

Development of a Regional Clinical Pathway for Total Hip Replacement in a Rural Health Network

Jessica Meleskie and Katrina Wilson

1

Abstract

The Grey Bruce Health Network began developing regional clinical pathways in 2002 (Meleskie and Wilson 2003). The Total Hip Replacement (THR) pathway was one of the first developed. A three-stage pathway, the THR pathway has an acute stage for the first five hospital days following surgery, a post-acute stage for convalescent care in hospital and a community-care stage for community physiotherapy after hospital discharge. Pilot results (119 patients) have shown an increase in information transfer, streamlining care and increasing efficiencies (capacity savings of over \$92,000), increased usage of best practices, more consistent care across the continuum of care and decreased length of stay (by 1.55 days) at the regional hospital centre.

INTRODUCTION

Clinical pathways have been introduced internationally in healthcare as a strategy to improve efficiencies along with quality care. Pathways have been proven to control costs with pre-determined standards of care using replicable processes, based on a sound literature review and meta-analysis, without decreasing quality of care (Holt et al. 1996; Campbell et al. 1998; Marrie et al. 2000; Canadian Medical Association 1996).

A new trend is emerging with healthcare regionalization, where pathways are beginning to be developed and implemented spanning multiple hospital corporations. The Grey Bruce Health Network began developing and implementing regional clinical pathways across its network of hospitals and community healthcare agency in 2002 (Meleskie and Wilson 2003).

The Grey Bruce Health Network is a network of four corporations: three hospital corporations with 10 small rural hospitals, one regional centre and a community healthcare agency, the Community Care Access Centre (CCAC), which provides home healthcare for the region. These corporations began working together to implement seven deliverables as a network. One of these deliverables was to develop a common

process for assessing the quality of services provided by the corporations. The initial process determined by the Network for internal coordination of care was the development and use of clinical pathways. The Network proposed to develop regional clinical pathways, guidelines for care that would span all 11 hospitals as well as the CCAC. It was intended that these pathways would improve communication within and across the hospitals and community healthcare agency, improve efficiencies, both clinical and financial outcomes, and improve access to best practices in the Network. One of the first pathways developed, as a part of this project was the Total Hip Replacement (THR) clinical pathway. This is a unique pathway in that it successfully spans all 11 hospitals (inpatient, outpatient and ambulatory care areas), as well as the community healthcare agency.

DEVELOPMENT

The Clinical Pathways Steering Committee developed a template for clinical pathways in the region, along with a process for developing and implementing them in early 2002 (Meleskie and Wilson 2003). Using specific criteria for choosing which pathways the Network should develop, the first pathway chosen was for patients undergoing an elective total hip replacement.

2

Using the Framework for Development created by the Steering Committee (Meleskie and Wilson 2003), a development team was initiated for the project. A pathway for THR already existed at the Network's regional centre, and so members from that front-line, multi-disciplinary development team were recruited to revise this pathway and regionalize it. In addition, members from the community hospitals and the community healthcare agency in the Network were recruited to be sure their perspectives were incorporated into the regional pathway.

The team met over a period of four months to create the pathway, using existing practices and a sound literature review on best practices. Research on THR pathway success has shown that pathways can reduce length of stay, resource usage and increase patient satisfaction (Baird 1997; Card et al. 1998). It is also recommended that a separate extended pathway be developed for those patients who are older, weaker and in poorer general health, as they will not go home in the expected time frame on the pathway, and this identifies a plan of care for these patients (Wang et al. 1997). In June 2003, a four-stage pathway was developed and piloted in the Network.

The team developed a pathway package that included six pieces:

1. Clinical Practice Guideline

This guideline developed from consensus statements and other literature on total hip replacement. The guideline outlines the key best practices that are pertinent to the Network pathway. It is a resource for staff and physicians who wish more background information on the contents of the total hip replacement pathway package.

2. Pre-Admission Package

The pre-admission package is primarily an education program to help the patient prepare for surgery. It has two parts, a patient education package and a patient pathway.

The patient education part outlines the procedures for surgery, precautions following surgery, an exercise program and community resources available to patients. A patient pathway outlines what the patient can expect while in hospital, aligning patient and provider expectations. A functional assessment tool was created to be filled out by the patient. It measures patient functionality before surgery, and is used to measure outcomes after surgery.

The clinical pathway includes the acute stage of the surgery, which is a documentation tool used by the multi-disciplinary team from the Pre-Admit Clinic through to the first five post-operative days. Along with this is a discharge planning tool that is used to help predict the patient's destination following hospital discharge. This tool is used along with an early notification system, a process developed to reduce the wait time for patients requiring community services following discharge. This early notification system ensures that referrals to community services are initiated as early as in the Pre-Admit Clinic.

3

3. Acute Stage Pathway Package

When the patient arrives for surgery, the multi-disciplinary team continues to use the acute stage of the pathway. A variance record tracks variances to indicators throughout the pathway. Along with this are post-operative pre-printed physician orders, available in all sites to aid in standardization of care. There is also a "Smiley Face Tool" (see Figure 1), a communication flow sheet in the shape of a happy face that measures progress with respect to patient mobility and exercises. This tool is put on the wall in the patient's room so healthcare providers, the patient and family can easily see at a glance what milestones have been achieved.

4. Post-Acute Pathway Package

Approximately 45% of patients in the Network are transferred out of the regional centre to their community hospital before being discharged home. It is therefore important to the Network to ensure that a consistent transfer of patient care information flows with the patient to the sites. This is achieved by the use of a post-acute pathway package. The variance record from the acute stage transfers with the patient, outlining the variances to date. The post-acute stage of the pathway is used until these variances are resolved and the patient is ready for discharge. There are pre-printed orders for the receiving physician, and a clinical pathway for the multi-disciplinary healthcare team. Due to the varying nature of patients who require post-acute care, or convalescent care, the total hip replacement pathway was designed using a "phase" style, and focusing on achieving pre-defined patient outcomes, rather than outlining day-by-day expected outcomes. There are no clear ministry benchmarks for length of stay for this patient population, as they are considered a part of a broadly defined convalescent care population. Thus, it is hoped that this pathway can be used to create internal benchmarks within the Network to help improve efficiencies and utilization.

5. Community Care Stage Pathway Package

This stage of the pathway was developed for community healthcare agency physiotherapy providers, as well as outpatient physiotherapy, which the majority of THR patients require following discharge. This outcome-based pathway tracks how often we

are meeting goals before discharge and how long it takes to meet these goals. It is used as a documentation tool by the provider agencies. Parallel with this is a client pathway, outlining the goals and expectations. A Post-op Client Communication Form is provided for the client to bring to the Ambulatory Care Unit for the follow-up appointment with the surgeon. This form outlines common questions the client often forgets to ask that are essential to the continuing community care. Finally, the functional assessment tool is completed again to assess the functional improvement gained post-surgery before discharging the patient from the community services.

6. Ambulatory Care Stage

Almost all THR patients return to the ambulatory care clinic for their six-week and three-month follow-up appointments. One issue the clinic identified was that not all patients had their X-rays done before arriving to their appointment, resulting in delays both for the patient and the surgeon on the day of the appointment. To solve this problem, an early notification system has been set up to streamline care from hospital discharge to the follow-up appointment at the ambulatory care clinic. While the patient is still in hospital, the surgeon fills out a pre-printed order for the follow-up appointment, including the date the patient is to return, the location and any necessary tests required before the appointment.

4

OUTCOMES AND DISCUSSION

The pathway was piloted in all Network hospital sites May 2003 through April 2004. The pathway was used 100% of the time in the acute stage (at the regional centre), for a total of 119 patients. The results were excellent, however it was expected that usage would be high due to the fact this unit was used to the concept of pathways for their THR patients.

Before this pathway was developed, no other site in the Network had used a pathway in this format. This was an entirely new process for the sites. During the pilot, the pathway was used 15% of the time in the post-acute stage. A questionnaire was distributed to all users of the pathway post-pilot to identify issues with the pathway and/or the process for implementation. The explanations for the low usage included 1. lack of staff attendance at education sessions leading to staff not knowing how/when to use the pathway and 2. lack of patient volume, so staff did not remember that a pathway existed for these patients.

Another goal of this pathway was to ease the transfer of patients to the community hospitals for convalescent care and provide a guideline for care. It was noted that a significant number of patients were transferred to an outlying hospital (44%), in some cases to complete the last few days of acute care, and in other cases for post-acute or convalescent care. This number has increased over data from the previous year, which showed 40% of patients were transferred out of the regional centre. This increase was due to a number of factors, including a corporate wide initiative by the regional centre to bring patients closer to home for care, surgeons having more contact with the community hospitals as well as implementation of the pathway, which now ensures continuity with a guideline for care at each stage of the patient's care.

One main indicator for this pathway was to reduce variation of post-operative physician orders and to incorporate best evidence in these orders. At the time of pilot, the orthopaedic surgeons had agreed on orders with the exception of antibiotic prophylactic use. Particularly important was the introduction of standard orders for anticoagulant usage in the prevention of deep vein thrombosis for these patients. This had been an issue in the past when patients were transferred, as the receiving site often did not receive specific orders from the sending physician, and had to call the regional centre to find the orders for continued anticoagulant use. With the standardization of this order, transfers were much more streamlined and care more efficient at the receiving site. Also helpful were the standardization of physiotherapy and occupational therapy protocols for these patients. Previous to the pathway, the four surgeons had different preferences for these therapies, making it difficult for both nursing and the therapy providers. The standardization of these therapy protocols has added to the efficiency of care for the patients.

A measure of this indicator is the proportion of time pre-printed orders were used by physicians. Following these orders reduced treatment variation for staff and improved clinical outcomes through the implementation of best practices. According to the variance records returned, pre-printed orders were used 71% of the time. This is a much-improved rate over the previous year, when the previous pathway was in place. It is estimated that before this pathway was piloted, the orders were used approximately 50% of the time.

5

Another goal was to standardize outpatient physiotherapy and CCAC physiotherapy care following hospital discharge. This was achieved by developing the community care stage of the pathway, which provides a guideline for care based on available best practices. This is expected to help benchmark the average number of visits, length of time on service and average wait time for patients with total hip replacements receiving community care. The Network will use this information to develop internal benchmarks for care.

The community care stage of the pathway was used only 28% of the time in the CCAC environment and 17% of the time in an outpatient physiotherapy environment. Some reasons for this include: a lack of staff knowledge to use the pathway; a changeover in the provider agency at the CCAC; and/or these patients were still on services at the end of pilot, and thus the pathway had not yet been returned for evaluation. It is hoped that through continuing education and time that this will be corrected and we will have more data for this stage of the pathway.

An important indicator for the pathway was length of stay. It is hoped that by using best practices and the ministry established benchmark for length of stay, we will reduce the average length of stay at sites using the pathway. Also, for patients transferred to an outlying hospital, we want to start tracking their lengths of stay and develop benchmarks for the future, as it is not currently done.

There was a 1.55 day decrease in length of stay at the regional centre. This was the result of two initiatives that happened across the Network. The first is that many more

patients are being transferred out and transferred earlier than in the past, bringing patients closer to home for the remainder of their care as part of a repatriation initiative. The second initiative is, with the introduction of the pathway, there is a guideline for care with a benchmark of five days. It is important to note that the cost-efficiencies of the THR pathway were attained by the regional centre only, as there is no data to show if there was a difference in length of stay for patients once transferred to an outlying hospital. Thus, the overall efficiencies might be a wash or considerably less if, as a result of increased number of transfers and earlier transfers, there is an increase in cost to the community hospitals.

Overall, it was noted that a transferred patient had an increased overall length of stay versus a patient that was not transferred (a difference of 3.22 days). However, it is recognized that these patients often have more comorbidities and require convalescent care, and the in-patient costs per day in a community hospital are much less than remaining in the regional centre, so it remains to be seen if there are still cost savings.

Average Length of Stay for THR patients (Days)

Site	LOS – 2003 THR Pathway Patients	LOS – 2002 THR Patients
Owen Sound (all patients)	4.85	6.4
Owen Sound (transferred patients)	4.7	?
Owen Sound (patients not transferred)	8.16	?
Community Hospitals	3.46	?
Average Reduction in LOS in O.S.	1.55	
Cost-Efficiencies Due to Reduced LOS	\$92,365*	

*For 119 patients in Owen Sound site, using GBHS \$642 per diem average cost per patient day

Note: total costs used – keep in mind that some overhead costs are not conserved, as are not variable with patient days saved (overhead - \$146)

6

NEXT STEPS

All indicators have shown an improvement from a financial outcome perspective, as well as adherence to best practice guidelines. Once implementation issues have been solved, we should see an improvement in the number of patients on pathways in the outlying hospitals, and in community care, improving efficiencies and clinical outcomes in all of our hospitals across the Network. Plans are currently underway to change the process for implementation, including a new champion for each site that will be on the unit monitoring pathway use, a new record for tracking pathway use and new education/communication strategies that will be in place by Spring 2004. This will be in time for the release of the pathway's full implementation in April 2004.

It is also a goal of the Network to move into electronic documentation that will incorporate electronic clinical pathways. Information transfer would be much more streamlined, pathways would be more flexible to meet complex patient needs and data collection would be automated and thus easier. **Q**

References

- Baird, J.. 1997. "Clinical Pathways: A Roadmap to Improving Care." *Point of View* September: 10–12.
- Campbell, H. et al. 1998. "Integrated Care Pathways." *British Medical Journal* 316: 133–37.
- Canadian Medical Association News. 1996. "Care Maps Compliment Clinical Judgement." 6(1): 6.
- Card B. et al. 1998. "Impact of Clinical Pathways for Total Hip Replacement: A Community-Based Analysis." *Journal of Nursing Care Quality* 13(2): 67–76.
- Holt, P., J. Ward and A. Wilson. 1996. "Clinical Practice Guidelines and Clinical Pathways. A status report on national and NSW development and implementation activity." NSW Health Department. Retrieved July 2, 2001. <<http://www.health.nsw.gov.au/public-health/crcp/publications/clinprac/clinprac.html>>
- Marrie, T.J. et al. 2000. "A Controlled Trial of a Critical Pathway for Treatment of Community-Acquired Pneumonia." *Journal of American Medical Association* 283(6): 749–55.
- Meleskie, J. and K. Wilson. 2003. "Developing Regional Clinical Pathways in Rural Health." *Canadian Nurse* 99(8): 25–28.
- Wang, A. et al. 1997. "Patient Variability and the Design of Clinical Pathways after Primary Total Hip Replacement." *Journal of Quality Clinical Practice* 17: 123–29.

About the Authors

Jessica Meleskie, Hons. Bsc., M.B.A., Evidence-Based Care Program Coordinator, Grey Bruce Health Network

Katrina Wilson, RN, B.Sc. N, M.H.S., C.E.O., Hanover and District Hospital, Lead CEO, Evidence-Based Care Program

Contact Information: Jessica Meleskie, Evidence-Based Care Program Coordinator, Grey Bruce Health Network, C/o Hanover and District Hospital, 90-7th Avenue, Hanover, On N4N 1N1, (519) 364 2340 x 350, fax (519) 364 6602, jmeleskie@bmts.com