CE

Planning Ahead for Better Outcomes
Preparation for Joint Replacement Surgery Begins at Home!

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For 15 years, a small community hospital has sent registered nurses into the home to do a preoperative visit with patients planning joint replacement surgery. These visits help the patient by providing a better understanding of what to expect from the preadmission visit through the recovery period. It also ensures a safe environment for the recovery process whether at home or alternative environment with family/friends or at a short-term rehabilitation facility. Its success in patient and nurse satisfaction has not only saved it from cost cutting measures but also allowed it to expand over the years to include follow-up home visits and now includes patients undergoing shoulder replacement. This was a great undertaking for a hospital of this size in 1993 and is one of the few, if not the only, such home visit programs in Massachusetts, doing both pre- and postoperative visits, funded by a hospital, utilizing nursing hours.

Jordan Hospital (JH), in Plymouth, Massachusetts, has been doing preoperative home visits on its patients scheduled for joint replacement surgery for 15 years and postoperative visits for 4 years. Obviously, it has proven well worth the investment of nursing hours as JH has not only continued but also expanded this service despite the need to continually seek ways to reduce spending. These home visits began in 1993 as the nursing department collaborated with orthopaedic surgeons to provide a better overall surgical experience for their patients. These visits are now accepted by both nursing and medicine as a standard of care and part of the JH Joint Replacement program for all hip or knee replacements. This program has been expanded to include shoulder replacement.

Background

The average length of stay (LOS) for an orthopaedic surgery patient was 5–7 days in the early 1990s. Even then, there was a need to reduce the cost associated with this hospital stay. It has also been long understood that patients learn better when they are less stressed and in a comfortable environment. Patients planning knee or hip replacement need to have a good understanding of the limitations that will be necessary during their recovery period to promote healing and prevent complications. Another factor that plays an important role in the recovery for these patients is the safety of their home environment and changes that may be necessary in the home to ensure safe mobility. The inclusion of family members, or others who will provide support after surgery, helps ensure that the patient and all caregivers are on the same page and have all the necessary information.

Education has always been part of the nurse's role, and when related to surgery, it is usually done during a preadmission visit or postoperatively. Neither of these venues is as conducive to learning as the home setting. Historically, most preoperative teaching has been done through written material (Johansson, Nuutila, Virtanen, Katajisto, & Salanterä, 2005). Although written material is a valuable tool, as the patient can refer back to it later, it does nothing to develop a relationship between the educator/caregiver and the student/patient. Nor does this allow for the patient to ask questions or the nurse to assess the effectiveness of the education. In a study by Giraudet Le-Quintrec et al. (2003), preoperative education was shown to reduce anxiety in a sample that comprised orthopaedic surgery patients, and these patients were also able to stand sooner and experienced less postoperative pain.

History

Jordan's chief nursing officer (CNO) and vice president of patient services spearheaded the development of this program. She was looking at ways to shorten the LOS for this group yet maintain or improve the overall outcomes. The preoperative home visits were the result of this endeavor. The plan was to have nurses familiar with the recovery process, including the patient's physical limitations, do a home visit prior to surgery. Such visits would allow for patient education and assessment of the home and of any safety concerns that could have a negative impact during the recovery period. At the same time, the surgeons worked with nurses to initiate a

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The authors have no significant ties, financial or otherwise, to any company that may have an interest in the publication of this educational activity.

clinical pathway for these patients (C. Dilliplane, personal communication, November 14, 2007).

The CNO worked with the nurse manager of the orthopaedic unit and brought the rough draft to administration for approval. They touted the anticipated savings due to the decreased LOS, which would cancel out the costs of running the program while, at the same time, improving patient outcomes. Once the program was approved by administration, the nurse manager took charge of implementation.

> …the home visit program was clearly ahead of its time, for a community hospital to bridge the continuum of care in that way…. The program began in 1993 and in that era organizations were struggling to manage care costs by reducing length of stay, standardizing care interventions to improve clinical outcomes, and smooth care interfaces across the continuum of settings. It was a very innovative concept (credit due to our CNO) which helped us achieve all three of those objectives. Getting the staff involved early on helped bring success to the joint replacement program and the home visit component really provided a particular focus on patient safety (C. Murphy, personal communication, February 12, 2008).

The funding for the home visits (nursing hours and mileage) comes from the orthopaedic unit's budget. It is not a common practice in Massachusetts for hospitals to fund such a program, using nursing hours for home visits, to improve patient care across the continuum. Other such programs exist but these are managed by visiting nurse agencies (VNAs). These agencies are able to bill for this visit, and it often results in the patient choosing that agency for postoperative care.

Henderson was chosen as the nursing theorist for the division of nursing at JH. Therefore, when new ventures are proposed, her concept of the unique function of the nurse is always kept in mind. Henderson (1997) states:

> The unique function of the nurse is to assist the individual, sick or well, in the performance of those activities contributing to health or its recovery (or to a peaceful death) that the person would perform unaided given the necessary strength, will, or knowledge. And to do this in such a way as to help the individual gain independence as rapidly as possible. (p. 22)

Henderson goes on to list the 14 basic needs of all patients and how the nurse meets these. The basic functions include breathing and elimination but also address communicating needs and fears, avoiding dangers in the environment, working to achieve a sense of accomplishment, and learning that promotes health (Henderson, 1997, pp. 34–35). The vision and value statements for the JH's division of nursing include "…care that keeps the patient as the center of our focus" and "…nurses at Jordan Hospital value the individuality of each person throughout their lifespan, across the continuum, with respect and dignity." Therefore, the development of the preoperative home visit program fits well with the JH nursing framework. There is no better place to address the individuality of the patient than in the home setting, where the nurse is able to see the person more as an individual and less as another surgical patient. In this setting, the nurse is better able to assess the individual's physical, emotional, and environmental state, and tailor the education and planned nursing care to his or her needs.

Implementation

Staff nurses on the orthopaedic unit started doing the home visits as a portion of their scheduled hours. This evolved into a full-time registered nurse (RN) position as the Orthopaedic Nurse Liaison (ONL). As these nurses were familiar with this patient population and their postoperative routine and were in on the planning phase of the program, minimal additional education regarding their new role was necessary. Benefits were noted immediately by the nursing staff, and patients had only positive comments regarding these home visits. The assessment sheet has undergone a few revisions since then, but overall, the preoperative visits are still running as planned.

Evolution of the Program

In 2004, follow-up visits by the ONL were added, as it was felt that there was a need to complete the loop, ensure a smooth transition to the home, and assess the patient's postoperative status. The chief of orthopaedic surgery was the driving force behind this change. This addition includes a postoperative inpatient visit, a second visit at the short-term rehabilitation (STR) facility (if applicable), and a final visit occurs after the patient returns home. This provides an opportunity to check on potential problems such as assessing the wound, pain control, gastrointestinal problems, and current medications including warfarin (Coumadin) dosing. Safety factors are again addressed, such as verifying the patient's ability to maneuver within the environment and whether or not the recommended durable medical equipment (DME) has been obtained.

Another orthopaedic surgeon who took part in developing the program has witnessed its success and commented:

> The home visit program in conjunction with the Joint Replacement Pathway has added a valuable dimension to patient care. It extends the reach of patient education, to the home setting and personalizes the process by customizing the assessment and teaching process. It allows for anticipating and meeting the unique needs of each patient and provides that "personal touch" that is so much appreciated by my patients. It is a very special part of the Jordan Hospital Joint Replacement Program (J. Zabilski, personal communication, January 10, 2008).

Orthopaedic Nurse Liaison

The ONL role begins when the patient is booked for surgery. The nurse makes a phone call to explain the program and arrange for the home visit. During the preoperative visit, the nurse educates the patient and family on what to expect during the surgical and recovery

experience. This includes the preadmission visit, surgery itself (from preoperative holding area, through the operating room and recovery area, to admission as inpatient), pain control, physical therapy, and a potential for transfer to a rehabilitation facility and/or having VNA services at home (see Figure 1).

The nurse also assesses the patient's support system and safety risk factors in the home. She looks at the number of stairs, height of the bed, toilet seat, and tub, and also looks for safety hazards such as clutter and/or scatter rugs. Recommendations for temporary and/or permanent changes are made accordingly. The recommended changes may be simple solutions such as removing scatter rugs or providing DME such as a raised toilet seats or grab bars. An alternative living situation for the first few weeks may be the suggested solution, if the home has too many unchangeable barriers, to ensure safety during the recovery period. In these situations, patients are often able to move in with family temporarily (see Figure 2).

Occasionally, the initial phone call is met with resistance and suspicion, but after the home visit, a trusting, working relationship has been established among the patient, family, and ONL. The systems theory comes into play here, as the family can be an open or closed system. As an open system, it would continuously interact with other systems in the community, which can be a positive aspect in this situation. As a closed system, however, which is often self-contained and resistant to outside influences and changes, it would be more difficult for the family unit to accept help and work as a team with community resources (Kozier, Erb, Blais, & Wilkinson, 1998, pp. 181–282). The value of patient education is increasing in healthcare, and the patient population is more educated than in the past. This fact was definitely kept in mind when designing the program. Fitzpatrick and Hyde (2006) noted that diversity among nurses related to knowledge level and experience results in unevenness in preoperative education. By having one primary ONL and one designated per diem, the education can be more uniform for all patients. This also makes it easier to update the content when necessary and ensures that the patient will have continuity of care through the pre- and postoperative visits.

FIGURE 1. Orthopaedic liaison nurse doing preoperative home visit with prospective patient.

FIGURE 2. Home assessment includes such things as how many steps the patient will have to negotiate both inside and outside the home and whether or not there are sturdy railings.

Another aspect of patient education to be considered is compliance. According to Anderson and Funnell (2000), our relationship with the patient changes once we give up our agenda and stop trying to make him or her follow our recommendations. People often resist being changed but are willing to make changes when the education is a joint effort that helps them see the need to do so. Therefore, this program functions under the premise that by shifting from a compliance focus, as usually seen in the acute care setting, to that of empowerment and collaboration, the nurse can promote compliance with recommended changes to the home environment.

Pellino et al. (1998) discuss their results when comparing the typical medical versus the new empowerment model of preoperative education. In the medical model, the provider is the primary decision maker, and education is mostly done in the didactic form. Conversely, in the empowerment model, the provider assists patients in developing resources, skills, and gaining knowledge. This new model allows for the patient to feel empowered and have control over his or her life. The experimental group in this study had higher self-efficacy scores and reported feeling better able to perform both pre- and postoperative care. Leino-Kilpi et al. (2005) also discuss how the

empowerment of patients through knowledge has a positive effect on their healthcare quality of life. Most patients and families are very grateful for this education and home evaluation and state that they feel much better prepared for both the surgery and the recovery processes. Families are also in need of education to participate in the recovery process. It is, therefore, also a goal of the program for family members or other caregivers to be involved in the home visits. The success of these endeavors can be seen through patient feedback including the following: "…impressed with the plan … pre-planning for surgery, physical therapy," "The visit was a tremendous help in preparing me and my wife for surgery by suggesting the possibility of renting a hospital bed ahead of time." and "…such a team effort with me as part of the team" (see Figure 3).

The addition of follow-up visits brought a distinct opportunity to observe any patient recovery issues, address them, or bring them forth to the appropriate individuals (VNA, STR, JH nurses, orthopaedic team members, or the orthopaedic surgeons). Despite preoperative education, patients' learning needs continue after discharge. One study reports that patients' postoperative knowledge regarding potential complications and how to recognize the symptoms is the most important topic. This study also ranks physical limitations, appropriate exercises, and medications as topics of concern (Johansson, Hupli, & Salanterä, 2002; Johansson, Salanterä, & Katajisto, 2007). As the preoperative visit addressed expected and potential problems, these follow-up visits allow the ONL to address the actual, patient-specific, postoperative issues (see Figure 4).

All parties involved believe that the communication has greatly improved with the ONL in place. The choice of the title *liaison* reflects the desire to achieve more open and effective channels of communication. It appears that this aspect of the program has been a success as the ONL has triggered some process improvements and positive outcomes. A few patients were found to be taking the wrong warfarin dose. The ONL then collaborated with the orthopaedic clinical leaders in forming a Coumadin Clarification Sheet to ensure that the dosing and monitoring of blood levels was very clear to the patient and/or the family.

FIGURE 3. Orthopaedic liaison nurse doing follow-up visit with an inpatient following surgery.

FIGURE 4. Postoperative patient welcoming the orthopaedic nurse liaison back for postoperative home visit.

As of 2006, all hospitals have been required to have a medication reconciliation process in place. This process has taken place during the home visit since the inception of the program, as the ONL can see and record all of the patient's medications, including the over-the-counter medications and herbals. Also, it was observed that following the minimally invasive total knee surgery procedure, the distal pin sites (used during the procedure to ensure proper alignment) tended to be edematous and reddened and occasionally had drainage. After observing this in enough patients to detect a pattern, the ONL addressed it with the surgeon. He adjusted his technique and altered the site used, and no further problems were noted.

Despite a standing postoperative protocol to prevent constipation, patients were complaining of this problem during the follow-up visits, a week or more after surgery. This information was brought back to the orthopaedic team, which addressed the problem and changed the postoperative medication protocol. Another issue noted and addressed by the ONL was related to pain medication. One surgeon started prescribing a new pain medication for the first two postoperative weeks. The ONL reported that patients were complaining of undesirable side effects (dry mouth and increased constipation), which resulted in another change in the protocol. Therefore, this ONL role has

increased both positive patient outcomes and satisfaction scores while also fostering a greater collegial relationship among the inpatient caregivers, STR and VNA nurses, and surgeons.

When looking back, one of the first nurses to start the home visits reported, "It was a wonderful experience," "I loved it." and "I only wish we had done it sooner." She stated that she was glad to be able to address the education and safety needs of this population. Noting that the program had some limitations in the beginning, she is glad to see that the program has not only continued but also improved (M. Dennis, personal communication, March 11, 2008).

The current ONL stated:

> I have been involved in the program from its inception and have experienced tremendous satisfaction from being able to witness first-hand the benefits the patients receive from my visits. I have seen patients become at ease during my initial visit once they hear my explanation of what to expect with their pending surgery and recovery process and that they will be seeing me again as I follow them as an in-patient, at the rehabilitation facility and/or when they are back at home again. It is particularly satisfying to see the recommendations made on my first visit implemented and know that I played a part in a patient's positive outcome.

Outcomes

Nurses on the orthopaedic unit noted that providing education and making such a personal connection between the nursing staff and the patient preoperatively have made a noticeable difference when the patient arrived on the inpatient unit after surgery. They noted, "…decreased patient pre-op anxiety level … increase in the patients' knowledge and expectations of the recovery process." Although they still did postoperative patient education, they found that patients grasped the material much quicker having heard it before. The nurses found that they were actually doing "more reinforcement than initial teaching" and that "the patients retained the information better." In particular, they noted that patients had "a better understanding of what to expect for pain control options." Overall, this program has created a much smoother transition as the patient progresses along the continuum of care. The report from the preoperative visit, including the patient's support system, DME needs, anticipated discharge plan, and preferred VNA or STR site, is passed along to the discharge planning nurse even before the patient arrives for surgery. This head start on discharge planning is more important now as current, average LOS for these patients has been reduced to 3 days or less compared with 5–7 days prior to initiation of this program.

HealthGrades (2008) reports that JH received the Joint Replacement Specialty Excellence Award, receiving 5 Stars for both total knee and total hip replacements. JH had the best overall average in the state and also is in the top 10% of hospitals in the nation for joint replacements. According to The Delta Group (2006), JH has achieved the lowest complication rate for hip, knee, and shoulder replacement surgery in Massachusetts. The JH marketing department states that the hospital saw a 70% increase in joint replacement surgeries from 2003 to 2005. It is the belief of all involved that the improved communication and subsequent team approach to caring for this population is what has placed JH at the top for Massachusetts and among the top hospitals in the nation for joint replacement surgery.

The physical therapists reported that the home visits have another positive effect, as the home evaluation is done before they meet the patient instead of during the first postoperative visit, and "…that the information from the home visit report is invaluable as it allows us to better individualize the care for that patient, with the specific home layout and safety issues in mind." They reported that patients were impressed by "…the overall togetherness of the program, and how everyone is on the same page." Occupational therapists have noted that patients appeared more receptive to their postoperative education after this program was initiated and credit the home visits by the ONL, which ultimately make the inpatient sessions both flow smoother and more beneficial. They find patients often quoting the ONL regarding the safety issues in their home.

Patient Satisfaction

The word has spread and the news about these home visits has brought many patients to JH who admittedly would have otherwise gone to a local hospital. The nurses involved in the home visits find it very rewarding, as they are able to make the surgical experience a positive one and ease many of the patients' concerns. Nurses' satisfaction increased when the follow-up visits were added to the program. Closing the loop in this way allows for the nurse to obtain feedback at a time when patients are well along the recovery path and are able to assess their overall experience retrospectively.

Personal feedback from patients is also vital in judging the effectiveness of the program and planning for possible improvements. Statements from patients unanimously touted the benefits of the program, how impressed they were with the overall approach, and that they found themselves looking forward to the follow-up home visit from the same nurse (Jones, 1995; Weaver et al., 1994). Other patient comments include

- Have a better sense of what to expect after surgery…
- …a greater comfort level…
- …program was well coordinated.
- …puts your mind at ease without second guessing.
- …allays one's fears of the unknown.
- I was more prepared than for my previous surgery.
- When you have no prior knowledge it's all surprises, this program gets rid of the surprise factor.
- You are setting the patient up for success by coordinating all parties for success.
- It makes the patient feel very well taken care of.

Discussion

The program has been so successful that there has never been any time when administration has considered ending it to save money despite such current trends in healthcare today. In fact, the program has expanded to include patients undergoing total shoulder replacement, knowing that they too will benefit from these visits. The average number of patients undergoing joint replacement per month has increased from 7 in 1993 to over 30 for 2008 and continues to climb. The patient satisfaction scores for the orthopaedic unit have always been among the highest of the inpatient units at JH. Nurse satisfaction is also higher among nurses on the orthopaedic unit, as they feel part of an effective team that has been empowered to deliver better care to their specific patient population. All involved in the program have no doubt that this program not only brings about better patient outcomes but also greatly contributes to overall satisfaction of the nurses providing care and the patients receiving it.

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