

Knowledge Continuity Management In Healthcare

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ABSTRACT:

The healthcare industry is facing a looming shortage in healthcare professionals due to high employee turnover, transfers, retirements and lack of available trained employees. One approach to address this growing problem is through knowledge continuity management.

Continuity management is the efficient and effective transfer of critical operational knowledge from transferring, resigning, terminating, or retiring employees to their successors.

Continuity management can provide cost savings and improved productivity which is critical in the current competitive healthcare market. This paper will apply the principles of knowledge continuity to the healthcare industry with an emphasis on nursing care. It will provide procedures to increase operational knowledge resulting in reduced turnover, and improved patient care.

Introduction

One of the major challenges facing organizations today is the loss of knowledge when employees leave the organization. The particular criticality of this issue in health care is highlighted by the following scenarios: the 52 year old CFO with eight years tenure at an integrated health system dies unexpectedly of a heart attack while skiing, the Vice President of Nursing Services retires at age 65 after working in the same hospital in various positions for 33 years, the Director of Psychiatry for the past five years resigns with two weeks notice to assume a job in a state with lower malpractice insurance rates. Each of these scenarios represents the loss of one of the most important assets for any organization - knowledge. In today's economy, knowledge is the key resource (Drucker, 1997). Essential for improved productivity (Drucker, 1991), it must be considered and managed as an asset for all industries. Since the health services industry is the largest industry in the U. S. economy, providing 12.9 million jobs in 2002 (Bureau of Labor Statistics, 2004), the stakes are even higher for successful management of knowledge.

Hospitals have one of the highest cost intensive labor operations represented by their employment of 41% (Bureau of Labor Statistics, 2004) of all of the healthcare workers. In addition, the increased use of advanced technologies in healthcare services has necessitated the employment of increasingly sophisticated and trained knowledge workers (Drucker, 1997). Therefore these labor expenditures are concentrated in knowledge workers who are highly trained and who require "just-in-time" training and education to maintain their skills. This represents a tremendous investment in intellectual capital for the hospital industry.

Since the 1990s, organizations throughout the world have begun investigating and applying principles of knowledge management in order to protect their intellectual assets and

investments (Choo & Bontis, 2002). This is also true of healthcare organizations that have the additional goals of improving patient care and decreasing medical errors (Davenport & Glaser, 2002). Knowledge management is the intentional application of processes and procedures that enhance the production, codification, and dissemination of knowledge throughout an organization for the purpose of achieving competitive advantage. As the pressures on hospitals mount to increase productivity and decrease cost, the management of their knowledge resources is essential (Drucker, 1997; Wickramasinghe et al, 2004).

When viewed within the current context of personnel shortages in hospitals, the use of techniques to protect organizational knowledge becomes increasingly important. There are currently shortages of physicians in critical care (Angus et al, 2000) and anesthesiology (Schubert et al, 2001) and predicted shortages in multiple physician subspecialties within the next ten years (Cooper et al, 2002). Additionally, a survey commissioned by the American Hospital Association in 2001 identified shortages of imaging technicians, pharmacists, and laboratory technicians (American Hospital Association, 2001). Of more concern than the shortage of these allied health providers, is the nursing shortage, characterized by many as a nursing crisis (American Hospital Association, 2001; JCAHO, 2002; Bleich et al, 2003).

Nursing represents healthcare organizations' single largest labor expense (63%) and by volume its largest repository of institutional knowledge (PriceWaterhouseCoopers, 2003). There are currently 126,000 vacant nursing positions in the U.S. (American Hospital Association, 2001) with this predicted to rise to 400,000 by the year 2020 (Beuerhaus et al, 2000). The shortage of nurses is the result of restricted nursing program enrollments (shortage of nursing school faculty), job dissatisfaction, an aging nursing workforce, and an increasing demand for nurses among other reasons (Health Forum Hospital Statistics, 2001). These shortages are compounded by the mobility of today's workforce and the high turnover rates for nursing positions in most hospitals (American Association of Colleges of Nursing, 2004). The lack of personnel and turnover in nursing results in significant knowledge losses as well as losses in investments and productivity for most hospitals. This translates directly into costs.

In most industries the cost of job turnover (including hiring costs, training costs, and productivity losses) is conservatively estimated at 25% of the employee's salary (Nobscot Corporation, 2004). In nursing, the turnover cost is approximately 100% (VHA, 2002) of a nurse's salary (this includes costs of temporary staffing as patient care must continue). The nursing turnover rate is approximately 20% (VHA, 2002). There are 1,300,323 nurses working in hospitals in the U.S. at an average salary of \$47,579/year (American Nursing Association, 2004) making the cost of turnover to the industry a staggering \$12.3 billion dollars per year. On a smaller scale a hospital employing 500 full-time R.N.s would have yearly nursing turnover costs of \$4.75 million dollars.

The losses in this area aren't just financial: wards are governed by nursing procedures. For example, the nursing report transfers knowledge of patients from one shift to another, from one ward to another. The Joint Commission on Accreditation of Healthcare Organizations (JCAHO) surveys hospitals on adherence to standards of care. These standard operating procedures are established by the community of practice in which the healthcare organization operates as well as those established by the organization itself and usually fall under the purview of nursing. The loss of organizational knowledge with each employee departure compromises the productivity and efficiency of the clinical care provided within the institution. Any efforts to retain employee knowledge within the organization for transmission to the employee successor can minimize losses and improve productivity, satisfaction, and quality of care.

There are currently a number of efforts being made on a national scale to address the nursing crisis detailed above. This paper is not intended to comprehensively address or provide solutions to the overall nursing crisis. Rather, the nursing crisis provides an illustrative backdrop for discussing and understanding the role of knowledge management in healthcare organizations and how knowledge management can be used mitigate the effects of job turnover and employee losses.

Hospitals can work to retain the knowledge that nurses (or other departing employees) have within the organization and more rapidly and completely transfer this knowledge to employee replacements, thus reducing the direct, indirect and opportunity costs of nursing turnover. An effective method for such knowledge retention is knowledge continuity management. Knowledge continuity management (KCM) is the “efficient and effective transfer of critical operational knowledge—both tacit and explicit, both individual and institutional—from transferring, resigning, terminating, or retiring employees to their successors in the service of knowledge creation” (Beazley et al, 2002). Other articles that discuss knowledge continuity management can be found in (Carey, 2003; Beazley et al, 2003; Field, 2003). The major focus of this paper is the application of knowledge continuity management to nursing care.

Application Of Knowledge Continuity Management To Nursing Care

Knowledge management is the systematic process of creating, maintaining and nurturing an organization to make the best use of knowledge to achieve sustainable competitive advantage or sustainable high performance (Davenport & Prusak, 1998). Knowledge continuity management focuses on operational knowledge to be transferred to new employees. Operational knowledge is a subset of organizational knowledge and includes network, systems, process, cultural, cognitive and skills knowledge--all critical for job function and performance. By enhancing the transfer of operational knowledge through the KCM process organizational knowledge is maintained. There are a number of organizational benefits to KCM such as decreasing job turnover costs, increasing organizational effectiveness, improving training for new employees, facilitation of organizational learning, speeding the maximal productivity of new employees, and improving the decision making and decreasing the process errors of new employees.

The following six steps for knowledge continuity management (Beazley et al, 2002) can be used to address the nursing challenges.

1. Conduct knowledge continuity assessment
2. Determine objectives and scope of the KCM initiative
3. Establish coordination responsibility for implementing KCM
4. Plan KCM initiative including measurements
5. Create a methodology to harvest and transfer the critical operational knowledge.
6. Transfer operational knowledge

Conduct Knowledge Continuity Assessment

The first step is to perform a knowledge continuity assessment. The knowledge continuity assessment process includes the following items: annual turnover statistics, retirement eligibility, extent of knowledge discontinuities between incumbents and successors employees, knowledge loss assessment, linkage of continuity management to knowledge management systems, and extent to which the organizational culture values knowledge and knowledge sharing. The assessment process exposes discontinuities and hopefully will highlight the most critical operational knowledge.

One key tool that is available to hospitals that will be useful in performing a knowledge continuity assessment is the survey by JCAHO. The nursing crisis and the increasing use of the nursing contingency workforce have been cited as having a detrimental effect on the quality of care delivered in hospitals today (American Hospital Association, 2001; JCAHO, 2002). Additionally, staffing levels have been a factor in 24% (Kosel & Olivo, 2002) of sentinel events reported to the Joint Commission as of March 2002. Sentinel events are undesirable outcomes and involve the potential for sizable malpractice awards and compromise of quality of patient care (Kosel & Olivo, 2002). The most common causes (as determined by root cause analysis) for sentinel events (an unexpected death or serious physical or psychological injury) are communication, orientation and training, patient assessment, staffing levels, availability of information, competency/credentialing, and procedural compliance (JCAHO, 2004a). These are all problems directly addressed (and mitigated) by knowledge continuity management.

JCAHO recognizes that these root causes also relate to turnover in hospital staff and has mandated measures of turnover rate, vacancy rate, nursing hours per patient day, and employee satisfaction (American Hospital Association, 2001). These will be measured against outcomes data to determine effect on patient care in future JCAHO surveys (JCAHO, 2004b). The Joint Commission's mission is to continuously improve the safety and quality of care provided to the public through the provision of health care accreditation and related services that support performance improvement in health care organizations. Joint Commission standards set forth performance expectations for activities that affect the safety and quality of patient care—that is, areas in which good performance is likely to lead to good outcomes for patients (JCAHO, 2004c). Standards generally focus on whether the organization is doing the right things and whether it is doing them well. The standards are organized around important patient care and organization functions, and also address important contemporary issues, like pain management and emergency preparedness.

In the development of the standards, the Joint Commission obtains input from medical professionals, health care organizations, consumers and employers. Periodically, the standards are updated to include new developments in health care delivery, for example, emergency department overcrowding and staffing effectiveness. Accreditation and certification are risk reduction activities; compliance with standards is intended to reduce the risk of adverse outcomes (JCAHO, 2004c).

An organization's compliance with standards is measured through the Joint Commission's rigorous on-site survey process which involves an organization's staff and evaluates the quality of care provided by the organization. Hospitals are required to continuously remain in compliance with all standards. Accreditation or certification is not automatically renewed. At the end of the accreditation cycle (three years) or certification cycle (two years), the organization must reapply and undergo another full survey (JCAHO, 2003).

In many ways the preparation for a JCAHO survey constitutes a focused knowledge audit of the health care organization: What does it know? Who knows it? How well is that knowledge

disseminated? Are the recorded procedures the practiced procedures? Much of this survey is focused on nursing practices and processes. Such a knowledge audit could conveniently form the basis for beginning a knowledge continuity management program. A knowledge audit identifies what knowledge exists in an organization, where it can be found, and the nature of knowledge that is needed for employees to be productive. The knowledge audit can delineate the gaps between what the organization knows and what it should know, identify the critical operational knowledge that workers need to perform their jobs, and serve as a record to track knowledge assets over time.

Determine Objectives And Scope Of The KCM Initiative

The project needs to define a clear list of objectives and specific deliverables (Albers, 2003). The deliverables should include specific benefits to the group participating in the pilot program. It is important in the initial phase to start small with a pilot project (Field, 2003). The pilot project should be implemented in the organizational element where the users can strongly benefit from the project. An excellent option for a pilot project would be an intensive care unit and staff. These units tend to be procedure/policy intensive and often require contingency nurses to fully staff. The JCAHO survey process can serve as the knowledge continuity audit. Defining the scope of the initiative is the important second step and circumscribing it to a defined location and group of nurses is critical to initial success.

Establish Coordination Responsibility For Implementing KCM

Picking the right person or team can be the most critical step of implementation. The person or group responsible for implementing the initiative must be identified and must have representation from the business line units. Since KCM crosses traditional silos in an organization, it can be a challenging implementation process and requires a champion who can ensure cooperation and participation. An organizational network analysis can determine the right participants on the project to increase the likelihood of success. The team is going to be responsible for determining the methodology to collect and disseminate the knowledge assets of the organization. Since this depends in part upon IT, individuals familiar with the existing IT structure within each institution should be a part of the team. Automation has been a resource intensive effort for most healthcare organizations over the past twenty years. These assets can be leveraged to bring the right information to the right people at the right time as well as facilitating innovation or development of new knowledge. Collection and storage of the data electronically is the most robust way to obtain accurate, legible and accessible information. As security applications mature, wireless applications will become the most likely avenue for delivering just-in-time information.

Plan KCM Initiative Including Measurements

Once the team and the parameters of the program are identified, the champion and working group dedicated to developing this KCM initiative would then begin planning, focusing the initiative on implementing policies and procedures dedicated to retaining and creating operational knowledge within the unit. This working group must also decide upon metrics to monitor progress and success of the initiative. Metrics might include job satisfaction, medication errors, turnover, or time required for a newly hired nurse to be qualified (and what defines "qualified") as a managing nurse.

Create A Methodology To Harvest And Transfer The Critical Operational Knowledge

Next the mechanism for transferring the knowledge to new employees needs to be developed and implemented. This can be done through an individualized knowledge profile. Knowledge profiles should include information that is critical for job performance, critical to productivity and quality patient care, and information that if missing would negatively impact job performance. The complexity of the mechanism can range from the simple to the sophisticated.

Critical information can be collected via questionnaires and interviews structured specifically for the job. The United States Army uses a very simple version of this tool in its Officer Evaluation Report (OER) system. Upon assuming a new job an officer must complete an OER support form. This consists of a job description and then an accounting of those actions the officer expects to complete to meet the requirements of the job description. At the end of the evaluation period a summary of accomplishments is delineated. These forms are often passed from an outgoing officer to his or her replacement and serve as a living history of the position held.

Important characteristics of knowledge profiles are that they are easy to access and understand. They reflect information critical to not only the job but the success of the organization, and that access at least to portions of the information may need to be limited only to select personnel. The profile should include four types of information:

- key operating data (statistics, reference tools, and information sources),
- basic operational knowledge (job objectives, activities and functions, reports),
- key operational knowledge (projects, hot issues, key personnel),
- background operational knowledge (skill sets, performance evaluations, knowledge network information).

KnowHow, Inc. (KnowHow, Inc., 2004) offers a sophisticated automated version of this which in many cases can be back-ended onto existing medical informatics or clinical database systems. In doing this, a newly hired ICU nurse would have a profile on her hospital network unique to her, but with a job description common to ICU nurses. Activities of her job may reflect benchmarked activity levels derived from all ICU nurses (if she is a new hire) or may be those of whomever she replaced if she is a replacement hire. As this ICU nurse gains experience in her unit, her profile would more gradually reflect her actual work-load and activity. Lessons-learned, contacts, video, medications given, charting and direct care hours can all be stored in and accessed from the profile either through a network workstation or by hand-held PDA. This profile becomes in effect a contextual and multi-layered job description which would be available for her replacement, should that need arise.

It is important to note that this profile should contain primarily operational knowledge; it is not a reiteration of the medical knowledge learned in nursing school. That knowledge is assumed based on the fact that the person has been hired into a nursing position. Specialized procedures and processes may be effectively included in the profile. It is also important to include a mechanism for updating the profile so it stays current and relevant. Sophisticated learning systems can dramatically ease the daily knowledge capture process, but the initial development

of the appropriate knowledge profile can be detailed and arduous (Beazley et al, 2002). Once the profile is developed it should be useful for each nursing position in the ICU and could also be used as the initial template when the program is expanded to include other nursing personnel. Successful profile development, implementation and maintenance is strongly linked to automation; the more integrated the healthcare organization's IT infrastructure is, the more agility the organization has in leveraging its intellectual assets for knowledge creation.

Transfer Operational Knowledge

The knowledge profile once created must then be effectively transferred to new hires. The principles of knowledge transfer and acquisition (Beazley et al, 2002) include the recognition that knowledge is personal. The profile creates opportunities for knowledge exchange from old to new hires as well as from the new hire to the organization. Knowledge in organizations is either tacit (knowledge within a person's head) or explicit (codified in some manner). Explicit knowledge is made tacit through internalization. A nursing student reads about starting an IV, watches while several are started, and then, gains tacit knowledge through practice. Tacit knowledge is more amenable to transfer through face-to-face interactions. However, the knowledge asset is complex and simply cannot be categorized because knowledge may also be embedded—or not easily transferable when team members leave. Knowledge can also be robust (such as in data bases), meaning it may not be lost despite turnover in an organization. Despite the complexities, mechanisms to transfer as much organizational knowledge as possible to new employees improve productivity and organizational morale.

Tacit and explicit knowledge will be transferred in the profile and knowledge creation should be one of the goals of the process. Though the profile may be housed on IT equipment it is critical that this is a people-centered, not technology-centered process (Beazley et al, 2002). This will be evident if the transfer of knowledge is driven by employee pull rather than employer push (demand vs. supply).

Additional mechanisms of knowledge transfer that are important to continuity management include mentoring and dedicated sponsorship of new hires by experienced R.N.s. This is particularly critical for recent nursing school graduates. This should be intensive for the first two weeks, with regular meetings through six months, and quarterly thereafter for the first two years in the healthcare organization. Skilled nurses should receive sponsorship at a minimum. A sponsor is dedicated to ensuring knowledge transfer occurs.

Another way to foster knowledge sharing is to develop communities of practice. Communities of practice are groups of people who are drawn to each other for a common purpose. They get together to share their existing knowledge, create new knowledge, and apply their collective knowledge to increase their capabilities. Communities of practice provide an opportunity for learning and a platform for innovation among its members, and are one of the most effective ways to share and transfer tacit knowledge. Practical approaches for leveraging communities of practice in organizations are given by Saint-Onge and Wallace (2003). Communities of Practice are a method of information sharing and problem solving that is dependant on the interaction that is the basis of knowledge continuity.

Participation in all of these knowledge sharing activities should be required and rewarded. It is important to include participation measures on evaluations to highlight their organizational importance.

Concluding Remarks

The healthcare industry is aware of a looming shortage in healthcare professionals. The Joint Commission has recognized that processes and procedures in healthcare facilities which facilitate communication and learning are important for avoiding errors in medical management. Also critical to this error avoidance is having adequate and well-trained staff. Deficiencies in any of these areas may result in sentinel events and compromise quality of care and accreditation.

Knowledge continuity management can aid healthcare executives in bridging the knowledge gap opened when experienced nurses (or other critical healthcare knowledge workers) leave. Bridging this gap can be done through careful attention to establishing procedures which facilitate retention of organizational knowledge. Investing effort in retaining operational knowledge will likely result in improved quality of care, reduced time spent training replacements, enhanced job satisfaction, reduced turnover (and its incumbent financial drain), and increased productivity.

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