Attaining Superior Outcomes With Joint Replacement Patients

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Wanting to improve the quality outcomes of their joint care program, a team approach was used to implement a program with integrated care across the continuum. The authors describe the joint care program and its outcomes that included a decrease in length of stay, fewer complications, improved functional status, higher discharge disposition to home, and lower variable costs per case.

Looking for ways to decrease costs without negatively impacting the quality of care, a 477 bed, not-for-profit community hospital engaged a consultant to recommend opportunities for improvement in the various service lines, orthopedic being one. The consultant report identified a number of areas that could be improved in orthopedics, specifically diagnosis related groups (DRG) 209 (major limb reattachment procedures of the lower extremity). The hospital was losing money on DRG 209; reimbursement was 12% less than the previous year and expected to continue to decrease. Managed care companies were paying a per diem or captitated rate and in many cases reimbursement was less than the cost of the implant. Our average length of stay was 5.5 days for joint replacements; the national benchmark was 4 days. Care for joint replacement patients was fragmented and physician practice patterns varied significantly. Patient, staff and physician satisfaction was below acceptable level (less than satisfactory). Implant choice and costs resulted in more than 50% of the total cost per case for DRG 209. As a financial performer, DRG 209 was targeted by the hospital as one of our worst.

At about the same time, one of our orthopedic surgeons attended a conference on joint replacements. One of the sessions was about a “Joint Camp” program in Maryland, that performed all surgeries on Monday and Tuesday, maintaining a four-day length of stay and used intensive physical therapy (2 private and 2 group sessions per day). The patient care area was a dedicated unit for elective joint replacement patients. The idea of this program intrigued our physician who spoke extensively with the medical director of the “joint camp”. He then visited the site to see exactly how their program operated, why it was successful, and if it was possible to replicate their processes.

After returning from his site visit, our physician knew this type of program would provide an excellent opportunity for the hospital to decrease length of stay (LOS), decrease variable costs, and improve patient, staff and physician satisfaction. He started his campaign to convince the chief financial officer and administration that his proposal to build a separate patient care unit and a comprehensive program would indeed be of value to the hospital.

Our physician’s vision was to develop a plan for a similar program that would blend the “best practices” he had seen with the addition of home care physical therapy. This would allow patients to return home after surgery rather than be transferred to a rehabilitation unit or extended care facility.

We wanted home care to be an extension of the hospital program. This would provide patients with immediate access to rehabilitation services after discharge. The intensity and progression of therapy needed to be maintained and consistent to achieve superior outcomes.

The Task Force

To develop and implement our own joint care program, a quality improvement task force was formed.

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with representatives from home healthcare, physical therapy (acute care), finance, public relations, operating room, nursing, and a physician. Together, the team brainstormed ideas and formulated plans to draft a proposal and business plan for the Joint Care Center (JCC). The task force began to look at ways to streamline processes, decrease LOS, improve satisfaction, improve care across the continuum and develop a therapy protocol and program with “seamless” flow from inpatient therapy through home care. Upon approval by finance and administration of the Joint Care Center in 1997, a program coordinator (physician assistant with master’s in business) was hired and joined the task force. The role of the program coordinator was to assist in developing clinical pathways and order sets, develop an education program, and oversee, facilitate and manage all aspects of the JCC.

Architects and clinical staff assisted with the design and development of a patient care unit specific to the joint replacement population. It was originally anticipated that surface renovations would be acceptable. Our physician’s vision surpassed surface renovation. Instead, a patient care area that provided a “home like” environment was designed. An 11-bed unit (5 semi-private and 1 private) was designed with large spacious rooms for patient and family comfort. American Disability Act (ADA) barrier free bathrooms with elevated shower and toilet seats and a multi-purpose room that would be used for education class, group therapy sessions and patient dining were also included.

**Education**

To make such a drastic change in the practice patterns of physicians and staff and change the expectations of patients, an education component was critical. Standardized clinical pathways, physician order sets and physical therapy protocols were developed with input from physicians, nurses, physical therapy (acute and home care) and other ancillary services. Intensive staff education reviewing all aspects of the program and expectations of the staff occurred for one week prior to the opening of the JCC and is an ongoing process.

To improve patient understanding of the joint replacement procedure and process of the program, an education manual was developed to include information from pre-operative through post-operative care. Exercises were provided with pictures and written explanations. A mandatory education class was established and patients are expected to attend class and bring a “coach” (family, friend) with them to the class. Taught by a nurse, this class is held every Monday morning on the JCC. The format of the class is interactive, the manual is reviewed in detail and the patients and coaches are encouraged to ask questions.

**Pathways**

Clinical pathways are an effective tool for reducing costs by minimizing variation and length of stay. Typically, they focus on the horizontal dimension, the number of days necessary to achieve a given outcome. With shifts toward global payments, discounted per diem rates and capitation, hospitals must also manage the daily resources required to accomplish these outcomes. Vertical pathways are a way to reduce costs by examining resource use day by day within the horizontal pathway. By examining resource costs day by day and case by case, variances among physicians, groups, or across the hospital can be determined. To obtain this data, a separate JCC cost center was set up to improve the ability to closely track costs.

**The Joint Care Center**

In April 1998, the Joint Care Center (JCC) was opened with a mission to provide exceptional care to the joint replacement patient. The initial focus of the JCC was to decrease length of stay, reduce variable costs, evaluate managed care contracts (reimbursement) and increase employee and patient satisfaction. The goal was to build a comprehensive joint care program that was seamless across the continuum.

We decided that the program could be most successful by being accountable for all aspects of care including scheduling, pre-admission testing (PAT), education, autologous blood donation and home care. The unit staff consisted of all registered nurses (RNs) (nurse:patient ratio 4:1), a program assistant, a program coordinator and therapy staff (physical therapist, occupational therapist, physical therapy assistant). The consultant report indicated that surgeries performed later in the week resulted in a longer LOS. We determined that surgeries would therefore be performed on Monday and Tuesday with discharges home on Thursday and Friday. Scheduling was designed as a “one-step” process, ie, every aspect of scheduling flows through the program assistant thus minimizing the possibility of errors. PAT and the education class were coordinated.
so that the patient performs both on the same day for convenience to the patient. The home care pre-operative phone call is made following the education class to answer any additional questions, inform the patient of the home care process and discuss post-operative needs. The Joint Care Center is an excellent example of collaboration between St. Joseph Mercy-Oakland, Mercy Amicare Home Health Care and Brooks Rehab Solutions.

A home care specialist (physical therapist) is necessary to assist with education of staff and to resolve physician and patient home care issues. This person assures all patients receive a home care visit by a physical therapist within 24 hours of hospital discharge. A communication link between the home care specialist and program coordinator is essential in assuring “seamless” care.

Quality tools used include development of progressive clinical pathways for total hip and knee replacements and specific physician order sets that allow protocol progression. The program coordinator, with input from staff and physicians, developed a specific education program that provides information to patients and families on all aspects of care. Patients are given an education manual specific to their type of replacement surgery at the education class. A newsletter that outlines the days activities and nursing care plans is delivered to each patient at breakfast by their nurse. Patient satisfaction surveys (self-developed) are given to every patient on Thursday by the program assistant and collected prior to discharge. Rapid response to customer feedback can be accomplished via this method. These surveys are reviewed weekly by the coordinator and are part of a quarterly report submitted to administration. A phone call is also made to each patient by the nursing staff following discharge. Home care also uses a self-developed satisfaction survey. All patients are given a survey at discharge from home care and it is returned by mail in a postage-free envelope.

Our customer driven goals include simplicity for patients and physicians in scheduling all services related to pre and post-operative needs. A sense of wellness is established immediately after surgery. The staff assist patients up at the bedside the night of surgery and beginning the first morning after surgery patients are up and dressed in regular clothing by 6:30 a.m. Our physical therapy program consists of four sessions daily (2 private and 2 group). The task force initiated the idea of a “coach” program. The “coach” supports the patient through motivation both in the hospital and in home care therapy sessions.

The role of leadership in this program is to empower caregivers, listen to their ideas/opinions, and involve them in decision making and implementation of change. The Gallup 12 scores for leadership are above the 90th percentile for surveyed staff in acute care and home care. The physician champion who is the medical director of the JCC is an integral part of the success of this program at the administrative as well as clinical level. The program coordinator is the key to linking all ideas and facilitating processes. The coordinator also manages the business and clinical operations of the JCC. A Joint Care Council, including physicians, coordinator, finance specialist, and home care specialist, meets monthly to review all data and new or current issues. All decisions related to changes in the program are made through this Council. The RN staff and physical therapy staff were selected for their willingness to embrace change and to provide excellent care and service to all patients and family members. There is a core group of home care physical therapists who see JCC patients; these therapists are familiar with the entire program. Since inception of the JCC there has been no staff turnover of RNs or home care therapists.

**Measurement**

Our target indicators are:

- **Customer Satisfaction**—A self-developed program specific satisfaction survey is given to patients at discharge from both acute and home care.
- **Employee satisfaction**—Gallup 12 survey was completed for both acute and home care staff.
- **Length of stay**—Tracked compared to prior internal data and state (MHA), regional, and national Hip and Knee Registry (HKR) data.
- **Complications**—Tracked and compared to regional and national data (HKR).
- **Number of Home care visits**—Average number of visits patients receive are compared currently vs. prior to the Joint Care Center opening.
- **Discharge disposition**—Tracked and compared to regional and national (HKR) data.
- **National Hip and Knee Registry**—Data Summary (demographics, diagnosis, operation, outcomes, complications, SF-36 (health status), Womac Osteoarthritis score, patient satisfaction).
- **Functional Outcomes**—Literature review and internal system comparison.
Financial Impact—Established a separate cost center and, using TSI (Sunrise Decision Support Manager, Eclipsys Solutions Corp., Boston, MA), actual costs and actual payments were tracked and reviewed with physicians regularly.

Our initial assessment of practice patterns led us to evaluate the data indicators listed above. The methods of analysis varied according to the indicator. Measurements were compared with previous, current, local, regional and national data as available.

Result

857 patients were admitted and discharged from the Joint Care Center from July 1998 through December 2000.

This program has resulted in:

- High patient satisfaction
  Quality of care score (Likert 1-5) = 4.88

- Willingness to recommend the program to others = 100%

- Employee satisfaction
  Gallup 12 scores for acute and home care managers were above the 90th percentile.
  Turnover for acute and home care has been zero since inception of the program.

- Length of stay (Figures 1 and 2)
  32% reduction in length of stay (to 3 days) which has been maintained since inception.
  This gain has been held since inception.

- Complications (Figures 3 and 4)
  Complication rate compared with regional and national data show less than average occurrences. The complications reviewed include deep vein thrombosis (DVT), pulmonary embolus, infection, post-op hematoma and dislocation.

- Number of home care visits

![Figure 1. Average inpatient days, total hip replacement (JCC-N = 857).](image1)

![Figure 2. Average inpatient days, total knee replacement (JCC-N = 857).](image2)

![Figure 3. Complication percentage, total hip replacement (JCC-N = 857).](image3)
Average of 11.96 home care visits for total knees, which is a 20% decrease since inception of the program.

Average of 11.61 home care visits for total hips, which is a 24% decrease since inception of the program.

- Discharge disposition (Figures 5 and 6)
  - 92% of total knee patient’s are discharged directly home from acute care after an average Length of Stay of 3 days
  - 88% of total hip patients are discharged directly home from acute care after an average Length of Stay 3 days.

- Functional outcomes
  - At discharge from home care 100% of the patients full weight bearing (FWB) are independent with ambulation using a cane or without an assistive device
  - At discharge from home care greater than 75% of total knee patients and 50% of total hips patient’s can perform stairs reciprocally.
  - The Joint Care Center therapy program has noted optimal functional outcomes at 6 weeks.

- Financial impact
  - Actual variable costs have been reduced by 52% since opening the JCC
  - Implant costs have been reduced by more than 35% with the most recent decrease based on cap pricing.
  - 3 managed care contracts were renegotiated resulting in a 4-fold increase in reimbursement.

Figure 4. Complication percentage, total knee replacement (JCC-N = 857).

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Figure 5. Percent discharged home vs. rehab vs. other, total hip replacement (JCC-N = 857).

Figure 6. Percent discharged home vs. rehab vs. other, total knee replacement (JCC-N = 857).
The volume on the JCC has increased 71% for total knee replacements and 94% for total hip replacements since the program began. Price per case including home care therapy for the JCC is on average 58% less than conventional treatment.

**Conclusion**

The establishment of a Joint Care program using a diversified task force is a critical step in the development of the program. Results indicate that through integration of acute care and home care there is improvement of the following; patient, staff and physician satisfaction, decreased LOS, increased discharge disposition to home and decreased variable costs for the elective joint replacement patient.

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**References**