

## Patient and health professional views on rehabilitation practices and outcomes following total hip and knee arthroplasty for osteoarthritis: a focus group study

Marie D Westby

### Abstract

**Background:** There is worldwide variation in rehabilitation practices after total hip arthroplasty (THA) and total knee arthroplasty (TKA) and no agreement on which interventions will lead to optimal short and long term patient outcomes. As a first step in the development of clinical practice guidelines for post-acute rehabilitation after THA and TKA, we explored experiences and attitudes about rehabilitation practices and outcomes in groups of individuals identified as key stakeholders.

**Methods:** Separate focus groups and interviews were conducted with patients (THA or TKA within past year) and three health professional groups: allied health professionals (AHPs), orthopaedic surgeons, and other physicians, in Canada and the United States. Pairs of moderators led the focus groups using a standardized discussion guide. Discussions were audiotaped and transcribed verbatim. A content analysis within and across groups identified key themes.

**Results:** Eleven focus groups and eight interviews took place in six sites. Patients (n = 32) varied in age, stage of recovery, and surgical and rehabilitation experiences. Health professionals (n = 44) represented a range of disciplines, practice settings and years of experience. Six key themes emerged: 1) Let's talk (issues related to patient-health professional and inter-professional communication); 2) Expecting the unexpected (observations about unanticipated recovery experiences); 3) It's attitude that counts (the importance of the patient's positive attitude and participation in recovery); 4) It takes all kinds of support (along the continuum of care); 5) Barriers to recovery (at patient, provider and system levels), and 6) Back to normal (reflecting diversity of expected outcomes). Patients offered different, but overlapping views compared to health professionals regarding rehabilitation practices and outcomes following THA and TKA.

**Conclusion:** Results will inform subsequent phases of guideline development and ensure stakeholders' perspectives shape the priorities, content and scope of the guidelines.

### Background

Total hip arthroplasty (THA) and total knee arthroplasty (TKA) surgeries are highly successful orthopaedic procedures for more than 62,000 Canadians [1] and 773,000 Americans [2] each year. The growth in number of THAs and TKAs exceeds the aging of our population due in part to both younger and older individuals electing joint

\* Correspondence: marie.westby@vch.ca

1 Rehabilitation Sciences Research Graduate Program, Faculty of Medicine, University of British Columbia, Vancouver, Canada

Full list of author information is available at the end of the article replacement surgery as a feasible option for their advanced hip and knee osteoarthritis (OA) [3].

Nearly all patients receive post-operative physical therapy and/or other rehabilitative services in the hospital, as an outpatient or through home care services [4]. However, the setting, timing, amount and treatment approaches differ widely [5-8]. Despite the cost effectiveness of THA and TKA, in-hospital and rehabilitation costs associated with these surgeries place significant burdens on North American healthcare systems [2,9-11]. Rehabilitation interventions (e.g., physical therapy, occupational therapy, nursing care) may enhance surgical outcomes; however, their precise contribution to long-term outcomes such as physical function, mobility, participation in life roles and health-related quality of life (HRQoL) is not clear. A National Institutes of Health (NIH) conference concluded that "...rehabilitation services are perhaps the most understudied aspect of the peri-operative management of TKA patients" [12].

Disparate views on need for total joint arthroplasty (TJA) surgery, expectations and outcomes of surgery have been

Marie D Westby  
University of British Columbia, Canada, E-mail: marie.westby@vch.ca

reported for physicians and patients [13-15], and between surgeons and other health professionals [16]. Hewlett suggests that patients' assessments may differ from those of health professionals due to the influence of needs, attitudes, priorities, experiences and expectations

[17]. It is therefore necessary to explore patient and provider expectations to inform clinical practice guidelines.

The Canadian health care system is characterized by universal access and government funded health care for physician and hospital-based services, few for-profit providers, and lower national health care expenditures than in the US [18], with its varied access to public and private providers depending on one's insurance. These differences in turn influence surgical wait times [1], access to and funding for rehabilitation services, and health outcomes [18]; thus the need to incorporate both perspectives.

The purpose of this study was to move beyond the existing literature and explore patient and health professional experiences with current rehabilitation practices and outcomes following THA and TKA to inform the development of clinical practice guidelines applicable for North America.

## Methods

### Sampling frame

We were interested in perspectives from four stakeholder groups: 1) individuals who had a primary THA or TKA for OA within the past year; 2) allied health professionals (AHPs, e.g., physical therapist (PT), occupational therapist (OT), nurse, medical social worker) currently providing THA or TKA rehabilitative care, education or counseling; 3) physicians (e.g., rheumatologist, physiatrist, family practitioner) who provide THA or TKA care; or 4) orthopaedic surgeons currently performing THA or TKA. Patients were excluded if they were less than 19 years of age, could not converse in English; or had undergone THA or TKA surgery for inflammatory arthritis, acute fracture/trauma or tumour. Spouses were permitted to join the patient discussion groups.

### Recruitment

We therefore used strategies to accrue a purposive sample across stakeholder group, demographics and level of experience. Notices, inviting interested individuals to contact

the local study coordinator, were posted in clinics, waiting rooms, seniors' centers and arthritis consumer groups' newsletters as applicable to each stakeholder group. E-mail notices were distributed using staff directories for all types of health professionals.

### Focus Groups/Interviews

Focus groups are particularly suited to studying diverse perspectives to gain insight into participants' experiences [19,20] and were the primary means of gathering data, where possible. Focus groups encourage contributions from less verbal individuals who feel supported by other group members with shared experiences [21]. However, individual interviews were conducted when participants were unable to attend their group. Both focus groups and interviews have been used previously in studying various aspects of THA and TKA care, patient experiences and expectations [22-27], but we are not aware of studies that examine THA and TKA rehabilitation practices and outcomes from multiple stakeholders' perspectives.

A discussion guide was developed with input from a multidisciplinary group of clinicians experienced in THA and TKA rehabilitation and researchers experienced in focus group methodology. Open-ended questions progressed from general and uncued to more specific questions with accompanying probes [20,28]. The discussion guide was tested twice and revised to improve clarity based on health professional and patient feedback. Key questions and probes [Appendix A] were rephrased for each stakeholder group to ensure relevance to participants [20]. Separate focus groups were conducted with each set of stakeholders to avoid a perceived hierarchy among mixed professional and professional-patient participants [29].

A pair of moderators led each focus group using the standardized discussion guide. The four moderators were female PTs with experience in TJA rehabilitation and group process and included the lead author. Prior to the first focus group, moderators were given written and videotaped instructions on focus group methodology, moderating tips and use of the data collection forms, and each pair conducted

---

Marie D Westby  
University of British Columbia, Canada, E-mail: marie.westby@vch.ca

a pilot session to gain skill and confidence in moderating sessions and trouble shoot problems related to audiotaping, timing and logistics.

Focus group sessions lasted 90 minutes for health professionals and 120 minutes for patient groups (allowing for a stretch break). Individual semi-structured inter-views (face-to-face or telephone) of 30- 60 minutes were conducted with participants unable to participate in a focus group; they followed the discussion guide. Sessions were audiotaped and transcribed verbatim for analysis. Participants recorded thoughts on a response form prior to sharing their perspectives with other group members.

Forms were collected and together with the moderators' field notes served to enrich transcripts and study rigor

[30]. Member checking was incorporated into focus groups and interviews by inviting participant feedback on the moderator's summary of the session [21]. Immediately following each focus group, the moderators met to debrief, identify issues that may influence analysis and suggest possible modifications to the discussion guide

[21].

Ethical approval was received from the UBC Behavioral Research Ethics Board and the Vancouver Coastal Health Research Institute for the primary site and as required by institutional policy for each of the other sites. All participants provided informed consent prior to participation, and were offered a small token (\$10 gift certificate).

### Data analysis

A thematic content analysis occurred concurrently with data collection to allow for revision of questions and development of new lines of inquiry [20,21,29,31]. After checking transcripts for accuracy, the two authors independently read the transcripts and performed line-by-line, open coding [29], and, following the process outlined in Figure 1, developed sub-themes for 'within group analysis' and subsequently refined these into key themes for 'across group analysis'.

Disagreements in coding and categorization were discussed and the coding framework refined as necessary using a constant comparison approach [29]. Minority opinions or outliers (negative cases) were identified and discussed

Data collection was discontinued when it was agreed that no new ideas or issues were likely to be raised [20,29]. A decision audit trail was maintained throughout the data collection and analysis phases. Once key themes were identified, transcripts were reviewed and representative quotes selected for each theme. Portions of the coding framework and final analysis were shared with an independent, experienced qualitative researcher for peer checking [30].

### Results

Eleven focus groups and eight semi-structured interviews were conducted in five Canadian and one US site. Participants included 32 patients and four spouses, 30 AHPs, five physicians and nine surgeons [Tables 1 & 2]. Despite efforts to recruit an ethnically diverse sample, patients were primarily Caucasian but included one African American and one Aboriginal person living on reserve. Allied health professional groups included PTs, OTs, nurses, physician assistants, social workers, and a rehabilitation assistant and fitness professional. Physicians included family practitioners, physiatrists and a rheumatologist. Focus groups ranged in size from four to 10 participants.

### Key Themes

Within group analyses for each stakeholder group resulted in the subthemes summarized in Tables 3, 4, 5 and 6. Further comparison using constant comparison across groups uncovered six major themes. Thus, sub-theme labels reflect concepts specific to each group whereas the key themes reflect concepts across all participants. Quotes are attributed to participants by noting their age, gender and group, e.g., 41, F, FP is a 41 year old, female, family practitioner.

Theme 1: Let's talk

A substantial amount of focus group time was spent discussing communication issues. The greatest energy and strongest group interaction occurred over the issues of inter-professional communication and collaboration across settings and throughout the continuum of care. While participants offered descriptions of both positive and negative patient-provider and inter-provider communication, most examples described how poor or lack of communication decreased efficiency, effectiveness and collaboration.

"Communication amongst all the people involved is pretty much non-existent. There's no communication between surgeons and family doctors anymore." [41 F, FP]

"So we have this parade of people with total hips, for example, coming through as though they're all the same and they're not. And I think there's a real need

Poor communication across settings (e.g., from in-patient rehab to family practitioner or private PT) was believed to contribute to inconsistent and poorly coordinated services and negatively impact clinical outcomes and patient satisfaction. Centralized information, a communication form that stays with the patient, better links between facilities and providers, and practice guidelines were suggestions shared by AHPs and physicians as ways to address this issue. 'Team care' was another approach to enhance communication and was acknowledged as more feasible in inpatient rehabilitation settings where different healthcare providers were housed under the same roof, shared charting and participated in regular team meetings. Inadequate staffing, part time positions and staff turnover negatively impacted team dynamics and consistencies in care. A lack of a collaborative, multidisciplinary approach was felt to lead to inefficiencies, duplication of services and patient dissatisfaction.

Theme 2: Expecting the unexpected

Patients identified a number of unexpected challenges in the post-operative period for which they felt inadequately prepared: pain intensity and management, sleep disturbances, psychological issues and unrealistic activity expectations.

"Nobody said how much pain and swelling there was going to be." [76 F, TKA]

"I think a lot of surgeons forget you've got to sleep - honest to God, they should have to go through it. The first thing is you'd be offered, you know, adequate pain medication post-operative and then that sleep is the biggest factor that you're faced with." [73 M, TKA and retired health professional]

"I don't know how many people [with TKA] I've had in the last little while that come in and they're stunned that they have pain postoperatively...They're so not prepared for the amount of pain they have." [43 F, PT] "...after surgery I felt like the bull AND the china shop. Like I feel I am potentially the source of my demise and I feel fragile." [57 F, THA] Of equal concern to many patients and health professionals were the issues of who to go to when post-operative pain was not well-managed and inconsistent advice on whether additional analgesics (e.g. narcotics) were appropriate after the initial acute care period. "I don't think anybody tells the patients, so they go home, they'll be getting some T3's or something by their surgeon or surgical RN and sometimes that's enough, but usually it's not enough... and they just don't think to call or they don't know who to call." [41 F, FP]

"...the knowledge of pain management from the patient's perspective and their primary care provider's perspective is very poor." [55 M, SURG] All study participants viewed the pre-operative education and preparatory phase as being critical for clarifying expectations and empowering the patient.

"What I've noticed is the [acute care] discharges tend to go better if patients are clear on the expectations, you know, that they're informed of the possible date of discharge so psychologically they can start to prepare themselves. Involving social work early on to assist with addressing the barriers or obstacles I find goes well [42 F, SW]

Unclear or unrealistic patient expectations were felt to lead to greater post-operative pain, significant anxiety and depression, and disappointment around the rate of recovery.

---

Marie D Westby  
University of British Columbia, Canada, E-mail: marie.westby@vch.ca

"I think my expectations on the recovery period were overly optimistic." [57 M, TKA]

"They should be realistic in what they project for you." [69 M, THA]

Differing expectations and views between surgeons and rehabilitation providers on patients' functional status, ongoing need for supervised physical therapy and achievable outcomes lead to inconsistent advice, patient confusion, premature discontinuation of therapy and less than optimal outcomes. A PT described a common scenario

Theme 3: It's attitude that counts

Health providers and patients alike stressed the importance of the patient's attitude when it came to being an active participant in the rehabilitation process and remaining motivated during the typical ups and downs of recovering from TJA surgery. Physicians and AHPs felt a key part of their roles was to help the patient in this regard: "I like to empower the patient first and foremost." [47 M, PHYS]

Patients were considered an integral part of the team and their active participation in the rehabilitation process vital to good outcomes and greater satisfaction.

"I tell them 'This is what you need to do at home' and they go home and don't practice, definitely that makes a huge difference when you see the patient next time. People are afraid to move or people are really reluctant to do it, so I think patient compliance with home exercises is very effective, it's huge." [42 M, PT]

"I would think that a person should be checked to make sure that they are continuing to exercise, they are using the leg. I think it's such a waste of money and time if you don't become better." [61 F, TKA]

Having a positive attitude and taking a proactive approach to the surgery and subsequent rehabilitation phase while acknowledging the mind-body connection were strategies used by many patient participants.

"I learned to recognize that my body was wiser and far cleverer than I was so I had better just obey it." [77 M, THA]

"You have to be willing to give not just 100 percent but 150 percent to your own recovery." [46 F, THA]

Theme 4: It takes all kinds of support

Participants reported how different 'facets' of support contributed to health outcomes and overall satisfaction with the surgery and rehabilitation process. Patients and AHPs were more likely than physicians to describe peer.

Personal, provider and system-level factors were identified by our study participants as creating barriers to patients' recovery after TJA. Hoppe et al. acknowledged rehabilitation as an important tool in reducing costs of disability regardless of cause [50]. However, with "the rapid proliferation of private rehabilitation services currently operating with little regulation" [pg 18], those using, prescribing and paying for the services are finding it increasingly difficult to determine if in fact, these services are of good quality, justified and cost-effective [50]. In addition to other strategies, routine use of outcome measures and practice guidelines is suggested as a means of justifying and standardizing treatment approaches to address the structure, process and outcomes of the rehabilitation system. Capping the number of visits or duration of rehabilitation may help to control costs but as identified in our study, such limits were felt to hinder the rehabilitation process, ignore individual patient needs, and potentially lead to poorer outcomes and an overall increase in direct and indirect costs [50].

The issue of timely access to surgical care has been a priority of provincial healthcare ministries in Canada for several years and the focus of several innovative quality improvement strategies [34,51,52]. However, little attention and additional funding have been directed toward addressing barriers to quality rehabilitative care following surgery. Access, including transportation concerns, to rehabilitation services continues to be problematic for Canadians and Americans living in more rural settings. Greater use of technology including



telerehabilitation (e.g., videoconferencing, remote monitoring) was voiced as a possible solution and deserves further investigation in this patient population [53].

Sanderson et al. reported clinicians and patients have different perspectives on outcomes and whereas patients' conceptualization of valued outcomes is broad, health professionals tend to focus on pathology and functional disability [54]. We found a similar trend with patients describing a wide range of anticipated and expected outcomes covering many dimensions of health and psycho-social well-being while health professionals, in particular physicians and surgeons, focused more on impairment, basic function (e.g. walking, using stairs) and surgical parameters (e.g., fixation of implant). These incongruent views may play a role in the reported discrepancies between patients' and health professionals' evaluation of surgical outcomes in which there are moderate correlations at best between patient and clinician assessment of symptoms and disability [55].

Few health professionals reported routinely using standardized outcome measures in their surgical and clinical practices, despite considerable support for their use. Participants' negative views on the utility (e.g., meaningfulness of numerical scores) and feasibility of using such instruments in clinical practice (e.g., time to administer and score) contributed to the low rate of standardized outcome evaluation. Jette et al. reported that a lack of support (e.g., technology, staffing) and irrelevant and confusing questions were barriers to routine use [56]. Further, the apparent confusion among health professionals regarding what constituted an outcome measure may have led to underreporting and suggests more education is needed.

Racial differences in patient-provider communication and the expectations and utilization of joint replacement therapy have been described elsewhere [57,58], however, we could find no published data specific to the experiences of Aboriginal North Americans undergoing TJA. The isolation and lack of access to TJA rehabilitation care described by the one First Nations person living on reserve in our study may reflect geographical,

racial or other differences and warrants systematic study, in collaboration with aboriginal communities.

With the overarching views that "hips and knees are two different beasts" and subgroups of patients require different rehabilitation approaches, it is important to avoid a 'one size fits all' approach when designing rehabilitation practice guidelines for a broad target audience.

### Strengths of the study

The credibility and trustworthiness of findings were enhanced by using a standardized discussion guide, multiple data sources, peer and member checking, independent coding and maintenance of an audit trail throughout the data collection and analyses phases. This study provides new data on specific inter-professional communication issues and barriers to recovery after TJA and shares insight from two vastly different health care systems. Further, it adds to the research on protracted post-operative pain, sleep disturbance and anxiety well beyond the immediate post-operative stage, which all stakeholders agree are inadequately and inconsistently managed. The perspectives of patients and health care providers alike are important to ensuring the relevance of practice guidelines, which are extremely time-consuming and expensive to produce [59] and it is imperative to guideline adoption that all viewpoints be carefully considered.

### Limitations

Due to delays in the ethical review process incompatible with project timelines, only one US site was involved. It is unlikely that we heard the diversity of experiences and health care delivery issues that are inherent in a country with no universal healthcare program and varied access to health insurance. As well, the attitudes, functional limitations, access to specialty care, and rehabilitation experiences of uninsured individuals were not captured and may differ from the individuals in our study. Secondly, physician/surgeon focus groups were challenging to organize and did not include as much practice setting diversity as intended. Physicians' views may not be transferable to those practicing in more rural settings with less access to rehabilitation resources for their patients. Similarly,

---

Marie D Westby  
University of British Columbia, Canada, E-mail: marie.westby@vch.ca

despite efforts to ensure maximum diversity in patient participants, the experiences of less educated individuals and those not receiving formal rehabilitation services were underrepresented.

### Clinical implications

There are several take home messages for clinicians, most of which are directly aligned with principles of client-centered practice [60] aiming to individualize intervention for optimal client outcomes as well as best use of therapeutic resources:

- Prior to surgery, ensure patient and provider expectations are clearly communicated and realistic;
- Prior to surgery, develop a plan for addressing post-acute pain management, psychological distress and sleep disturbances for several weeks following surgery;
- Use strategies to enhance self-efficacy and empower patients to adopt a positive attitude and take an active role in their rehabilitation;
- Incorporate efficient approaches to optimize health professional support and follow-up care beyond three months after TJA;
- Where possible, engage family members and peers in education, counseling and exercise instruction;
- Select meaningful outcome measures and consistently use to evaluate effect of interventions throughout the care continuum and across health care settings.

### Future research directions

This study raises a number of questions that could be addressed through future research including an examination of communication and information technologies (e.g., telerehabilitation) on patient-provider and inter-provider communication and delivery of TJA rehabilitation services. Development and testing of a decision aide or screening tool would assist health care providers in identifying patients at risk for protracted pain, emotional distress and functional

impairment. Further, there is a need to design, implement and evaluate the effects of a range of FU programs on patient satisfaction and long-term outcomes after TJA.

### Conclusions

This qualitative, exploratory study provides valuable insight into rehabilitation experiences, attitudes and expectations of individuals who have undergone THA or TKA surgery and the health professionals directly involved in their care. Patients offered a perspective that differed, but overlapped, with the perspectives of health professionals regarding rehabilitation practices and outcomes. Themes arising from all stakeholder groups related to communication, unexpected events, importance of patient attitude and active involvement, professional and social support, barriers to recovery and a return to normalcy. Awareness of the facilitators and barriers to achieving optimal outcomes that emerged from this study will help clinicians and administrators in the design and delivery of pre- and post-operative interventions aimed at helping patients reach their desired goals after TJA. Stakeholders' views on rehabilitation for TJA will inform the next phases of guideline development and ensure all perspectives shape guideline priorities, scope, and format.

### Appendix A - Discussion guide for health professionals

#### Key questions

1a) Think about these services or programs you are involved in. What is working well?

#### Probes:

What allows (enables) you to provide good care to these clients?

What aspects of your rehabilitation care wouldn't you change?

1b) Still thinking about these rehabilitation services, tell us what isn't working well?

#### Probes:

What aspects of care would you change?

Are there any concerns that you have regarding rehabilitation services available to patients following these surgeries?

What gets in the way (barriers) of providing best care to these clients?

2) We are now going to shift from talking about rehabilitation issues and look more closely at outcomes after THA and TKA. What outcomes do you feel are important following THA and TKA?

Probes:

Think of both short-term and long-term outcomes, rehabilitation and surgical outcomes, impairment, activity and participation levels

3) How should these outcomes be assessed or measured in the clinical setting?

Probes:

Do you use any self-report measures? Health professional scored tools? Performance measures?

4) Information from these focus groups will contribute to the larger project of developing multi-disciplinary clinical practice guidelines for THA and TKA rehabilitation

There are a lot of different ways that we could share the final results or recommendations with you. How would you like to get this information? [Results of this fourth discussion point will appear in a separate paper.]

Probes:

What would be most helpful to you?

In what format? (written, verbal, interactive, audiovisual)

In how much detail? (detailed report, summary, quick study guide)

Abbreviations

AHP: Allied Health Professional; FP: Family Practitioner; FU: Follow-up; KIN: Kinesiologist; OA: Osteoarthritis; OT: Occupational Therapist; PT: Physical Therapist or Physiotherapist; PHYS: Physiatrist; RHEUM: Rheumatologist; RN: Nurse; SURG: Surgeon; SW: Social Worker; THA: Total hip arthroplasty; TJA: Total joint arthroplasty; TKA: Total knee arthroplasty; US: United States

Competing interests

The authors declare that they have no competing interests. Authors' contributions MDW and CLB conceived and designed the study. MDW conducted a majority of the focus groups and interviews and both authors analyzed the data. MDW drafted the manuscript and both authors read, revised and approved the final manuscript.

Acknowledgements

The authors thank the additional focus group moderators Susan Carr, Susan Robarts and Deborah Kennedy for their valuable assistance and all of the study participants for sharing their views and experiences. Lisa Harrison transcribed the audiotapes and Virginia Hayes served as the external peer reviewer. Research assistants Michelle Raglin Block and Osita Hibbert assisted with literature searches, focus group planning and follow-up activities. Michelle Hansen and Nancy Banks helped with coordinating focus groups. Catherine Morley and Karol Traviss provided consultation on focus group methodology and the discussion guide. Donna MacIntyre and Matthew Liang are on Ms. Westby's thesis committee and gave helpful comments on this paper. We also appreciate contributions from members of the North American Guidelines for Joint Replacement working group: Dina Jones, Victoria Brander and Pat Carney. This study was part of Ms. Westby's doctoral thesis. Funding was received from The John Insall Foundation for Orthopaedics and the Canadian Institutes of Health Research. Ms. Westby was supported by a Paetzold Fellowship from the University of British Columbia, and training awards from the Canadian Institutes of Health Research (CIHR) graduate scholarship program and a CIHR

Marie D Westby  
University of British Columbia, Canada, E-mail: marie.westby@vch.ca



Stra-tegic Training Fellowship in Quality of Life Research in Rehabilitation.

### Author Details

1Rehabilitation Sciences Research Graduate Program, Faculty of Medicine, University of British Columbia, Vancouver, Canada, 2Mary Pack Arthritis Program, Vancouver Coastal Health, Vancouver, Canada, 3Department of Occupational Science and Occupational Therapy, Faculty of Medicine, University of British Columbia, Vancouver, Canada and 4Arthritis Research Centre of Canada, Vancouver, Canada

Received: 3 September 2009 Accepted: 11 May 2010

Published: 11 May 2010

### References

1. Canadian Institute for Health Information: Hip and Knee Replacements in Canada-Canadian Joint Replacement Registry (CJRR) 2008-2009 Annual Report. 2009 [http://www.cihi.ca/cihiweb/dispPage.jsp?cw\_page=PG\_1519\_E&cw\_topic=1519&cw\_rel=AR\_30\_E]. Ottawa, Ont.: CIHI Accessed June 28, 2009
2. American Academy of Orthopedic Surgeons: Facts on Hip Replacements and Facts on Knee Replacements. [http://www.aaos.org/research/stats/patientstats.asp]. Accessed March 17, 2009
3. Kim S: Changes in surgical loads and economic burden of hip and knee replacements in the US: 1997 - 2004. *Arthritis Rheum (Arthritis Care Res)* 2008, 59(4):481-8.
4. Jaglal SB, MacKay C, Corrigan L: Rehabilitation for total joint replacement. In *Arthritis and related conditions in Ontario. An ICES research atlas 2004* [http://www.ices.on.ca]. Institute for Clinical Evaluative Sciences Accessed October 1, 2008
5. Lingard EA, Verven S, Katz JN, Kinemax Outcomes Group: Management and care of patients undergoing total knee arthroplasty: variations across different health care settings. *Arthritis Care Res* 2000, 13(3):129-136.
6. Mahomed NN, Lau JTC, Lin MKS, Zdero R, Davey JR: Significant variation exists in home care services following total joint arthroplasty. *J Rheumatol* 2004, 31(5):973-975.
7. Mauer KA, Abrahams EB, Arslanian C, Schoenly L, Taggart HM: National practice patterns for the care of the patient with total joint replacement. *Orthop Nurs* 2002, 21(3):37-47.
8. Roos E: Effectiveness and practice variation of rehabilitation after joint replacement. *Curr Opin Rheumatol* 2003, 15(2):160-162.
9. Antoniou J, Martineau PA, Filion KB, et al.: In-hospital cost of total hip arthroplasty in Canada and the United States. *J Bone Joint Surg Am* 2004, 86:2435-9.
10. Lavernia CJ, D'Apuzzo MR, Hernandez VH, Lee DJ, Rossi MD: Postdischarge costs in arthroplasty surgery. *J Arthroplasty* 2006, 21(6 Suppl 2):144-50.
11. Medical Advisory Secretariat, Ontario Ministry of Health and Long-Term Care: *Physiotherapy Rehabilitation After Total Knee or Hip Replacement, Health Technology Literature Review. 2005* [http://www.health.gov.on.ca/english/providers/program/mas/tech/reviews/pdf/rev\_rehabtkr\_061705.pdf].
12. National Institutes of Health: *Consensus statement on total knee replacement. 2003:1-18* [http://consensus.nih.gov/2003/2003TotalKneeReplacement117main.htm]. Accessed March 17, 2008

Page 14 of 15

13. Brokelman RB, van Loon CJ, Fijnberg WJ: Patient versus surgeon satisfaction after total hip arthroplasty. *J Bone Joint Surg Br* 2003, 85(4):495-498.
14. Lieberman JR, Dorey F, Shekelle P, Schumacher L, Thomas BJ, Kilgus DJ, Finerman GA: Differences between patients' and physicians' evaluations of outcome after total hip arthroplasty. *J Bone Joint Surg Am* 1996, 78-A(6):835-8.
15. Street RL, Richardson MN, Cox V, Suarez-Almazor ME: (Mis)Understanding in patient-health care provider communication about total knee replacement. *Arthritis Rheum (Arthritis Care Res)* 2009, 61(1):100-107.
16. Haworth RJ, Hopkins J, Ells P, Ackroyd CE, Mowat AG: Expectations and outcome of total hip replacement. *Rheumatol Rehabil* 1981, 20(2):65-70.
17. Hewlett SA: Patients and clinicians have different perspectives on outcomes in arthritis. *J Rheumatol* 2003, 30(4):877-9.
18. Guyatt GH, Devereaux PJ, Lexchin J, Stone SB, Yalnizyan A, Himmelstein D, Woolhandler S, Zhou Q, Goldsmith LJ, Cook DJ, Haines T, Lacchetti C, Lavis JN, Sullivan T, Mills E, Kraus S, Bhatnagar N: A systematic review of studies comparing health outcomes in Canada and the United States. *Open Medicine* 2007, 1(1):E27-E36.
19. Kitzinger J: Qualitative research: Introducing focus groups. *Br Med J* 1995, 311(7000):299-302.
20. Morgan DL, Krueger RA: *The Focus Group Kit* Volume 1-6. Thousand Oaks, Sage Publications; 1998.
21. Kidd PS, Parshall MB: Getting the focus and the group: Enhancing analytical rigor in focus group research. *Qual Health Res* 2000, 10(3):293-308.
22. Showalter A, Burger S, Salyer J: Patients' and their spouses' needs after total joint arthroplasty: A pilot study. *Orthop Nurs* 2000, 19(1):49-57.
23. Jacobson AF, Myerscough RP, DeLambo K, Fleming E, Huddleston AM, Bright N, Varley JD: Patients' perspectives on total knee replacement. *Am J Nurs* 2008, 108(5):54-63.
24. Fielden JM, Scott S, Horne JG: An investigation of patient satisfaction following discharge after total hip replacement surgery. *Orthopaedic Nursing* 2003, 22(6):429-36.
25. Mancuso CA, Sculco TP, Wickiewicz TL, Jones EC, Robbins L, Warren RF, Williams-Russo P: Patients' expectations of knee surgery. *J Bone Joint Surg Am* 2001, 83-A(7):1005-12.
26. Middleton S, Lumby J: Measuring outcomes from the patients' perspective. *Int J Nurs Pract* 1999, 5:143-146.
27. Heaton J, McMurray R, Sloper P, Nettleton S: Rehabilitation and total hip replacement: Patients' perspectives on provision. *Int J Rehabil Res* 2000, 23(4):253-9.
28. Hollis V, Openshaw S, Goble R: Conducting focus groups: Purpose and practicalities. *Br J Occup Ther* 2002, 65(1):2-8.
29. Krueger RA, Casey MA: *Focus Groups: A Practical Guide for Applied Research*. 3rd edition. Thousand Oaks, CA, Sage Publications; 2000.
30. Mays N, Pope C: Assessing quality in qualitative research. *Br Med J* 2000, 320(7226):50-2.
31. Pope C, Ziebland S, Mays N: Qualitative research in healthcare: Analyzing qualitative data. *Br Med J* 2000, 320(7227):114-116.
32. Suter E, Arndt J, Arthur N, Parboosingh J, Taylor E, Deutschlander S: Role understanding and effective communication as core competencies for collaborative practice. *J Interprof Care* 2009, 23(1):41-51.

---

Marie D Westby  
University of British Columbia, Canada, E-mail: marie.westby@vch.ca

33. Teutsch C: Patient-doctor communication. *Med Clin North Am* 2003, 87(5):1115-1145.
34. Frank C, Dick D, Smith D, Wasylak T, Gooch K, Zernicke R: The Alberta Bone and Joint Health Institute: Creating sustainable accountability through collaboration, relevant measurement and timely feedback. *Healthcare Papers* 2006, 7(1):34-39.
35. Weinberg DB, Gittell JF, Lusenhop RW, Kautz CM, Wright J: Beyond our walls: impact of patient and provide coordination across the continuum on outcomes for surgical patients. *Health Res Educ Trust* 2007, 42(1):7-24.
36. Street RL, Makoul G, Arora NK, Epstein RM: How does communication heal? Pathways linking clinician-patient communication to health outcomes. *Patient Educ Couns* 2009, 74(3):295-301.
37. Wylde V, Dieppe P, Hewlett S, Learmonth ID: Total knee replacement: is it really an effective procedure for all? *Knee* 2007, 14(6):417-423.
38. Dorr LD, Chao L: The emotional state of the patient after total hip and knee arthroplasty. *Clin Orthop Rel Res* 2007, 463:7-12.
39. Hall-Lord ML, Steen B, Larsson G: Postoperative experiences of pain and distress in elderly patients. An explorative study. *Aging Clin Exp Res* 1999, 11(2):73-82.
40. O'Brien S, Bennett D, Doran E, Beverland DE: Comparison of hip and knee arthroplasty outcomes at early and intermediate follow-up. *Orthopedics* 2009, 32(3):168.
41. Brander VA, Stulberg SD, Adams AD, Harden RN, Bruehl S, Stanos SP, Houle T: Predicting total knee replacement pain: a prospective, observational study. *Clin Orthop Relat Res* 2003, 416:27-36.
42. Fielden JM, Gander PH, Horne JG, Lewer BM, Green RM, Devane PA: An assessment of sleep disturbance in patients before and after total hip arthroplasty. *J Arthroplasty* 2003, 18(3):371-376.
43. Brander V, Gondek S, Martin E, Stulberg SD: Pain and depression influence outcome 5 years after knee replacement surgery. *Clin Orthop Relat Res* 2007, 464:21-6.
44. Mahomed NN, Liang MH, Cook EF, Daltroy LH, Fortin PR, Fossel AH, Katz JN: The importance of patient expectations in predicting functional outcomes after total joint arthroplasty. *J Rheumatol* 2002, 29:1273-1279.
45. Akker-Scheek I van den, Stevens M, Groothoff JW, Bulstra SK, Zijlstra W: Preoperative or postoperative self-efficacy: which is a better predictor of outcome after total hip or knee arthroplasty? *Patient Educ Couns* 2007, 66(1):92-99.
46. Moon LB, Backer J: Relationships among self-efficacy, outcome expectancy, and postoperative behaviors in total joint replacement patients. *Orthop Nurs* 2000, 19(2):77-85.
47. Nuñez DE, Keller C, Ananian CD: A review of the efficacy of the self-management model on health outcomes in community-residing older adults with arthritis. *Worldviews Evid Based Nurs* 2009, 6(3):130-148.
48. Young NL, Cheah D, Waddell JP, Wright JG: Patient characteristics that affect the outcome of total hip arthroplasty: a review. *Can J Surg* 1998, 41:188-195.
49. de Pablo P, Losina E, Mahomed N, Wright J, Fossel AH, Barrett JA, Katz JN: Extent of follow-up care after elective total hip replacement. *J Rheumatol* 2006, 33(6):1159-1166.
50. Hoppe E, Rowat B, Verrier M: A black box: The rehabilitation clinic. *Physiotherapy Canada* 1996, 48(1):16-26.
51. Markel F, Rafferty C, Rodgers J: Ontario Waiting List Project, Final Report, August 31, 2002. Ontario Joint Policy and Planning Committee. Accessed February 9, 2009 Page 15 of 15

52. Sanmartin C, Lewis S, Western Canada Waiting List Project: From chaos to order: making sense of waiting lists in Canada (Final Report). 2001 [<http://www.wcwl.org/>]. Edmonton, AB Accessed February 9, 2009
53. Brennan DM, Mawson S, Brownsell S: Telerehabilitation: enabling the remote delivery of healthcare, rehabilitation and self management. *Stud Health Technol Inform* 2009, 145:231-248.
54. Sanderson T, Kirwan J: Patient-reported outcomes for arthritis: Time to focus on personal life impact measures? *Arthritis Rheum (Arthritis Care Res)* 2009, 61(1):1-3.
55. Bream E, Black N: What is the relationship between patients' and clinicians' reports of the outcomes of elective surgery. *J Health Serv Res Policy* 2009, 14(3):174-182.
56. Jette DU, Halbert J, Iverson C, Miceli E, Shah P: Use of standardized outcome measures in physical therapist practice: perceptions and applications. *Phys Ther* 2009, 89(2):125-135.
57. Groeneveld P, Kwok CK, Mor MK, Appelt CJ, Geng M, Gutierrez JC, Wessel DS, Ibrahim SA: Racial differences in expectations of joint replacement surgery outcomes. *Arthritis Rheum (Arthritis Care Res)* 2008, 59(5):730-737.

**This work will be presented in 27th Global Nursing and Health Care Conference**

---

Marie D Westby  
University of British Columbia, Canada, E-mail: [marie.westby@vch.ca](mailto:marie.westby@vch.ca)