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A Multidisciplinary Financial Education Research Project

Executive Summary

- Many health care leaders realize the impact that practice behaviors can have on the cost of delivering patient care without compromising quality.
- The authors describe the assessment, interventions, and impact experienced within one institution that targeted financial educational efforts to nurses, pharmacists, and residents.
- This study involved an assessment of baseline financial knowledge regarding charges, reimbursement, and regulatory issues prior to implementing several initiatives.
- Educational information regarding financial issues was discussed in the hospital newsletters, a new employee orientation video, and self-learning modules.
- Another initiative focused on reducing the number of supplies provided to patients at discharge by educating nurses on the community resources available to help patients after discharge as well as the financial impact of supply use.
- Financial knowledge improved slightly over the study period, as did documentation for patient charge items.

THE HEALTH CARE environment continues to undergo constant change, characterized by competition, fluidity, and fiscal constraints. These conditions drive hospitals and health-related institutions to focus on cost containment and expense-reduction strategies. Although all levels of personnel must be knowledgeable and act with financially responsible behaviors, professional groups such as registered nurses and physicians are expected to be leaders in fiscal activities, but may lack essential information critical to understanding institutional finances. Complex teaching hospitals have the additional burden of trying to instruct students and house officers, who may rotate clinical experiences among a number of different institutions and hold limited understanding of the impact of their daily practice decisions on the institution's bottom line.

Hospitals have addressed these issues by a number of strategies, including communication by letter or announcements, specific feedback to the executive level through financial reports, and increasingly by use of consultants and the hiring of hospitalists, or employee physicians to monitor practice. A Western tertiary teaching hospital funded a multidisciplinary financial education team to implement a project to improve how nurses, resident physicians, pharmacists, and nursing students integrate fiscal knowledge into practice. This report describes how this team evaluated the level of financial knowledge of these selected providers, implemented specific financial education initiatives, then measured outcomes to evaluate the effects on fiscal practice.

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Background

One of the earliest nurse leaders advocating for nurses at all levels of practice to become fiscally knowledgeable was Margaret Sovie (1985), who in a presentation at the first annual *Nursing Economic$* Conference in 1984, suggested strategies to manage nursing resources in conditions of environmental constraint. Blaney (1988) reported that nurses not only had knowledge deficits about health care finances and institutional fiscal functions, but often held negative attitudes toward issues related to cost effectiveness, associating these with staffing reductions, pay cuts, longer work hours, and diminished resource support. These negative attitudes, Blaney (1988) noted, then influence and limit how the nurse incorporates cost-effective behaviors into nursing practice.

While an extensive number of articles related to health care finances and strategies to improve fiscal management were reported from the 1980s through 2000, fewer articles focused specifically on how to help staff become more fiscally knowledgeable. Curran, (1998) in a *Nursing Economic$* editorial, challenged readers to consider what are the areas of learning and development required for staff to achieve organizational effectiveness, including financial measures, as part of these initiatives. Brady, Cornett, and DeLetter (1998) reviewed how staff nurses could reduce costs. A special program called NURSE (Nurses Utilizing Resources Sensibly and Economically) was initiated, which included staff nurse self-instructional cost-awareness posters, inservices, and encouragement to submit cost-saving ideas. These authors found, post education, that staff nurses made a significant difference in reducing unit costs. More recently, Esler and Nipp (2001) described how worker-designed culture change influenced resource utilization on clinical units. While this project's scope extended well beyond financial dimensions, they incorporated education about staff salaries into staffing matrix decisions to include these fiscal accountability and quality considerations.

Although some innovative ideas for financial education, first published in the 1980s and 1990s, are now considered historical literature, some of these articles are still relevant for the current environment. For example, through case reviews, Manss (1993) outlined how nurses at the bedside can make a significant difference in influencing the activities, treatments, and length of patient stay. Manheim et al. (1990) reported on an educational program to train house officers, consisting of two annual programs of lectures, chart reviews, and small discussions. The outcomes of this education were measured by comparing pre and post inpatient charges and length of stay. Interns randomized into the educational sessions reported significantly fewer patient charges and shorter length of stays than interns not receiving the educational sessions. Schaller (1992) described creating a video that featured nine scenarios involving poor documentation and other clinical situations that resulted in loss of revenue, reporting qualitatively that nurses became so engaged in the issues, they contributed further cost-containment strategies, self-reporting better understanding their role in fiscal issues. Anderson and Rainey (1993) described how a newsletter was used effectively to communicate fiscal information to nurses, while Krmpotic and Clough (1993) used a gaming technique, creating a patient scenario and multidisciplinary team competition to win an "outcomes" game. Economic grand rounds, reported by Horstman (1996), was a successful cost-saving mechanism at one hospital, incorporating activity at the nursing unit level through the institution's shared governance structure.

Other reported strategies include using red, green, and yellow "traffic stickers" on types of angioplasty balloons to cue physicians as to costs ("Traffic Light Stickers," 1995), a "cost busters" fair for staff (Norton, 1988), strategies to incorporate nursing students into the cost-containment process (Aroian, 1993), and focus on programs related specifically to specialty areas such as critical care (Hoppe, 1996), emergency (Kirton, Civetta, & Hudson-Civetta, 1996), and operating room (Ludwig-Beymer & Jorgenson, 1996). Recent literature includes reports on staff nurse strategies as outlined by Brady et al. (1998), and focus on the role of the nurse manager in assisting staff to reduce costs while providing quality care, as described by Mayer and Rushton (1998).

While there are fewer articles now currently focused on staff involvement with cost containment, since the emphasis is now on reporting technology-based systems improvements and the political and social dimensions of the health care environment, past literature does contribute to understanding how to engage staff in cost-reduction initiatives.

Project Description

The overall purpose of the project was to improve staff knowledge and performance managing the financial aspects of their specific job responsibilities at the University of Colorado Hospital. Registered nurses, pharmacists, resident physicians, and nursing students received a baseline financial survey questionnaire consisting of general questions on reimbursement and regulatory issues, as well as specific questions on the hospital's charge and reimbursement systems. Concurrently, baseline audit data were collected on certain financial measures. Financial education and specific program initiatives were then conducted over a 2-year period, followed by a repeat analysis of outcomes to measure the effect on the financial indicators. Project details and results will be reported.

Project Research Question

The research question was: Does a multifaceted financial education program directed toward professional nurses, nursing students, pharmacists, and resident physicians improve hospital financial outcomes, as measured by an increase in captured patient charges, improved documentation of services rendered, improved inventory utilization, and decreased materials loss/wastage?

Methodology

A quasi-experimental pre and post design was used to measure the research questions. Financial data were collected by examining financial reports relevant to provider roles, including the review of patient charges recorded, documentation of services rendered, inventory and materials usage reports. Baseline financial knowledge was measured by standard survey methodology using a quantitative questionnaire developed by members of the multidisciplinary financial education team. The financial education questionnaire consisted of 23 generic financial test items common to all subject groups, with additional discipline-specific questions related to that particular subject group's fiscal accountabilities. The questionnaire's content validity was established by use of an expert panel. The questionnaire was considered to be in the development phase in this study, so reliability consisted of exploratory data analysis. A sample of the questions can be seen in Figure 1. Survey respondents were selected by convenience sample. All pharmacists and resident physicians were mailed the survey using standard survey research methods. Registered nurses on four medical surgical units were offered the opportunity to participate in the project, since the focus of the project related most directly to these clinical units. Student nurses who had been on rotations at the hospital at the time of the project composed the sample for the student nurses. Figure 2 outlines the project aggregate sample and response rates over the pre and post data collection periods.

Figure 1.
Sample Questions: UCH Financial Awareness Survey

When a managed care organization under contract with UCH decides the amount of the hospital bill that will be reimbursed, they:
a. First determine how satisfied the patient was with the care.
b. Reimburse all patient charges.
c. Examine documentation to deny charges on the bill not recorded in the patient's chart.
d. Verify the need for hospitalization and pay a set amount, whatever it costs.

If you hear that University of Colorado Hospital is overspending its budget, the hospital could reduce overspending by doing all of the following except:
a. Reducing labor costs.
b. Reducing the amount of waste.
c. Raising the prices on patient supplies.
d. Reducing expenses on supplies.

Which of the following fiscal trends reflects the current health care environment?
a. Fee-for-service is increasing and capitation is decreasing.
b. Managed care is increasing and fee-for-service is decreasing.
c. Fee-for-service and Medicaid reimbursements are both increasing.
d. Managed care is decreasing and capitation is increasing.

Figure 2.
Survey Sample

Personnel Type	Sample	Respondents	Percentage Response
RNs	163	54	33%
Pharmacists	38	22	58%
Resident MDs	128	104	81%

The baseline survey questionnaire data were collected and reviewed, with results indicating respondents held low levels of financial knowledge. Educational and financial activities were then initiated as the study intervention.

Financial Initiatives

The financial team developed a variety of initiatives to target knowledge deficits. A logo was created and used as a symbol for identifying financial articles published quarterly in the hospital newsletters. While this type of communication assisted in overall team recognition and general knowledge dissemination, other targeted interventions proved to have a more significant impact on the system.

Discharge supply review group. One of the financial team members initiated a subcommittee to address the institution's problems related to discharge supplies. At the time of this project, the type and amount of supplies given to patients were

Figure 3.
Discharge Planning Diary

Dear Diary,

In my last entry I mentioned that there were codes on every patient's blue ID card that indicated her/his type of coverage. This information really impacts what I need to do to prepare patients for discharge. For example, remember Mr. Doe? Cleaning out a drawer, in preparation for the upcoming JCAHO visit, I found a photograph that we took of all the supplies we sent home with him last time. It was enough to last a whole month.

He's back with us again, but this time I notice the "H" on his ID card. An "H" means that he is a member of an HMO that may cover many of the supplies he will need if his family orders them through an approved vendor. Therefore, we only need to send 2 day's worth of supplies.

I am continuing to provide good patient care by educating him and his family about the many area vendors who carry the supplies he needs. By referring them to a case manager when they have questions for which I don't have the answer, I am helping him and his family to feel in control of and more comfortable of the new processes.

Well, Diary, gotta go.

not carefully monitored. With many of the hospital's patients discharged to remote rural areas, nurses were concerned patients would reach home without access to supplies for wound dressings, ostomy bag changes, and other essentials. Patients were often discharged with large plastic trash bags filled with supplies not charged to the patient. The Discharge Supply Review Group initiated the Discharge Diary, a monthly "newsletter" for the inpatient units, written in the nurse's voice, as if a nurse were writing of his/her experiences learning new information about discharge (see Figure 3). A particularly successful issue contained a photograph of the pile of supplies usually given to a patient with the items costed out and an adjacent photograph of what is the preferred amount of supplies and costs, showing the reduction of materials to represent a $520.26 savings for this single discharge. This example, although representing modest fiscal savings, reinforces what Caroselli (1996) noted, that inefficient use of supplies can add as much as $1.6 million to a hospital's budget. The "discharge diary" was discussed at staff meetings and posted. Nurses also learned about the many rural resources in place, such as the rural visiting nurse agencies, through presentations by case managers, to alleviate concerns about lack of support.

The Discharge Supply Review Group compiled and published a resource guide of area vendors for durable medical equipment, including addresses, phone numbers, hours of operation, and type of patient coverage accepted. This was shared with case managers, social workers, and discharge planners, as well as unit-based copies distributed for use by off-shift and weekend staff.

Educational self-learning module. A second subcommittee, led by a team member who is an education specialist, facilitated development of a financial education self-learning module, which was piloted on pharmacy subjects. While this module positively influenced pharmacy pre and post scores, it became clear how rapidly the content became outdated as the fiscal environment changed. This module could potentially demonstrate greater impact if used as on-line computer instruction, since computerized instruction would permit more timely updates than paper and pencil methodology.

Financial orientation video. A third significant initiative of the Financial Education Team members involved creating a financial orientation video to be used at new employee hospital orientation. Featured in this video were presentations by the hospital president and CEO discussing why cost-efficient practices are so important to the hospital's future viability. Also shown were vignettes of employees at work in various departments acting in ways that enhance fiscal accountability. This video is now shown as a segment of content in a course sponsored by human resources called the Budget Game. It was used for re-orientation of current employees as well.

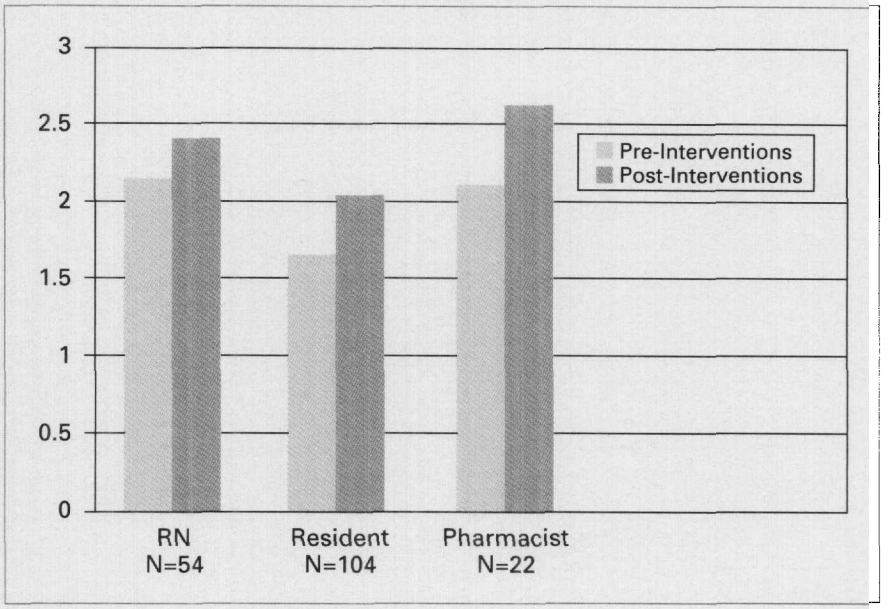
Additional initiatives involved purchasing a financial software program for nursing leadership, and publishing a one-page, two-sided financial newsletter mailed directly to resident physician homes, with updates on hospital financial initiatives such as changes in hospital pharmacy policies. Although this house staff newsletter proved expensive, with mailings to over 600 residents, it proved to be the best method for ensuring information directly reached this group, due to rotating service schedules.

Results

Data reported all subjects had improved knowledge of the financial aspects of care delivery post interventions. Figure 4 illustrates the improvement in scores on the knowledge survey. Results are not reported for BSN students due to low response rate. Statistical t-test procedures between pre and post registered nurse subjects did not report significant changes. However, physician subjects showed significant improvement (t=3.34, p=<.001), and the pharmacists reported significant improvement in financial knowledge (t=2.40, p=<.021). However, subjects still held a very low level of financial knowledge, with mean scores ranking below 3.0 out of a possible 5.0 on the post knowledge survey questionnaire. Subjects also improved self-reported perceptions of how well the hospital was doing financially (see Figure 5). Pharmacy subjects reported the most improved scores. This group was the most stable and easy to track for followup, as well as the group that piloted the self-learning module. Other groups constituted a less-reliable sample since residents rotated to other services and institutions, student nurses graduated, and the institution experienced turnover affecting the nurse sample.

Educating staff on the importance of proper documentation of patient charge items improved patient charge outcomes, with audited records showing improvement in the area of captured correct patient charges. The total dollars of post-discharge incorrect charges significantly decreased from $662,875 at the baseline of project inception, to $242,879 post project measurement, during the specific time periods of measurement.

Figure 4.
Self-Rated Financial Knowledge



p=.05

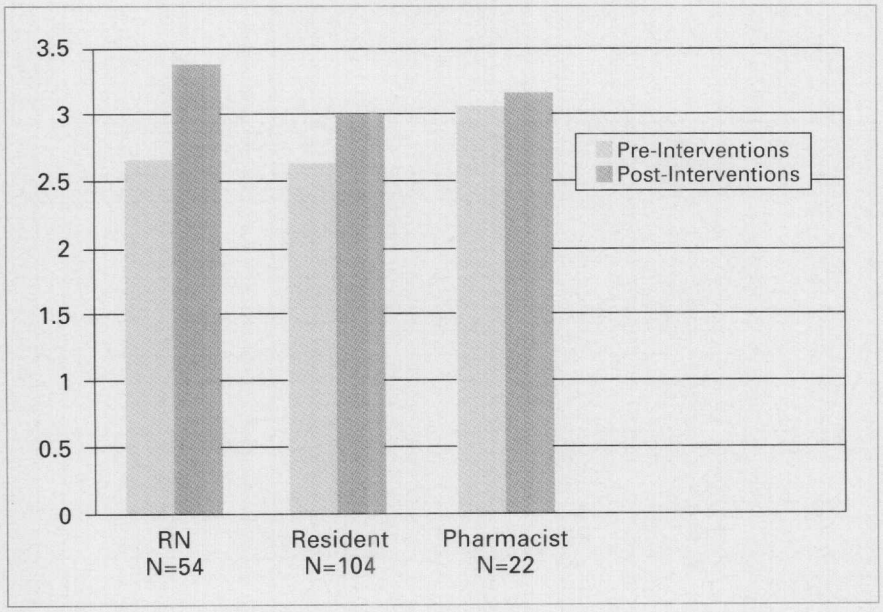
Analysis

This project attained some successes in improving employee and student understanding of health care environment changes and how to appropriately respond to mandates for improved fiscal responsibility. The secondary gains of employee exposure and awareness of fiscal initiatives, while not quantifiable, contributed to improving employee response to the constant and rapid institutional changes that resulted from the health care market in the region moving from a low degree of managed care to a highly penetrated market, in a very short period of time. Limitations of the project included a lower post data collection response rate and tracking difficulties of RN respondents over a 2-year period due to turnover. Smaller, more contained subject sample groups, such as pharmacists, proved an easier sample population to educate. Audit data proved challenging to collect since the hospital changed auditing company contracts in the 2-year project period, which altered how data were analyzed and reported. Materials management also changed in the 2-year period which changed how items were coded in the system, complicating tracking improvement over time. The Discharge Diary proved popular with nurses, as well as the brief articles in the hospital's weekly newsletter. Since this financial education project was funded through a research grant provided by the hospital, the costs and benefits of the project cannot be analyzed in the same way if the project had been initiated without this support. Many of the activities, such as the Discharge Supply Review Group, were budget neutral and resulted in positive and sustained practice changes within the institution.

Summary

While the survey data showed the subjects' financial knowledge improved, the degree of change was incremental. Since consistency of subjects over a 2-year period was challenging, the post measurement included subjects who had not been a part of the original sample, a limitation of the study. Targeted educational interventions proved quite successful, particularly the Discharge Supply Group, the financial video, and the resident physician newsletter.

Figure 5.
Perception of Hospital's Financial Status



p=.05

Initiating projects to improve employee financial awareness can produce positive outcomes, tangibly in the form of newsletters, e-mail communication, videos, and self-learning modules as well as intangibly by supporting the reframing of nurses' perceptions so the limitations as described by Blaney (1988) do not occur. A multidisciplinary project can provide a mechanism for bringing together many disciplines to support one another to meet the challenge of helping all providers incorporate fiscal knowledge into practice. Educating employees, physicians, and others interfacing within an institution about the financial aspects of patient care is a continuous activity, particularly since the majority of practicing health care providers have not had this type of education as a part of their basic preparation for practice. Although advancements in information systems begin to provide automated cues for fiscal expenditures online, nurses will continue to be required to exercise decision making regarding how practice and care are delivered in a cost-effective manner.

Since this multidisciplinary project, our institution moved rapidly to implement increased standardization in a number of areas related to fiscal accountability. The timing of this project served to prepare nurses and other disciplines for that next generation of change, provided an opportunity for them to engage in thinking about and discussing the financial dimensions of care, and improved awareness of their professional accountability for the fiscal success of the hospital.**$**

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