

Patients' Perceptions of Joint Replacement Care in a Changing Healthcare System: A Qualitative Study

La perception des patients sur les soins associés à
l'arthroplastie dans le cadre d'un changement dans le
système de santé : une étude qualitative



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Abstract

Background: Ontario has introduced strategies over the past decade to reduce wait times and length of stay and improve access to physiotherapy for orthopaedic and other patients. The aim of this study is to explore patients' experiences of joint replacement care during a significant system change in their care setting.

Methods: A secondary analysis was done on semi-structured qualitative interviews that were conducted in 2009 with 12 individuals who had undergone at least two hip or knee replacements five years apart at a specialized orthopaedic centre in Ontario, Canada. Interview transcripts were coded and then organized into themes.

Results: Although the original study aimed to capture participants' experiences with changes in anaesthetic technique between their first and second joint replacements, the participants described several unrelated differences in the care they received during this period. For example, participants had difficulty obtaining a referral to an orthopaedic surgeon from their family physician. They also noted that the hospital stay and in-hospital physiotherapy they received were shorter after the second joint replacement surgery. They identified guidance from physiotherapists as an important component of their recovery, but sometimes had difficulty arranging physiotherapy after hospital discharge following their most recent surgery.

Conclusions: The changes described between the first and second joint replacements provide the participants' perspective on the impact of policy changes on wait times, reduced lengths of hospital stay and physiotherapy access. The impact of these policy changes, often made in an attempt to improve access to care, had an unintended and detrimental effect on participants' perceptions and experiences of the quality of care provided.

Résumé

Contexte : Au cours des dix dernières années, l'Ontario a mis en place des stratégies visant une réduction des temps d'attente et de la durée des séjours ainsi qu'une amélioration de l'accès aux services de physiothérapie pour les patients en orthopédie ou autres. Le but de cette étude est de sonder l'expérience des patients face aux soins associés à l'arthroplastie lors d'un important changement dans leur établissement de soins.

Méthode : Une analyse secondaire a été effectuée sur des entrevues qualitatives semi-structurées menées en 2009 auprès de 12 personnes qui avaient subi au moins deux arthroplasties du genou ou de la hanche, à cinq ans d'intervalle, dans un centre spécialisé d'orthopédie en Ontario, au Canada. Les transcriptions des entrevues ont été codées puis organisées en thèmes.

Résultats : Bien qu'au départ l'étude visait à rendre compte de l'expérience des patients face aux changements des techniques d'anesthésie entre la première et la seconde arthroplastie, les participants ont fait part de plusieurs différences indépendantes dans les soins reçus au cours de cette période. Par exemple, ils ont éprouvé des difficultés à obtenir auprès de leur médecin de famille un acheminement vers le chirurgien orthopédiste. Ils ont également souligné que le séjour à l'hôpital et les services de physiothérapie reçus à l'hôpital étaient plus courts lors de

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la deuxième arthroplastie. Ils ont indiqué que l'encadrement des physiothérapeutes constituait un élément important du rétablissement, mais qu'ils avaient parfois des problèmes à obtenir un rendez-vous en physiothérapie après leur congé de l'hôpital suite à l'arthroplastie la plus récente.

Conclusion : Les changements décrits entre la première et la deuxième arthroplastie donnent un aperçu de la perception des patients quant à l'impact des changements de politique pour les temps d'attente, la réduction des séjours à l'hôpital et l'accès aux services de physiothérapie. Ces changements de politique, souvent effectués dans le but d'améliorer l'accès aux services, ont eu un impact non désiré et néfaste sur la perception des participants et sur leur expérience quant à la qualité des soins reçus.

ACROSS CANADA AND INTERNATIONALLY, MOST JURISDICTIONS ARE STRIVING TO find ways to contain healthcare spending while also ensuring good access to high-quality care. Several evidence-based health policies have been introduced in Ontario with the goal of reducing wait times for surgery (Ontario MOHLTC 2008), reducing length of hospital stay (Kehlet and Wilmore 2008; Raphael et al. 2011) and lowering the system cost of physiotherapy (Dales 2005) for patients who require joint replacement. These provincial strategies aim to expedite patient care as a means of reducing costs to the healthcare system and providing greater access. Although patient outcomes are often cited as a driving force behind these initiatives, few studies have explored patients' experiences of these system changes, and no studies have examined patients' experiences of the impact of different strategies on a single procedure. We also question whether strategies whose primary aim is system cost reduction can be compatible with "patient-centred care" (Laine and Davidoff 1996).

Background

Wait times

Total joint replacement is a common surgical procedure that improves pain and functional limitations associated with arthritis (Canizares et al. 2009; CIHI 2009). Strategies to reduce wait times for selected procedures, including knee replacement surgery, were introduced in Ontario in 2004. Wait times for surgery are often calculated as the time between the date of surgical consultation – when the decision to proceed with joint replacement is made – until the date of surgery. Using this definition, the average wait times for hip and knee replacement in Ontario were 186 and 230 days in 2012, respectively (Ontario MOHLTC 2008). However, Rotstein and Alter (2006) have argued that wait time actually begins much earlier. They conceptualize wait time as the time of onset of illness until treatment. Failure to consider the time from which patients first seek healthcare from their primary provider and the process of referral to a specialist may mask the actual wait time experienced by patients.

Length of stay

Shortening length of stay has become a focus for organizations faced with increased demands and limited resources. This is one reason hospital stays following total joint replacement are becoming increasingly shorter (Hunt and Beverland 2009; Husted et al. 2012; Jimenez-Garcia et al. 2011; Raphael et al. 2011). Much of the current research on length of stay focuses on clinical interventions and issues that prevent or facilitate early discharge. Clinical pathways (Gregor et al. 1996), early physiotherapy (Chen et al. 2012), patient education (Jones et al. 2011) and multi-modal analgesia (Duellman et al. 2009) may facilitate faster recovery and contribute to shorter lengths of stay following total joint replacement. Longer hospital stays have been associated with patients who are older than 75 and those with multiple co-morbidities that complicate their recovery (Styron et al. 2011). Despite the implementation of a range of clinical and bed management interventions aimed at reducing length of stay, few studies have investigated the patient's experience of early discharge. Some total joint replacement patients value being discharged earlier so that they can recuperate in a familiar environment, yet these patients also report having concerns about returning to their normal activities after early discharge (Hunt et al. 2009). Patients undergoing joint replacement also have expressed a desire for more individualized discharge planning and more guidance on regaining mobility (Fielden et al. 2003; Hunt et al. 2009).

Physiotherapy funding

At the same time that length of hospital stay has been decreasing after total joint replacement, public funding of physiotherapy in Ontario has undergone government cutbacks (Dales 2005). It is well established that early physiotherapy is important for patients who have undergone total joint replacement to help achieve the desired positive outcomes (Nazzal et al. 2012). Key informants across Ontario have supported the importance of securing outpatient rehabilitation to facilitate shorter hospital stays; however, with the current limitations of physiotherapy, this goal is difficult to ensure (Fancotte et al. 2010). Some postulate that limiting physiotherapy funding may prevent patients from receiving early interventions and treatment and result in further burden on the healthcare system (Dales 2005).

These policies have evidence to support their implementation, yet there is little research on the impact that they have on the experience of care of patients who have undergone total joint replacement surgery. To address this gap, we qualitatively analyzed interview data we obtained from participants who had undergone two or more joint replacements. We asked the following research question: "How are patients' experiences influenced by policy decisions set in relation to hip and knee replacement?" These data provide insight into the participants' experiences of three distinct policies (decreased wait times, length of stay and physiotherapy funding) that influenced their care when undergoing total joint replacement.

Methods

Our team undertook a secondary analysis of an interview data set whose primary aim was to explore participants' experiences of regional anaesthesia during hip and knee replacement surgery. Secondary analysis, a long-accepted methodology for interpreting statistical data, is a relatively new approach with qualitative data sets. Following the guidelines set out by Hinds and colleagues (1997), our study met the criteria for re-usability of qualitative data in terms of (a) accessibility (we were the team who had conducted the original research); (b) quality (the original research design was publishable, the data set was complete and full summary notes were taken of all analysis meetings held regularly over 12 months); and (c) suitability (the selected patient population matched the emerging themes we identified, and we did not believe that additional interviews were needed to achieve theoretical saturation).

Ethics approval was received from our hospital's research ethics board, and each participant provided informed consent prior to taking part in the original study. All participants were recruited from one specialized orthopaedic facility associated with a tertiary hospital. Participants were included in the original study if they had undergone two or more total joint replacement procedures and had general anaesthetic for their first procedure and regional anaesthesia for their last procedure. Twelve patients took part in one interview in 2009 to explore their experiences of total joint replacement at two different times, approximately five years apart (Webster et al. 2011). During this five-year period between their surgeries, several changes were made to the organization of care delivery at this centre. Most notably, funding to support length of stay and in-patient physiotherapy was reduced and outpatient physiotherapy was de-listed, giving fewer patients access to publicly insured physiotherapy.

As described elsewhere (Webster et al. 2011), our strategy for obtaining study participants involved developing a data set of eligible patients from an electronic patient record database. From this set, our team selected a purposive sample of 12 participants who had two or more hip or knee replacements in the last 10 years, with the last surgery being within the past five years. Maximum variation sampling was employed: participants were selected by age, gender and occupation. Seven participants had hip replacements, four had knee replacements and one had both hip and knee replacements. There were six men and six women in the sample, and their ages ranged from 40s to 80s. Many participants were retired; their past professions included housekeeper, carpet layer, teacher, nurse, accountant, construction worker and parks and recreation manager. Interview questions (see Appendix) were constructed to begin with open, broad questions about the participant's experiences leading up to surgery followed by questions about each specific surgery. A series of questions were then asked to encourage the participants to reflect on any differences or similarities between the first and second total joint replacements. Finally, questions were asked to determine the patient's understanding of pain and pain management and his or her knowledge of how anaesthesia may have influenced their experiences. All questions were meant to be exploratory and relied on neutral prompts to allow differences between participants' perceptions and experiences to emerge during the course of the interview.

The interview guide was pilot tested with a participant identified by our research team. All interviews (both pilot and study interviews) were conducted by the primary investigator (FW), recorded and professionally transcribed verbatim for data analysis.

Saturation is generally described as the point at which no new information pertaining to the developing themes is being generated (Patton 2002). Achieving saturation during secondary analysis has been highlighted as more difficult. However, a subset of our team of researchers (FW, CM, SB) met over the course of several months to read and discuss each transcript in detail, and we believed that sufficient data were available upon which to identify new themes that emerged from the original data set. The coding template that was developed for the original study on patient experiences with anaesthesia included codes that captured participants' descriptions of care related to physiotherapy, wait times and in-hospital rehabilitation. In addition, a larger team met twice throughout the study period to discuss preliminary themes as they emerged. This larger group included a physiotherapist, a pain psychologist, an advanced practice nurse and a doctorate-prepared nurse-researcher.

Findings

Although the original study explored patient experiences with regional versus general anaesthesia (Webster et al. 2011), other issues emerged unsolicited during the interviews as being central to the participant's experience of hip or knee replacement. These issues reflected the participant's experiences of several inter-related policy changes that affected his or her care. We have organized these experiences into the following themes: (a) wait times, (b) reduced length of stay and (c) post-discharge physiotherapy. One major contributing factor to patients' resilience with respect to these new policies is their socio-economic status.

Wait times

Many participants described that progressive changes in their mobility and related pain were the leading factors that drove them to seek help, leading to joint replacement. Participants often described different thresholds for determining the point at which they sought specialist help, which sometimes differed from their referring physicians' opinions: "I think that winter, I realized that my pain was getting worse. I talked to ... my doctor ... some time in the spring of 2001. He told me that yes, it was arthritis, and it was better if I waited until 65 because they will have to do maybe some maintenance that will take me to 80 before they have to do anything. I say, 'If I wait until I am 65, I'll be in a wheelchair'" (#2).

Our participants reported that in actively seeking referral for surgery they encountered significant barriers. Most often, the barrier they identified was related to their primary care provider or physician. Specialist consultation with an orthopaedic surgeon for hip or knee replacement requires a consultation with, and referral from, a primary care provider or other physician. Many participants told us that their primary care providers told them to wait as long as possible before requesting a referral for surgery. One man shared this experience: "It got to the point where I was hobbled, I was really limping badly. The doctor assured me that

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if I stayed on crutches and kept the weight off ... I'll be fine. After six months I went back and he kept telling me 'stay on it, stay on it, stay on it.' After another eight months I went back and he said [the same thing]. I said to him, 'Look, what happens in six months if it's the same thing?' He says, 'Then I'll put you on the list.' And I asked him, 'How long is the waiting list?' He said, 'A year.' So I was potentially looking at another 18 months on crutches. And I got very frustrated" (#6). Several participants disagreed with their primary care provider's criteria for referral. As one participant told us, "If it isn't falling off or dripping blood on his floor, I mean, he's not going to do anything. He says, 'You're not sick enough, you're not bad enough. Can you sleep at night? Oh, you're not bad.' I mean, these were his criteria for getting serious" (#5).

Other participants also described the experience of disagreeing with their physicians who had suggested they wait for surgery: "And I kept telling my family doctor, 'Please could you send me to [the surgeon];' [and the doctor replied,] 'Oh, it's all arthritis, it's all arthritis... And then I said to [family doctor], 'Well, you know, [in] the length of time you're taking to tell me it will take me a year to see [surgeon], he would have seen me already.' A year has passed, two years have passed. ... I would be waiting until now if I wasn't insistent on him" (#7). It is possible that some of these patients may eventually give up on seeking help for their pain. At the same time, some patients described a different experience with their surgeon: "[My doctor] says, 'Is the pain enough that it wakes you up at night?' and I said, 'Absolutely!' And he goes, 'Well, I've looked at your x-rays and with that answer,' he says, 'You need a hip replacement right away.' And within, I think, four weeks I was on the table having my hip replaced" (#6).

As in many other studies, we did find that participants expressed a degree of acceptance of chronic pain in their lives, either due to age or their health status. For example, one participant shared, "When you have arthritis you get used to a certain level of pain that you can tolerate, you know? You live with it and you just know you have to live with it, so you don't complain about a minor pain that doesn't immobilize you, let's say" (#1). This participant's idea that "you don't complain" was a stoicism expressed by most patients. Although living in chronic and sometimes debilitating pain, participants took pride in not viewing themselves as "crybabies" (#6). We hypothesize that this notion may prevent some individuals from fully advocating for themselves with their primary care providers when facing delays at the level of referral.

Reduced length of stay

At our institution, the length of in-patient stay after total joint replacement had decreased from approximately eight days to four days over the previous decade. Participants in our study tended to have a longer length of stay with their first joint replacement and a shorter stay after their second joint replacement. Without being prompted, the majority of participants raised this issue as being the central difference between their two surgeries. The length of hospital stay following the first surgery was mostly viewed as having been quite positive: "My first visit, they had me four days downstairs and then they moved me upstairs for therapy – which was

wonderful – and I was there four days. And you went to a therapy room and did your exercises every day. And you walked to the solarium for breakfast, lunch and dinner, with a menu. And we met other patients” (#10).

In contrast, many felt that their hospital stay during the second visit was less positive. As one patient described, “I wasn’t really ready to go home but they sent me home anyway. Just there was no way I could even get up to get a glass of water. I didn’t feel well, I didn’t feel strong. They had given me [pain medication], so I wasn’t in pain. But I couldn’t eat, I could only eat very sparingly, and I was very, very weak” (#8). Another participant said, “There was no rehab in the hospital this time, you were just shunted out the door after four days, and so obviously that was cost-cutting” (#9).

We suspect the home environment and socio-economic status of patients affected their recovery and their ability to manage a shortened length of stay. There was a wide range of differential access to support and resources that participants described. For example, one participant who preferred a shorter length of stay spoke about the support he had at home and taking his wife to dinner for nursing him during his recovery. He said, “I had the walker, and then I had the high toilet seat ... and I slept downstairs with a bathroom. ... My wife slept in a chair next to me. ... My wife would have to help me stand up. ... So I said to my wife, ‘Sweetheart, you’ve been such a wonderful nurse to me I’m going to take you to [restaurant] for dinner” (#4). Other participants described how living alone affected their ability to manage following surgery: “I guess one is always glad to go home, but living alone you have to plan ahead. ... I had lots of frozen dinners and things like that. ... I think I was even using paper plates just to avoid doing dishes” (#1). Another participant, who was discharged on a Sunday, had difficulty obtaining one of the medications he had been prescribed: “It was a Sunday that I was discharged. Went to my pharmacy with one of the prescriptions and they said, ‘Well, we don’t have that. That’s a very special item. You can only get that in special pharmacies... My wife had to drive ... about 10, 15 miles away when the [pharmacy] phoned around and found it ...” (#8).

Post-discharge physiotherapy

All of our participants reported being highly committed to their exercise program post-discharge. As one participant said, “So anyway, I’ve seen a chap who I have a lot of faith in, a physio guy, and he’s given me some exercises, and so if I do them I do feel better” (#5). Another said, “When I came back at one month I say, ‘Look, I do my exercises, but I want some guidance. I want to go somewhere... It’s important because if you don’t do the therapy, I, from my experience, I don’t think I will have been able to recuperate” (#2). Repeatedly, participants attributed their recovery to the physiotherapy they had received.

The following quotation is typical of what we heard: “The one thing, I did have to work hard on the physio to get that stretching back. After all those surgeries I did the exercises that I was prescribed to do on my own, as well as having physio. And I think ... every time I hear somebody who’s going to have that kind of surgery I say, ‘Do your exercises” (#1). However,

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as a result of shorter length of stay and subsequent reduction of in-patient physiotherapy, some patients encountered difficulties accessing physiotherapy, as exemplified by the following patient's remark: "My first knee surgery, I went up to the rehab unit here for a week, so I was in about two weeks. ... With the hip, I think I was home in four days ... and then I was told that physio would get in touch with me. ... And that, of course, took a while because they have a waiting list" (#1).

Discussion

A variety of policies and strategies have been implemented in Ontario that affect wait times, length of hospital stay and provision of physiotherapy services in the community for patients undergoing total joint replacement.

The Ontario Wait Times Strategy was introduced in 2004, and one of its objectives was to reduce wait times for hip and knee replacement (Ontario MOHLTC 2008). The strategy involved setting targets and reporting wait times, increasing the number of procedures, investing in longer hours of operation and standardizing best practices to improve patient flow. In 2006, it was estimated that 40% of the wait times for joint replacement occurred between the referral and the decision to have surgery, and the remaining 60% occurred between the decision to have surgery and the actual joint replacement (Rotstein and Alter 2006).

Additionally, in 2005 the Ministry of Health and Long-term Care made changes to physiotherapy funding for patients who undergo total joint replacement. Patients under 20 years or over 64 years are publicly insured for 100 physiotherapy services per year. However, patients between 20 and 64 years of age are covered for only 50 such services each year after acute hospitalization, unless they fall under other government service plans (Ontario MOHLTC 2005).

Although each of the funding policies (i.e., wait times, length of stay and physiotherapy coverage reductions) was developed separately, patients undergoing joint replacement experience them as part of one continuum of care. There are several assumptions underlying these policies and the measurement of their impact.

First, patients are conceptualized as being a homogeneous group who will be affected similarly by changes in care delivery. In fact, our findings suggest that patients vary in their home living situations, which in turn influence their ability to manage post-operatively. Patients' ability to manage post-operatively has been viewed as an individual attribute rather than as the result of socio-economic status, over which they have little control. We speculate that those with greater socio-economic status have more access to resources, an assumption that is supported by other research in the field (Hawker et al. 2006). As a result, implementation of these policies may not be affecting all patients equally. In addition, measurements of short-term outcomes are limited in their ability to capture patients' long-term, evolving and complex needs over time.

A key finding from our research is that although policy-related changes are implemented and evaluated in isolation, these policies interact with one another and act concurrently as a major influence on the overall experience of the patient. For example, with a reduced length of

stay, patients receive less in-hospital physiotherapy, and then they also have trouble accessing it after discharge because they have to arrange and pay for it themselves if they require ongoing rehabilitation. For patients with lower socio-economic status and those with limited resources, we hypothesize that the de-listing of physiotherapy could create problems for their longer-term health status and care needs. Patients of lower socio-economic status are less likely to be able to afford supports at home such as canes, walkers and raised toilet seats. They may also be less likely to have a spouse or other family member able to take time off work to support their recovery.

Our findings also support research by Rotstein and Alter (2006) showing flaws in the conceptualization of when the wait actually begins. Even with a high-profile wait time reduction program in place, some patients described their experiences with primary care physicians who delayed referring them to an orthopaedic surgeon for consultation and surgery. As others have noted, in Ontario the primary care provider serves as the gatekeeper to specialist care (Bederman et al. 2009). As a result, primary care providers can delay referral and increase wait times. Tension also exists between what some physicians think is sufficient pain and reduced mobility to warrant surgery versus the patient's values and quality of life.

Patients also described being caught between opposing views held by two physician groups: family physicians who follow patients in the community, and specialists who provided their surgeries. The primary care physicians described by our participants expressed a desire to increase the age of the patients at time of surgery in order to reduce the number of revision surgeries that might have to be done over a lifetime. This view contradicts the specialist view that earlier surgery leads to better outcomes (Caracciolo and Giaquinto 2005; Jones et al. 2003). It also underscores a difference between some family physicians' preference – to reduce lifetime number of surgeries – and the patients' desire to maintain their quality of life. Other studies have reported that patients themselves “often decline or delay total joint arthroplasty for reasons that aren't well understood” (Jacobson et al. 2008). Our findings suggest that although the data show a decreased wait time for joint replacement since the introduction of the Wait Times Strategy, not all patients may be perceiving a reduced wait time (from symptom onset until surgery). Future research could address this important issue and provide insight into the complex factors influencing wait times, including patient and provider characteristics.

Conclusions

One limitation of our study is that the issue of changes in policies related to care was not a primary objective of the original study. Nevertheless, it was a significant finding that the majority of participants spontaneously raised these healthcare change-related issues. Future research needs to look at more effectively measuring the impact of these changes on the individual patient. Policy makers need to examine the variability in patients' experience related to their characteristics and context, as patients are not a homogeneous group. In addition, recall bias and disease severity could influence the findings of this study, given the time

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elapsed between each participant's two surgeries. Participants took part in one interview and were asked to recall their experiences of two separate joint replacements that occurred in the prior ten years. However, surgery is a significant event in most people's lives, and many can remember the events preceding and afterward clearly. The patient perspectives provided were quantified (e.g., length of stay for each surgery) and have good face validity with known healthcare system changes for total joint replacement patients during the study period.

In summary, as policy changes that affect patient care continue to be introduced, a broad range of outcome measures must be sought that take into consideration patients' experiences. Our findings point to the need to examine how new policies that are developed in isolation can have an unexpected synergistic effect. Differences in patients' resources and surgical outcomes need to be considered and included in any evaluation of outcomes. Additionally, the calculation of wait times may need to be adjusted to reflect the actual wait time experienced by patients.

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References

- Bederman, S.S., H.J. Kreder, I. Weller, J.A. Finkelstein, M.H. Ford and A.J.M. Yee. 2009. "The Who, What and When of Surgery for the Degenerative Lumbar Spine: A Population-based Study of Surgeon Factors, Surgical Procedures, Recent Reints and Reoperation Rates." *Canadian Journal of Surgery* 52(4): 283–90.
- Canadian Institute for Health Information (CIHI). 2009. *Hip and Knee Replacements in Canada – Canadian Joint Replacement Registry (CJRR) 2008–2009 Annual Report*. Ottawa: Author.
- Canizares, M., C. MacKay, A.M. Davis, N. Mahomed and E.M. Badley. 2009. "A Population-based Study of Ambulatory and Surgical Services Provided by Orthopaedic Surgeons for Musculoskeletal Conditions." *BMC Health Services Research* 9: 56. doi: 10.1186/1472-6963-9-56.
- Caracciolo, B. and S. Giaquinto. 2005. "Determinants of the Subjective Functional Outcome of Total Joint Arthroplasty." *Archives of Gerontology and Geriatrics* 41: 169–76.
- Chen, A.F., M.K. Stewart, A.E. Heyl and B.A. Klatt. 2012. "Effect of Immediate Postoperative Physical Therapy on Length of Stay for Total Joint Arthroplasty Patients." *Journal of Arthroplasty* 27(6): 851–56. doi: 10.1016/j.arth.2012.01.011.
- Dales, J. 2005. "Delisting Chiropractic and Physiotherapy: False Saving?" *Canadian Medical Association Journal* 172(2): 166.
- Duellman, T.J., C. Gaffigan, J.C. Milbrandt and D.G. Allan. 2009. "Multi-modal, Pre-emptive Analgesia Decreases Length of Hospital Stay Following Total Joint Arthroplasty." *Orthopedics* 32(3): 167.
- Fancotte, C., S. Jaglal, V. Quan, K. Berg, C.A. Cott, A. Davis et al. 2010. "Rehabilitation Services Following Total Joint Replacement: A Qualitative Analysis of Key Processes and Structures to Decrease Length of Stay and Increase Surgical Volumes in Ontario, Canada." *Journal of Evaluation in Clinical Practice* 16: 724–30. doi: 10.1111/j.1365-2753.2009.01185.x.
- Fielden, J.M., S. Scott and J.G. Horne. 2003. "An Investigation of Patient Satisfaction Following Discharge After Total Hip Replacement Surgery." *Orthopedic Nursing* 22(6): 429–36.
- Gregor, C., S. Pope, D. Werry and P. Dodek. 1996. "Reduced Length of Stay and Improved Appropriateness of Care with a Clinical Path for Total Knee or Hip Arthroplasty." *Joint Commission Journal on Quality Improvement* 22(9): 617–27.

- Hawker, G.A., J. Guan, R. Croxford, P.C. Coyte, R.H. Glazier, B.J. Harvey et al. 2006. "A Prospective Population-based Study of the Predictors of Undergoing Total Joint Arthroplasty." *Arthritis & Rheumatology* 54(10): 3212–20.
- Hinds, P.S., R.J. Vogel and L. Clarke-Stefan. 1997. "The Possibilities and Pitfalls of Doing a Secondary Analysis of a Qualitative Data Set." *Qualitative Health Research* 7(3): 408–24.
- Hunt, G.R. and D. Beverland. 2009. "The Consequences of Early Discharge After Hip Arthroplasty for Patient Outcomes and Health Care Costs: Comparison of Three Centres with Differing Durations of Stay." *Clinical Rehabilitation* 23: 1067–77. doi: 10.1177/0269215509339000.
- Hunt, G.R., G.M. Hall, B.V.S. Murthy, S. O'Brien, D. Beverland, M.C. Lynch et al. 2009. "Early Discharge Following Hip Arthroplasty: Patients' Acceptance Masks Doubts and Concerns." *Health Expectations* 12(2): 130–37. doi: 10.1111/j.1369-7625.2008.00522.x.
- Husted, H., C.M. Jensen, S. Solgaard and H. Kehlet. 2012. "Reduced Length of Stay Following Hip and Knee Arthroplasty in Denmark 2000–2009: From Research to Implementation." *Archives of Orthopaedic & Trauma Surgery* 132(1): 101–4. doi: 10.1007/s00402-011-1396-0.
- Jacobson, A.F., R.P. Myerscough, K. Delambo, E. Fleming, A.M. Huddleston, N. Bright et al. 2008. "Patients' Perspectives on Total Knee Replacement." *American Journal of Nursing* 108(5): 54–63. doi: 10.1097/01.NAJ.0000318000.62786.fb.
- Jimenez-Garcia, R., M. Villanueva-Martinez, C. Fernandez-de-las-Penas, V. Hernandez-Barrera, A. Rios-Luna, P.C. Garrido et al. 2011. "Trends in Primary Total Hip Arthroplasty in Spain from 2001–2008: Evaluating Changes in Demographics, Comorbidity, Incidence Rates, Length of Stay, Costs and Mortality." *BMC Musculoskeletal Disorders* 12: 43. doi: 10.1186/1471-2474-12-43.
- Jones, C.A., D.C. Voaklander and M.E. Suarez-Almazor. 2003. "Determinants of Function After Total Knee Arthroplasty." *Physical Therapy* 83(8): 696–706.
- Jones, S., M. Alnaib, M. Kokkinakis, M. Wilkinson, A. St. Clair Gibson and D. Kader. 2011. "Pre-operative Patient Education Reduces Length of Stay After Knee Joint Arthroplasty." *Annals of the Royal College of Surgeons of England* 93(1): 71–75. doi: 10.1308/003588410X12771863936765.
- Kehlet, H. and D.W. Wilmore. 2008. "Evidence-based Surgical Care and the Evolution of Fast-track Surgery." *Annals of Surgery* 248(2): 189–98. doi: 10.1097/SLA.0b013e31817f2c1a.
- Laine, C. and F. Davidoff. 1996. "Patient-centered Medicine: A Professional Evolution." *Journal of the American Medical Association* 275: 152–56.
- Nazzal, M.I., K.H. Bashaireh, M.A. Alomari, M.S. Nazzal, M.F. Maayah and M. Mesmar. 2012. "Relationship between Improvements in Physical Measures and Patient Satisfaction in Rehabilitation After Total Knee Arthroplasty." *International Journal of Rehabilitation Research* 35(2): 94–101. doi: 10.1097/MRR.0b013e32834df63c.
- Ontario Ministry of Health and Long-term Care (MOHLTC). 2008. "Ontario Wait Times." Retrieved January 28, 2014. <<http://www.health.gov.on.ca/en/public/programs/waittimes/>>.
- Ontario Ministry of Health and Long-term Care (MOHLTC). 2005. "Changes to OHIP-Insured Physiotherapy Services: Bulletin 4421." Retrieved January 28, 2014. <<http://www.health.gov.on.ca/en/pro/programs/ohip/bulletins/4000/bull4421.pdf>>.
- Patton, M. 2002. *Qualitative Research and Evaluation Methods*. Thousand Oaks: Sage Publications.
- Raphael, M., M. Jaeger and J. van Vlymen. 2011. "Easily Adoptable Total Joint Arthroplasty Program Allows Discharge Home in Two Days." *Canadian Journal of Anaesthesia* 58(10): 902–10. doi: 10.1007/s12630-011-9565-8.
- Rotstein, D.L. and D.A. Alter. 2006. "Where Does the Waiting List Begin? A Short Review of the Dynamics and Organization of Modern Waiting Lists." *Social Science & Medicine* 62: 3157–60.
- Styron, J.F., S.M. Koroukian, A.K. Klika and W.K. Barsoum. 2011. "Patient vs. Provider Characteristics Impacting Hospital Lengths of Stay After Total Knee or Hip Arthroplasty." *Journal of Arthroplasty* 26(8): 1418–26. doi: 10.1016/j.arth.2010.11.008.
- Webster, F., S. Bremner and C. McCartney. 2011. "Patient Experiences as Knowledge for the Evidence Base: A Qualitative Approach to Understanding Patient Experiences Regarding the Use of Regional Anesthesia for Hip and Knee Arthroplasty." *Regional Anesthesia and Pain Medicine* 36(5): 461–65. doi: 10.1097/AAP.0b013e31822940be.