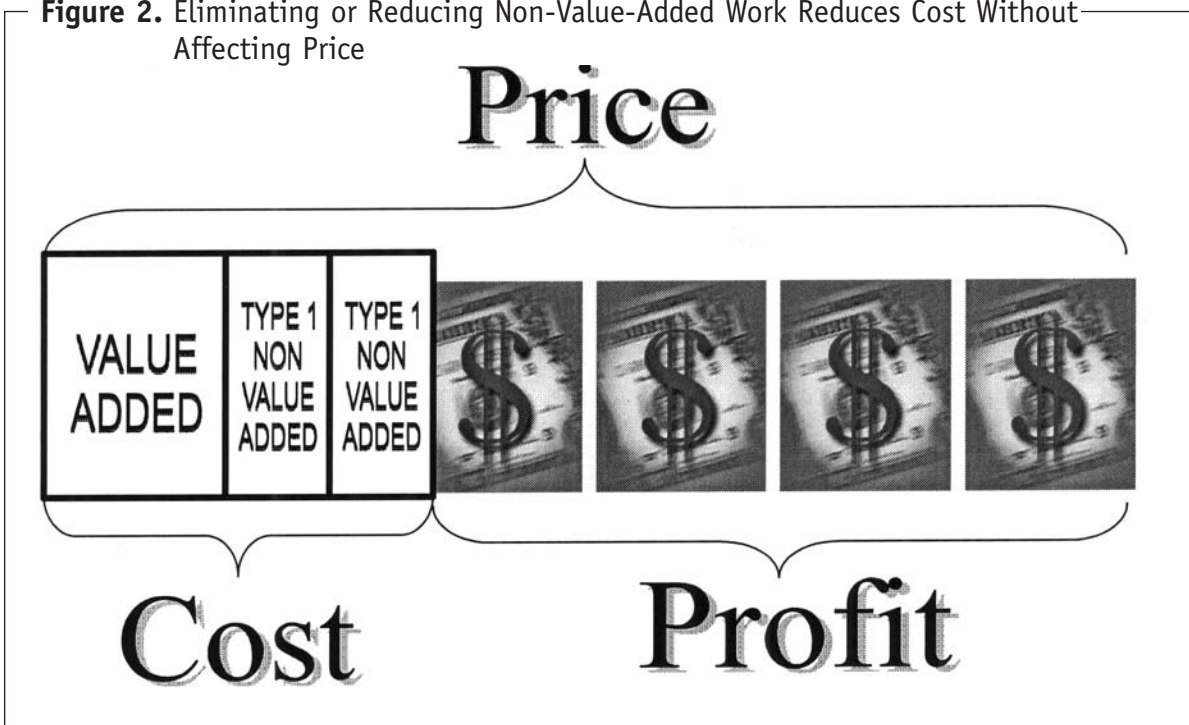
Figure 2. Eliminating or Reducing Non-Value-Added Work Reduces Cost Without Affecting Price

Ohno identified seven areas where waste was prevalent: delay, overprocessing, inventory, transportation, motion, overproducing, and defects (Hiroyuki, 1989). **Table 1** gives some examples of how these areas of waste relate to hospitals.

Identifying and eliminating waste may appear relatively simple, but the process involves a surprisingly difficult interim step. Acknowledging that something is indeed waste is undoubtedly the biggest barrier to overcome when implementing a Lean transformation. Many people are reluctant to view the work they have been performing for many years as wasteful. Accordingly, they become defensive and resist any effort on management's part to change the situation. This resistance can take many forms—from passive resistance to outright rage. These individuals want to do a good job. They want to be viewed as an asset to the organization rather than a liability. They are performing their jobs as they were instructed, but if those instructions were given 30 years ago, a change may be in order. This initial resistance to change can usually be easily overcome by explaining what the organization is trying to accomplish (its mission, vision, and core values) and encouraging legitimate involvement in the change process by the individual being affected by the change.

Most waste develops as a result of stopgap measures. Stopgap measures are devised and implemented to provide a temporary solution to a problem. As time passes, the stopgap measure becomes "the way we've always done it" and is institutionalized (Hiroyuki, 1989). For example, a nurse on the evening shift needs a Heplock. After searching the unit's supply room for 15 minutes, she calls the storeroom, but no one is there. She then calls the security officer, who goes down to the storeroom and searches for 10 minutes to find what is needed. With no knowledge of what a Heplock looks like, he finally gives up and calls the unit to say that he cannot find it. The nurse then visits the storeroom to locate the part. By the time the Heplock is brought to the unit, more than an hour has passed. The security guard is annoyed, the nurse is frustrated, and the patient is very unhappy and complains. The next day the staff is instructed by the manager that in order to avoid future occurrences, and until a permanent solution to this problem can be formulated, the nurse is to page the security guard and meet him at the storeroom if something is needed from the storeroom on an evening shift. The security guard will unlock the storeroom and stay with the nurse until he or she finds what is needed. The security guard will then lock the storeroom, and the nurse will return to the unit. Everyone eventually forgets about solving the problem. Instead they form a work-around. Anyone questioning this process would be told that "this is the way we've always done it." This is an example of a stopgap measure that has become habitual and institutionalized.

Table 1. The Seven Areas of Waste

Delay	Waiting for bed assignments, waiting to be discharged, waiting for treatment, waiting for diagnostic tests, waiting for supplies, waiting for approval, waiting for the doctor, waiting for the nurse
Overprocessing	Excessive paperwork, redundant processes, conducting unnecessary tests, using an IV when oral medication would suffice, multiple bed moves
Inventory	Lab specimens awaiting analysis, emergency department patients awaiting a bed assignment, patients awaiting diagnostic tests, excess supplies kept on hand, dictation awaiting transcription
Transportation	Transporting lab specimens, transporting patients, transporting medication, transporting supplies
Motion	Searching for charts and supplies, delivering medications, nurses caring for patients on different wings
Overproducing	Mixing drugs in anticipation of patient needs
Defects	Medication errors, wrong-site surgery, improper labeling of specimens, multiple sticks for blood draws, injury caused by defective drugs or restraints or lack of restraints

Tools for Eliminating Waste

Over the 50 years or more of TPS's evolution, many tools or methods were developed to help eliminate waste. To list them all would be beyond the scope of this article, but some simple tools can help an organization move toward a Lean transformation.

The 5 Whys

The 5 Whys tool may seem too simple and obvious to be effective, but it has the potential to uncover enormous amounts of workplace waste. Simply ask *why* in every situation until you discover the root cause of the problem. Usually the process takes about five times, hence the name *the 5 Whys.* When the root cause is identified, start to come up with brainstorming ideas to fix the problem. The following applies the 5 Whys to an issue such as a nurse getting her own supplies from the storeroom:

Why is the nurse going to get supplies?
Because that's the way it has always been done.
Why has it always been done that way?
Because a long time ago a certain supply ran out, and a patient complained.
Why did the supply run out?
Because the storeroom staff did not restock it.
Why did they not restock it?
Because they didn't know we were out.
Why did they not know you were out?
Because there is no method in place to inform us when something runs out.

The root cause of this problem is the lack of a method to inform the storeroom when the stock of a certain item is depleted. The solution to this problem is what is called a *Kanban* and was implemented as part of the application of the next Lean tool.

5S and Kanban

The 5S and Kanban tools can be implemented by any organization and create a solid foundation for future Lean initiatives. The 5 S's stand for *sort, straighten, scrub, standardize,* and *sustain* and amount to simple housekeeping. In *sorting*, one gets rid of everything that is not used or will not be used in the next couple of weeks. People tend to hoard things in case they may find a use for them, but if that particular supply is not needed, it should be discarded. *Straightening* means organizing what

you keep, having a place for everything, and keeping everything in its place. Through the organization of supplies, enormous amounts of waste associated with searching can be eliminated. *Scrubbing* means cleaning the area. *Standardizing* refers to establishing procedures to keep the area organized. The final step, *sustaining,* involves maintaining the gains and avoiding backsliding.

Most hospital staff members do not give a second thought to searching for equipment, instruments, charts, books, supplies, and other staff members. They just accept searching as part of the job, but the more they search, the less time they have to care for their patients. In "The Man Who Would Save Healthcare," John Kenagy, a vascular surgeon who studies how to make healthcare work more efficiently, said that "nurses spend a third of their time in patient care and two thirds of their time hunting, documenting, and clarifying" (*Forbes*, December 11, 2000, p. 181). In addition, searching can lead to additional waste such as delay (waiting for something to be brought), inventory padding (hoarding parts just in case), and defects (errors that occur as a result of not being able to find what is needed quickly).

Innumerable benefits accompany 5S. When the workplace is organized and clean, it is more productive. More time is available for patient care, fewer errors occur, a more professional image is projected, and work is more efficient.

The results of a 5S initiative are pictured in **Figures 3 and 4**. Figure 3 is a photograph of a medication room *before* 5S. In Figure 3, insufficient lighting presents a poor professional image, but, more important, it could lead to errors. A nice set of shelves with cubes is on the wall (probably constructed at considerable cost), but the shelves are empty. Boxes are piled high, making it difficult to find things. The room also contained three medication carts, along with a Pyxis System that was never used to its full potential because of problems interfacing with the computer system (another example of costly quality solutions not meeting expectations). Figure 4 is a photograph of the same room *after* 5S. It is well lit, is better organized, and has no boxes, and two of the medication carts have been removed. Much more has changed, however. All the bins are labeled with a description of the item and the part number. On the back of the card is a bar code used by the storeroom to scan the

information needed to restock a particular item. Each item has two bins. This is an example of a Kanban, a signal that something is needed. The Kanban in this case is simply the empty bin. Supplies are always taken from the top bin. When the top bin is empty, the card is scanned by the storeroom delivery person, who then knows to deliver the item on his next round. The empty bin is placed on the bottom. This practice rotates the stock, ensuring that the oldest items are used first and thereby eliminating waste due to expiration. When the storeroom staff deliver the supplies, they fill the empty bin. By creating a Kanban, the unit never again ran out of supplies, nor did they have to call the storeroom or contact the security guard for an emergency delivery. This is the Lean solution to the problem of the nurse going to the storeroom to get supplies.

Visual Controls

The visual controls tool is used to create a workplace where everything needed is displayed and immediately available. The information is available at a glance, accurate, and complete. In addition, the tool creates an environment where what should happen does happen—on time, every time.

Visual controls have four levels: visual indicator, visual signal, visual control, and visual guarantee. A *visual indicator* is a device that simply informs; an example would be a magnetic sign on a patient's door with special instructions related to that patient (e.g., NPO, or nothing to be taken orally, or no caffeine). The next level is a *visual signal*. This level is an alert or alarm; a nurse call light would be an example. A *visual control,* the next level, controls behavior. A needle box that flips to the closed position when the box is full to eliminate risk of overfilling is a good example. The last level is a *visual guarantee;* this level allows only a correct response—it is foolproof. An example of a visual guarantee is a Bloodloc Safety System. This device provides a barrier that stops a transfusion when an error in patient or blood identification is made. The opportunities for creating a visual workplace in hospitals are limitless, and implementation requires only imagination and a conscious effort.

Standard Work

Standard work is a valuable tool to use for any improvement project and consists of seven

Figure 3. Medication Room Before 5S Changes
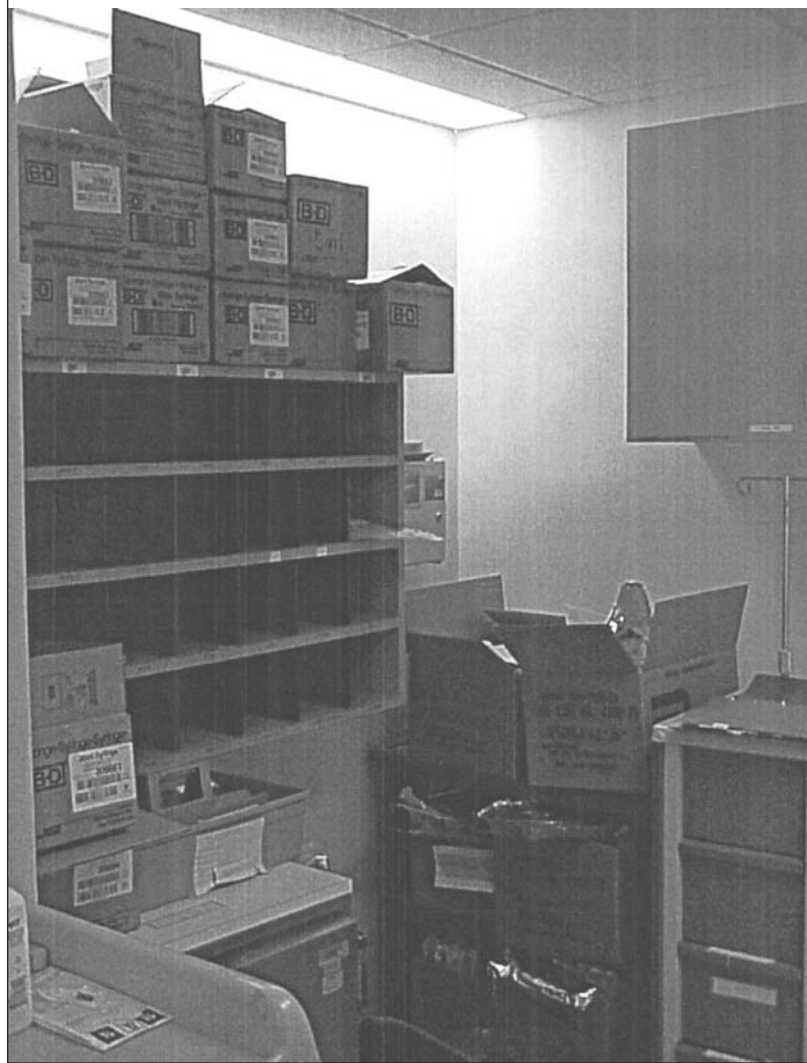
steps: (1) document reality, (2) identify the waste, (3) plan countermeasures, (4) implement changes, (5) verify changes, (6) quantify changes, and (7) standardize changes. The first step is to document reality: go out to the area, observe the job being done, and document it. Do not attempt to do this from memory. Get up from your desk and go to the area. Never interfere with the person doing the job; just record what is done and how long it takes the person to complete each task. It is advisable to ask questions up front and let the person know that you will be observing the work process. Next, identify the waste in the process. Study your documentation and categorize each step as value added, type 1 non–value added, or type 2 non–value added. After identifying the waste, plan countermeasures. Brainstorm ideas to eliminate the waste and make the

process more efficient. Then implement the changes. Be sure to communicate with the people actually doing the work. Do not, under any circumstances, make changes without their knowledge. This will surely result in disaster. This caution seems obvious, but sometimes only some of the people doing the work are informed of the changes, and it is assumed that they will inform the others. Assume nothing. Make sure that the changes are well communicated not only to those doing the job but also to individuals in other departments who might be affected by the changes. Next, verify that the changes do indeed make things better. It may be worthwhile to do a pilot run for a certain period to verify that the changes have been made. After the changes have been verified, quantify the benefits either monetarily, in time savings, or in workforce reduction. Last, make the changes standard. Make sure that all understand what they need to do, and write a policy, if necessary.

Conclusions

Proper implementation of these five simple Lean tools and techniques—5 Whys, 5S, Kanban, Visual Controls, and Standard Work—can help any organization launch its Lean transformation.

These techniques may seem too simple to be effective, and they are simple—but they are not easy. If they were easy, every organization would be a Lean organization. The desire to cling to the familiar, fear of change, and lack of understanding make creating a Lean organization difficult and sustaining it even more difficult.

Hospitals cannot continue to operate as they have in the past. Insurance companies are not willing to pay for the non-value-added work associated with hospital processes. In addition, external forces (e.g., reimbursement issues, staffing shortages, rising costs, and the increase of physician-owned ambulatory care facilities) mean that hospitals need to ensure that their processes are devoid of as much non-value-added work as possible.

By reducing the percentage of non-value-added work and thereby increasing the percentage of value-added work through a Lean transformation, hospital quality levels can improve significantly, and huge cost savings can be realized. Cost savings can then be redistributed to other QI initiatives. By concentrating efforts

Figure 4. Medication Room After 5S Changes

on identifying, acknowledging, and eliminating non-value-added work or waste, hospitals can realize their most fundamental goal of providing superior quality healthcare to their patients.

References

Deming, W. E. (1986). *Out of the crisis*. Cambridge, MA: MIT Press.

Galsworth, G. D. (1996). *The power of visual information sharing on the shop floor for the small manufacturer*. Cambridge, MA: Quality Methods International.

Hiroyuki, H. (1989). *JIT implementation manual: The guide to just in time manufacturing*. Tokyo, Japan: JIT Management Laboratory Company, Ltd.

Institute of Medicine, Committee on Quality of Health Care in America (2000). *To err is human: Building a safer health system* (L. T. Kohn, J. M. Corrigan, & M. S. Donaldson, Eds.). Washington, DC: National Academies Press.

Japan Management Association (1985). *Toyota no genba kanri: Kanban hoshiki no tadashii susumekata* (D. J. Lu, Trans.). Tokyo, Japan: Japan Management Association.

Toyota Motor Sales Company, Ltd. (1995–2005). *The history of Toyota*. Retrieved August 1, 2005, from www.toyota.co.jp/en/about_toyota/history/1950.html.

Womack, J. P., & Jones, D. T. (1996). *Lean thinking: Banish waste and create wealth in your corporation*. New York: Simon and Schuster.

Womack, J. P., Jones, D. T., & Roos, D. (1990). *The machine that changed the world*. New York: Rawson Associates.

Author's Biography

Thomas G. Zidel has worked in manufacturing for over 20 years, incorporating Lean principles into Fortune 100 manufacturing, and has spent the past 5 years in healthcare. He has an MBA from Western New England College and an engineering degree from the University of Hartford and is a certified Six Sigma Master Black Belt. He is currently a senior consultant with Moffitt Associates, a consulting company that specializes in Lean implementation.

For further information on this article, contact Thomas G. Zidel by e-mail at tzidel@cox.net.

Media Reviews

Lecia A. Albright, Media Editor

Medical Errors and Medical Narcissism
John Banja
Jones and Bartlett, http://healthadmin.jbpub.com/ catalog/0763783617/, 2005, $49.95, 229 pages, ISBN 0-7637-8361-7

Audience: healthcare administrators, healthcare quality professionals, risk management staff

Key words: disclosure, ethics, incident reporting

John D. Banja is a clinical ethicist and the assistant director of programs in health sciences and clinical ethics at the Center for Ethics, Emory University, in Atlanta, GA. In this book, he shares his interest in the psychodynamics of emotionally painful healthcare communications.

The book focuses on the feelings experienced by healthcare professionals after they have disclosed a medical error or communicated adverse findings. Banja asserts that these types of conversations are among the most anguishing for a healthcare worker. He contends that the various psychological reactions that healthcare professionals undergo encourage them to withhold such information from patients and families.

Banja provides insight into the physician's psyche—the pressures that physicians encounter coupled with their need to protect the "self" helps to explain why some physicians adopt narcissistic tendencies. The disclosure of medical errors is a painful process for physicians, and the release of such sensitive information places the healthcare professional at risk in a number of ways. Understanding this narcissistic behavior provides insight to other professionals who must work closely with these healthcare providers.

The author begins by defining errors and explaining how they occur. He then discusses the emotional responses that healthcare professionals experience when medical errors have occurred, as well as issues related to ethical and contractual obligations to disclose error.

The author highlights rationalizations used by healthcare professionals for not fully disclosing or even for concealing medical errors from patients and families.

Banja summarizes the sequence of emotions and anxieties that the healthcare professional encounters when having to disclose a medical error with the acronym SCRAM—shock, concern, rationalization, avoidance, and minimization—and details each step. He then discusses the various dimensions of forgiveness, focusing on why they are so unfamiliar in healthcare, and highlights the cognitive, emotional, and behavioral aspects for the forgiver and the forgiven. The author believes that healthcare professionals need to accept the value of forgiveness and incorporate it into their routine.

Throughout the book, case studies illustrate the author's views. The case studies provide a frame of reference for the reader and serve as effective teaching tools. This text is a good resource for administrators and quality and risk management staff who work with physicians in the medical error management process. It provides insight into the range of emotions encountered by healthcare professionals who are involved with medical errors, the factors associated with those emotions, and the barriers encountered in disclosing errors to patients and families.

Review by Judith R. Sands, BSN RN LHRM CPHQ CCM ARM CLC

Applying Inpatient Coding Skills Under Prospective Payment
Vickie L. Rogers and Ann M. Zeisset
American Health Information Management Association (AHIMA), http://imis.ahima.org/ orders/, 2004, $80.95 ($64.95 for members), 267 pages, ISBN 1-5842-6075-0

Audience: health information management professionals, reimbursement specialists, students of medical record coding

Key Words: diagnosis-related groups, patient coding, prospective payment

This book is written first as a text for the student of health information management and, in particular, for the student of coding. In addition, it can serve as an excellent reference for the generalist or other health-administration professional interested in inpatient coding or the prospective payment system (PPS). The author opens with a note to educators explaining how readers, except students enrolled in colleges or universities, may obtain answer keys for all the exercises contained in the book—a great feature! The novice will find these exercises and case studies particularly challenging and will appreciate the complexity and detail associated with professional coding.

With only five chapters of content, the author moves smoothly from an overview of hospital coding to data quality. The remainder of the book includes exercises and case studies, a guide to abbreviations, and a number of appendixes. The appendixes are filled with supportive and explanatory material, such as a current listing of diagnosis-related groups and their relative weights and standards for ethical coding.

In their overview of the PPS, the authors nicely establish the relationship between the Centers for Medicare & Medicaid Services, ethical coding practice, data quality, and quality improvement efforts aimed at ensuring quality care to Medicare beneficiaries. Although this book is not recommended for general reading in health administration or healthcare quality, it is definitely recommended as an excellent reference on inpatient prospective payment.

Reviewed by Mary Savitsky, MHA RN CHE CPHQ

Domestic Violence Screening and Intervention in Medical and Mental Healthcare Settings

Kevin L. Hamberger and Mary Beth Phelan
Springer, http://www.springerpub.com/prod.aspx?prod_id=25352, 2004, $45.95, 352 pages, ISBN 0-8261-2535-2

Audience: behavioral health professionals, nurses, physicians

Key Words: abuse, domestic violence, mandatory reporting, mental health, prevention

In 2002 the U.S. Department of Defense sponsored a symposium on the prevention of intimate-partner violence. Because domestic violence has become a growing concern in medical and mental healthcare settings, this book was written as an offshoot of that conference. The book addresses lack of education among healthcare providers as a major barrier to screening and identifying victims of violence. The authors address abuse that may be found in primary care, psychiatric and mental health settings, emergency departments, and subspecialties including pediatrics and oral/maxillofacial and trauma surgery. Spousal abuse reported in these settings is also discussed in detail.

Mandatory reporting of domestic violence is addressed extensively, with a focus on the physician's ethical duty. The Council on Ethical and Judicial Affairs of the American Medical Association (AMA) advises physicians to inquire about topics such as sexual abuse and domestic violence but to disclose this information only with the patient's consent. The AMA has made the following recommendations for states where mandatory reporting laws exist:

1. Keep victims' identities anonymous.
2. Allow competent adult victims to defer reporting if identifiers are used.
3. Provide data to public health agencies for statistical use only.
4. Evaluate the law periodically to determine its effectiveness.

Several validated and sound instruments for measuring domestic violence currently exist. However, a large number of studies have relied on unvalidated lists of questions that appear to have been developed for the purpose of the respective studies in which they were used. In their discussion of primary and secondary prevention of domestic violence, the authors suggest the Haddon Matrix as a potential approach to injury prevention in domestic violence cases.

This book gives detailed information about types of abuse in our communities, how to go about reporting domestic violence, barriers that healthcare workers face, and prevention of domestic violence. Screening and identifying perpetrators, as well as identifying provider barriers, is a critical need, along with continuous education for providers.

Reviewed by Teresa L. Gonzalvo, MPA RN CPH

Giving Voice to What We Know: Margaret Newman's Theory of Health as Expanding Consciousness in Nursing Practice, Research, and Education

Carol Picard and Dorothy Jones
Jones and Bartlett, http://www.jbpub.com/catalog/0763725722/, 2005, $44.95, 233 pages, ISBN 0-7637-2572-2

Audience: health policy theorists, nurses

Key Words: nursing practice, nursing theory

Readers who have studied nursing at the graduate level in the last two decades will likely recognize Margaret Newman as a nursing theorist. The authors believe that this book will offer guidance for healthcare system changes and will positively affect nursing practice as well as family-centered care processes.

The book provides an overview of health as expanding consciousness (HEC), defining health not as existing separate from disease, but as incorporating disease, when it is present, as a pattern of the whole. Picard and Jones further emphasize that people are not less whole when they are sick or diseased. They explain that the theory of HEC allows nurses to let go of the hopelessness associated with the medical view of disease conditions and encourages them to concentrate on the power of the evolving HEC process for the person.

The phrase "giving voice to what we know" is demonstrated through the presentation of examples from a variety of settings (end-of-life care, a presurgery clinic, and dementia care) that detail the experience of nurses who have applied HEC in practice settings. What this book offers *JHQ* readers, especially nurses, is an update on efforts to advance nursing science as a means to change the role of nurses in the evolution of quality in healthcare practice. Picard and Jones note that a caring-based model grounded in a nursing theory such as HEC expands the imaginal realm of nursing students (i.e., helps them to see clients beyond a symptom-management perspective and through a nursing lens of wholeness). If this perspective can achieve support in practice, the result may be a lessening of the impact of the chronic nursing shortages that threaten to erode the quality of healthcare.

Reviewed by Jane Miller, MSN RN CPHQ FNAHQ

Hope or Hype: The Obsession with Medical Advances and the High Cost of False Promises

Richard A. Deyo and Donald L. Patrick
Jones and Bartlett, http://www.amacombooks.org, 2005, $24.95, 335 pages, ISBN 0-8144-0845-1

Audience: bioethicists, healthcare clinicians, healthcare economists, laypeople, policy makers, pharmacists, public health professionals

Key Words: clinical trials, FDA, medical devices, medical innovation, medical technology, medical technology assessment, pharmaceutical industry, technology assessment

In a refreshingly blunt book, these healthcare quality activists shine the light of critical scrutiny on the vastly contentious area of medical innovation. Deyo and Patrick believe that one of the key engines driving healthcare-cost increases in the United States is the proliferating use of new medical technology and treatments, often in the absence of proper evaluation of the clinical efficacy and cost effectiveness of the supposed innovations. The authors' fervent hope in writing this candid book is to inject some much needed skepticism into public thinking about real or imagined medical advances.

The perceived need for significantly improved technology assessment and increased research are dominant themes. Deyo and Patrick believe that, in the market-driven U.S. healthcare system, the exorbitant cost of new medical technology can greatly exceed the actual medical benefits of that technology. They further propose that the financial self-interests of powerful special-interest groups may frequently work as strong cross currents, undermining the availability of affordable healthcare for patients. The book stresses that patients would do well to be cautious about medical technology and that medicine should be evidence based rather than corporate based.

Deyo and Patrick paint a fairly superficial portrait of an extremely complex U.S. healthcare system. Moreover, readers should be mindful that they proffer a distinct viewpoint on a highly divisive subject. Some may fault the authors for allegedly presenting a misleading caricature of the U.S. healthcare system. Nevertheless, they deserve much praise for adroitly revealing and skillfully examining

some of the many blemishes in the U.S. health-care system.

This timely, well-written, and well-researched book should interest all those concerned about the quality, safety, and affordability of healthcare in the United States.

Reviewed by Leo Uzych, JD MPH

Lecia A. Albright, CPHQ, is the principal and owner of LARA Consulting, LLC, located in Fredericksburg, VA. Her e-mail address is laraconsulting@adelphia.net.

Quality NETwork

Robert J. Rosati and Daniel van Leeuwen, Quality NETwork Editors

"Quality NETwork" offers reviews of selected Web sites relevant to healthcare quality professionals. The editors welcome comments and feedback on the column as well as suggestions for further reviews. To read previous reviews that have appeared in the journal, visit www.NAHQPlus.org, the exclusive Web site for NAHQ members.

Power2

www.powertwo.com

Key Words: documentation, home healthcare, OASIS

Power2 is from FGA Software Solutions and Thornberry LTD. FGA Software Solutions is a healthcare consulting firm that specializes in financial software products and support services for the home health industry since 1989. Thornberry LTD is a provider of information systems for the healthcare industry specializing in clinical documentation since 1992 and Home Health Point of Care since 1996. FGA and Thornberry provide software solutions that solve real problems.

Power2 offers a single Web-based database to meet the needs of home health agencies (HHAs). The software gives the user the ability to maximize communication, improve patient care, optimize compliance, customize best practices, analyze data, and improve cash flow. Some of the features of the software include

- real-time Outcome and Assessment Information Set (OASIS) checks at point of care to prevent input errors
- charting consistency
- electronic links with hospital systems
- electronic claims for commercial insurance in addition to Medicare and Medicaid
- creation of nurses' to-do lists
- generation of interdisciplinary patient problem and care plans.

Power2 is a point-of-care back-office system that may be valuable to HHAs seeking to manage agency, clinical, and financial operations efficiently.

Reviewed by Barbara Corn, MA

Outcome Concept Systems

www.ocsys.com

Key Words: accreditation, benchmarking, home healthcare

Outcome Concepts Systems (OCS) is the single largest provider of benchmarking services to home health, hospice, and private-duty organizations. OCS was founded in 1992 by a nationally recognized clinician and purchased in 1997 by two healthcare technology veterans. OCS is a leading information company for the home health industry and has obtained a variety of national and state association endorsements. OCS and the Community Health Accreditation Program (CHAP), a national not-for-profit healthcare accreditation organization, have formed a partnership to offer valuable information to their members. Through this partnership, CHAP-accredited organizations will have access to OCS benchmarking and outcome reporting products and services.

OCS offers the following benchmarking solutions:

- OCS-BBI Reporter: an Internet-based product that exclusively offers flexible benchmarking across clinical, visit utilization, and financial measures against other HHAs
- BBI Elite: a browser-based product that requires no software installation and can be used to stratify outcome-based quality improvement (OBQI) data and to anticipate resource requirements and prepare for disease management pay-for-performance trends
- OCS-EPIC: a tool that compares data with various benchmark norms, identifying and prioritizing successes and opportunities for improvement, recommending target outcomes specifically for HHA, and incorporating an outcome-based quality improvement wizard
- OCS-OASIS: a desktop drill-down tool that combines sophisticated desktop reporting with flexible online benchmarking to help you know your data better

QUALITY NETWORK

- OCS-Indicator: a desktop outcomes reporting tool with online benchmarking that meets the unique needs of freestanding hospice agencies
- OCS-Peer Reports: a specialized report series that helps you understand the effect of programs on reducing ER visits, improving visit utilization efficiency, and achieving quality outcomes
- OCS-Private Duty: a combination of two tools—OCS-Image and OCS-Prosper—that allows private-duty organizations to track referral sources, evaluate marketing investments, improve operational efficiency, and demonstrate quality
- OCS-Customer Pulse: a tool that provides full online survey administration, reporting, and comment analysis—collected and analyzed at the patient level.

Outcome Concept Systems appears to be a valuable resource for HHAs interested in distinguishing their organization as a leader in quality.

Reviewed by Barbara Corn, MA

Visiting Nurses Association of America (VNAA)
www.vnaa.org

Key Words: community health services, home healthcare

The VNAA is the official national association for the not-for-profit, community-based home healthcare organizations known as visiting nurses associations (VNAs). The mission of the VNAA is to support, promote, and advance VNAs in their mission to serve their communities. The Web site has multiple useful information tabs. The "About Home Health" tab contains several sections:

- Choosing a Home Health Care Agency—has a list of questions that you can use to help select a home health agency that will meet the specific needs identified
- FAQs—addresses commonly asked questions that you may have regarding home healthcare
- For the Caregiver—helps the caregiver determine whether home healthcare is needed

- Resources—lists resources for caregivers (links to American Red Cross information and government agencies, associations, and general resources)
- Services Provided—lists services a VNA can provide in the home and their health promotion services
- What Is VNA?—reviews the historical perspective of VNA and the services provided
- Who Pays?—reviews the payer types and criteria for payment.

One section of the Web site helps the user locate a VNA in the home city and state. The site also has information to help the provider or consumer navigate through home healthcare needs and questions.

Reviewed by Barbara Corn, MA

Delmarva Foundation
www.delmarvafoundation.org

Key Words: home healthcare, outcomes

Delmarva is a not-for-profit corporation dedicated to customer satisfaction and the public good. Delmarva's mission is to improve health in the communities it serves. The Web site is designed to give easy access to information, with pages designed for caregivers, consumers, and providers. Users may sign up for e-mail updates by adding their name to an e-mail list.

From 2000 to 2002 Delmarva was the lead quality improvement organization (QIO) for a five-state pilot project to conduct outcome-based quality improvement (OBQI) in home health agencies. The OBQI system measures the outcomes of patients who have received home healthcare and provides methods of support to home health agencies to improve care in a measurable manner.

From 2002 to 2005 Delmarva was the home healthcare QIO support center for the national implementation of OBQI. Delmarva maintained the OBQI Web clearinghouse www.medqic.org. The Web site is now maintained by Quality Insights of Pennsylvania. On the MedQIC site, the user can access the Plan of Action (POA) tool by secure log-in only. The OBQI is a nine-step process: collect Outcome and Assessment

Information Set (OASIS) data; measure patient outcomes; interpret outcome reports; specify target outcomes; investigate care processes; identify problems, strengths, and best practices; develop an action plan; implement the action plan; and monitor the action plan.

The Web site has valuable information in the area of home healthcare. It provides additional resource information on projects and topics related to the Center for Medicare & Medicaid Services.

Reviewed by Barbara Corn, MA

Medicare—Consumer

www.medicare.gov

Key Words: consumer advocacy, home healthcare, Medicare

This site offers a variety of information on home health for the consumer. The site is the official U.S. government site for people with Medicare coverage. The main page of the site is Medicare Spotlights and contains current Medicare news. The user will find information on Home Health Compare (www.medicare.gov/HHCompare/Home.asp), Medicare and home health, and publications (www.medicare.gov/Publications/Search/Results.asp).

The site for Home Health Compare lists detailed information about Medicare-certified home health agencies (certified as of January 2003). The site contains demographic information and quality measures (four measures related to getting around, four measures related to meeting the patient's goals for activities of daily living, two measures related to patient medical emergencies, and one measure related to improvement in mental health).

The user can search the site geographically or by name and then by services required (nursing care, speech pathology, physical therapy, medical social services, occupational therapy, and home health aide services). After the provider is selected, the user can then view how the provider scores on the selected quality measures. The percentage score can be compared with state and national averages. The user can also graph the quality results.

The Publication *Medicare and Home Health Care* (www.medicare.gov/Publications/Pubs/pdf/10969.pdf), available on the site, explains Medicare home health coverage.

Reviewed by Barbara Corn, MA

Medicare—Professionals, Consumers, and Government

www.cms.hhs.gov/provider/hha

Key Words: government regulations, home healthcare, Medicare

This home healthcare resource site is part of the official Centers for Medicare & Medicaid Services (CMS) Web site. A search for home healthcare information will lead the user to a variety of resources: Home Health Quality Initiative, Independence Demonstration, Home Health Web page, Prospective Payment Systems (PPSs), and Deficiency Home Health reports.

Medicare pays home health agencies (HHAs) under a PPS. Under the payment system, Medicare pays higher rates to HHAs to care for those beneficiaries who have greater needs. Payment rates are based on relevant data from patient assessments conducted by clinicians that all Medicare participating HHAs are required to submit.

The home health rates are updated annually by either the full home health market basket percentage or by the home health market basket adjusted by Congress. CMS establishes the home health market basket index, which measures inflation in the prices of an appropriate mix of goods and services included in home health services.

CMS is also proposing to adopt revised core-based statistical market area definitions as announced by the Office of Management and Budget. These market area definitions are used to set payment adjustments to reflect variation in costs across geographical areas.

Reviewed by Barbara Corn, MA

Help Identify and Review Sites

The *JHQ* team invites you to help identify and review Web sites. A review consists of the name of the site or sponsoring organization, a URL reference, key words, the intent of the site, and comments about ease of navigation, value, pertinence to the healthcare quality professional, timeliness, and cost, if any.

Please forward—via e-mail—questions, sites for review, or, better yet, sites with reviews, to Quality NETwork co-editor Robert Rosati at robert.rosati@vnsny.org.

Robert J. Rosati, PhD, is director of outcomes analysis and research at the Center for Home Care Policy and Research, Visiting Nurse Service of New York, New York, NY. His e-mail address is robert.rosati@vnsny.org.

Daniel van Leeuwen, MPH RN CPHQ CHE, is director of professional and community standards at St. Peter's Addiction Recovery Center in Guilderland, NY.