Quality-Based Procedures for Knee Replacement, Hip Replacement, and Hip Fracture: Physiotherapists' Perceptions of Adherence, Barriers, and Facilitators

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ABSTRACT

Purpose: This mixed-methods study examined the perceived barriers to and facilitators of implementing best-practice guidelines (BPGs) and adhering to provincial Quality-Based Procedures (QBP) by Ontario physiotherapists working with patients after total knee replacement (TKR), total hip replacement (THR), and hip fracture (HF). **Method:** Using snowball sampling, 93 hospital and home care physiotherapists working with patients after TKR, THR, or HF completed a Web-based survey. A subset of these participated in follow-up semi-structured telephone interviews. **Results:** The perception of QBP adherence varied, with self-reported adherence rates across identified practice standards for TKR, THR, and HF reported as 62%, 69%, and 60%, respectively. Physiotherapists generally believed that BPGs improved outcomes; however, they identified clinical experience as their primary guide to practice. Only 66% perceived that their institutions met provincial standards. Barriers to BPG implementation and QBP adherence included insufficient time, lack of access to QBPs, and limited awareness of current BPGs. Qualitative themes included awareness and knowledge, flexibility and funding, communication, and availability of and equitable access to outpatient and community-based physiotherapy services. **Conclusions:** Physiotherapists reported that they primarily used clinical experience to inform care after TKR, THR, and HF, but they were also supportive of BPGs and QBPs. The results suggest that increased access to and education about QBPs, as well as supportive resources, could increase their integration into clinical practice.

Key Words: arthroplasty, replacement, knee; arthroplasty, replacement, hip; hip fracture; practice guideline; survey.

RÉSUMÉ

Objectif : cette étude à méthodologie mixte se penche sur les facteurs qui entravent ou facilitent l'application des lignes directrices sur les pratiques exemplaires (LDPE) et des actes médicaux fondés sur la qualité (AMFQ), tels que perçus par les physiothérapeutes de l'Ontario qui traitent des patients ayant subi une arthroplastie totale du genou (ATG), une arthroplastie totale de la hanche (ATH) ou une fracture de la hanche (FH). **Méthodologie :** à l'aide d'une méthode d'échantillonnage cumulative, 93 physiothérapeutes qui travaillent à l'hôpital et en soins à domicile auprès de patients ayant subi une ATG, une ATH ou une FH ont répondu à un sondage en ligne. Un sous-ensemble de ces répondants a participé à des entrevues téléphoniques de suivi semi-structurées. **Résultats :** l'adhérence perçue aux AMFQ est variable, les taux de respect autodéclaré des normes de pratique ciblées pour l'ATG, l'ATH et la FH se situant à 62 %, 69 % et 60 %, respectivement. Les physiothérapeutes sont généralement d'avis que les LDPE améliorent les résultats ; cependant, ils considèrent que leur pratique est principalement guidée par l'expérience clinique. Seuls 66 % des répondants sont d'avis que leur établissement respecte les normes provinciales. Les obstacles à l'application des LDPE et des AMFQ comprennent le manque de temps, l'accès limité aux LDPE et la mauvaise connaissance des LDPE actuelles. Les thèmes qualitatifs dégagés comprennent la sensibilisation et les connaissances, la flexibilité et le financement, la communication, la disponibilité des services ambulatoires de physiothérapie ainsi que l'accès équitable à ces derniers. **Conclusions :** les physiothérapeutes ont indiqué qu'ils ont recours principalement à l'expérience clinique pour guider leurs soins aux patients ayant subi une ATG, une ATH ou une FH, mais qu'ils appuient également les LDPE et les AMFQ. Les résultats laissent penser qu'un meilleur accès aux AMFQ, une meilleure formation sur ceux-ci ainsi que des ressources de soutien pourraient augmenter leur intégration dans la pratique clinique.

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Total knee replacements (TKRs), total hip replacements (THRs), and hip fractures (HFs) represent a substantial and increasing financial burden to Ontario's health care system.¹ In Canada, joint replacements accounted for approximately 105,000 hospitalizations for the year 2012–2013, with Ontario representing 41% of the total.^{2,3} The number of joint replacements in Canada increased by 87% from 1994–1995 to 2004–2005, and TKRs increased by 22% and THRs by 17% in 2012–2013.^{3,4} TKRs and THRs represent average acute care costs of \$10,000 per patient, and they cost the Ontario health care system approximately \$500 million per year.^{2,3} HFs also represent a substantial financial burden to the health care system:¹ In 2012, they represented 12,860 Ontario hospital admissions and cost \$282 million.⁵ The projected increase in HFs and increasing demand for joint replacements point to a rapid escalation in costs, thus adding to overall increasing health care expenditures.

In 2012, the Ontario Ministry of Health and Long-Term Care implemented Health System Funding Reform, and the new funding structure included implementing Quality-Based Procedures (QBP) for TKR, THR, and HF.⁶

QBP set out specific services for patients with clinically related diagnoses using an evidence-based framework that identifies opportunities to improve processes and patient outcomes and save costs.² These opportunities are represented and supported by best-practice guidelines (BPGs), components of which are directly embedded in the QBP handbooks. Examples of BPGs are the Bone and Joint Canada HF Toolkit and the Hip & Knee Replacement Surgery Toolkit.^{7,8}

QBP require that health care services be delivered consistently to particular types of patients. *Adherence* is defined as the act of doing what is required by a rule or belief.⁹ However, in Ontario, how QBP are adhered to and how care is delivered continues to vary;¹⁰ QBP are not necessarily being adhered to in real-life clinical situations. In response, the Hospital Advisory and Home Care Advisory Committees of the Ontario Physiotherapy Association (OPA) conducted a two-part study of this issue. This study explored physiotherapists' knowledge of BPGs and QBP as well as their use of BPGs and adherence to QBP in managing patients with primary joint replacements and HFs in Ontario; it also identified facilitators of, and barriers to, implementing QBP.

Box 1 Three Sample Questions from the Total Knee Replacement Quantitative Questionnaire

9. What do you use to guide your practice? Please check all that apply
 - Quality Based Practice Guidelines
 - Hip & Knee Replacement Tool Kit from Bone & Joint Canada
 - Clinical Experience
 - GTA Rehab Network Clinical Pathway
 - Hospital Protocol
 - Clinical Care Maps
 - Prefer Not to Answer
 - Other (Please Specify)
 14. What information is covered in the [preoperative] education session?
 - What to expect preoperatively/postoperatively
 - Home and equipment preparation
 - Engagement of social supports (arrangement of transportation, help with meal preparation, etc.)
 - Information about their total knee replacement surgery
 - Complications and weight bearing orders
 - Postoperative pain medications
 - Preoperative exercises for patient strengthening before surgery
 - Patient education on postoperative physiotherapy treatment (including exercises and arrangement of appointments)
 - Expected discharge date
 - Falls prevention strategies
 - Unsure
 - Prefer not to answer
 - Other (please specify)
 22. A typical treatment plan for a patient following total knee replacement includes the following (please check all that apply):
 - Gait aid training (e.g., use of equipment such as cane, walker, crutches, etc.)
 - Stair climbing (if applicable to patient)
 - Transfer training
 - Falls prevention
 - Balance training
 - Deep breathing exercises
 - Coughing
 - Strengthening exercises
 - Review of knee precautions (e.g., watch for infection of incision site, weight-bearing orders, etc.)
 - Range-of-motion exercises
 - Pain/swelling management (e.g., ice, etc.)
 - Prefer not to answer
 - Other (please specify)
-

Box 2 Questions from the Qualitative, Semi-Structured Interview Guide

1. Are you aware of the quality-based procedures (QBP) or clinical best practice guidelines for this patient population? [hip or knee arthroplasty or hip fractures]
2. Does your organization have a protocol or clinical pathway for this group? Was it developed or changed to follow best practice guidelines? What was the process for making the changes?
3. Could you elaborate on the components of the QBP that you are aware of?
4. What are some “facilitators” or things that make it easier to follow the QBP?
5. What are some barriers to adhering to the QBP or best practice guidelines?
6. Is access to either inpatient rehabilitation or outpatient services or [Community Care Access Centres] an issue to moving clients through the continuum of care?
7. Do you consider referring to private outpatient physiotherapy clinics for care after discharge from hospital programmes? Why or why not?
8. What is your referral process to these rehabilitation or outpatient services?
9. Do you feel that preventative education such as falls prevention and/or ongoing exercises for future health are part of the best practices?
10. Do you have any ideas for changes to improve the adherence to QBP?
11. Is there anything else you would like to add?
12. Do you have any questions?

METHOD

In phase 1 of the study, we designed and implemented a cross-sectional,¹¹ self-administered, Web-based survey. We conducted a literature review to identify the current BPGs for physiotherapy (PT) and their implementation after TKR, THR, and HF. PubMed, CINAHL, OVID, Embase, Medline, and PEDro were searched using the following terms: *knee/hip replacement/arthroplasty, hip fracture, physiotherapy, patient discharge* (i.e., post-discharge, outpatient, transfer of care), *quality-based procedures*, and *evidence-based practice*. Three questionnaires were developed on the basis of the QBPs, the embedded BPGs, and the literature review; they included only components directly related to PT care. Questionnaires were piloted and then modified to ensure clarity, content, user friendliness, and face validity.¹² Final questionnaires included 35–40 questions and were estimated to take 15–20 minutes to complete. Box 1 shows three sample questions from the TKR questionnaire.

Research ethics approval was obtained from St. Joseph's Care Group Research Ethics Board in Thunder Bay, Ontario, and informed consent was obtained from all participants. The study conformed to the Human and Animal Rights requirements of the February 2006 International Committee of Medical Journal Editors' Uniform Requirements for Manuscripts Submitted to Biomedical Journals. Data were collected from June through August 2014.

Questionnaires were sent by email to OPA's established Hospital Liaison ($n = 71$) and Home Care Liaison ($n = 24$) Networks. These networks are made up of physiotherapists in the hospital and home care sectors who gather and distribute information, identify needs, and provide feedback on issues to OPA. Members of the Liaison Networks were encouraged to forward the questionnaires to the most appropriate physiotherapists within their organization—that is, those who work with the TKR, THR, and HF populations. As a result, 93 individual physiotherapists responded to one or more question-

naires. Using a Dillman approach, potential participants were emailed two reminders that included the questionnaire link.¹² Questionnaire responses were analyzed using IBM SPSS, version 22 (IBM Corp., Armonk, NY).

In phase 2 of the study, we conducted telephone interviews with 12 of the self-identified, consenting questionnaire participants to explore the facilitators of and barriers to using BPGs and implementing QBPs. Participants were purposefully selected to ensure representation from hospital and home care settings, urban and rural locations, and male and female physiotherapists. After conducting quantitative analysis of the questionnaires, we developed a semi-structured interview guide, then piloted it with two in-patient orthopaedic physiotherapists. (The 12 questions in the guide are shown in Box 2.) Two PT students were trained by the primary investigators (DT, KJER) to conduct the interviews. The interviews were audio-recorded and transcribed verbatim by the interviewers and checked for accuracy by the investigators.

As the interviews were completed, the content of the transcripts was discussed by the interviewers and investigators (DT, KJER) to identify themes and any need to clarify the questions for subsequent participants. One investigator (DT) read the interviews a third time to allow her to become familiar with the information.¹³

An inductive analysis process was employed, using line-by-line coding to identify meaningful words or ideas in the transcripts.¹⁴ These meaningful words or ideas were compared within and across the transcripts to develop categories; these categories corresponded to the main content areas addressed in the interviews. Categories were then combined into themes. Conversation and data analysis with co-investigators (KJER, SD) further clarified the themes. Finally, the original interviews were reread (by DT) to ensure that these themes were in fact strongly represented and that no additional ideas had been missed during the process of inductive analysis.

After the interviews, member checking was completed.¹⁵ Four interview participants were selected: two—one urban

and one rural—from each of the hospital and home care sectors. All were provided with a summary of the preliminary qualitative results and agreed that the summary represented their thoughts.

RESULTS

Quantitative results

Demographic characteristics

A total of 93 individual physiotherapists responded to the study and completed one or more questionnaires. Thirty, 58, and 44 participants completed the TKR, THR, and HF questionnaires, respectively. The highest number of participants came from the home care sector (47% TKR, 60% THR, 40% HF), followed by acute care (23% TKR, 21% THR, 36% HF), outpatient (40% TKR, 26% THR, 17% HF), and in-patient rehabilitation (3% TKR, 12% THR, 19% HF). Their demographic characteristics are shown in Table 1.

Adherence

Physiotherapists' perceptions of their adherence to the components of the QBP are detailed in Tables 2–4.

Attitudes, barriers, and facilitators

For TKRs, THRs, and HFs, respectively, physiotherapists most commonly reported using clinical experience (80%, 76%, 87%) to inform their practice rather than QBPs (21%, 24%, 60%), BPGs (40%, 64%, 20%), or hospital protocols (52%, 67%, 67%). Most therapists believed that BPGs improved patient outcomes (87%, 71%, 77%) and were important in ensuring quality patient care (90%, 72%, 83%); however, only 69%, 58%, and 67%, respectively, thought their institutions adequately met provincial standards specifically for PT for TKR, THR, and HF.

Participants in the TKR survey most frequently indicated no challenges to implementing BPGs; however, those working with the HF and THR populations, respectively, indicated that the primary barriers to implementing BPGs were lack of time (90% and 21%), uncertainty about where to find information regarding BPGs (46% and 21%), and being unaware of any current BPGs (20% and 17%). Other barriers identified by participants included funding (e.g., staffing, equipment, and ability to access private services), patient factors (e.g., transportation, social support, complications), and long wait-lists for outpatient services.

All groups reported the following facilitators: awareness of information regarding BPGs, ease of access to BPGs, education regarding evidence supporting BPGs, support from colleagues and managers, and resources available to assist with adhering to BPGs.

Qualitative results

Of the 12 physiotherapists who participated in the interview phase of the study, 58% worked in the hospital system, 58% were from urban settings, and 92% were

Table 1 Demographic Characteristics of Participants

Characteristic	No. (%) of respondents		
	TKR <i>n</i> = 30	THR <i>n</i> = 58	HF <i>n</i> = 44
Age, y			
20–29	3 (10.0)	2 (3.4)	4 (9.5)
30–39	3 (10.0)	17 (29.3)	10 (23.8)
40–49	8 (26.7)	21 (36.2)	14 (33.3)
50–59	14 (46.7)	10 (17.2)	10 (23.8)
>59	2 (6.7)	8 (13.8)	3 (7.1)
Gender			
Male	3 (10.0)	8 (13.8)	3 (7.1)
Female	27 (90.0)	50 (86.2)	38 (90.5)
Years working as a physiotherapist			
0–5	3 (10.0)	8 (13.8)	5 (11.9)
6–10	2 (6.7)	7 (12.1)	1 (2.4)
11–15	2 (6.7)	10 (17.2)	8 (19.0)
16–20	3 (10.0)	6 (10.3)	5 (11.9)
>20	20 (66.7)	27 (46.6)	22 (52.3)
Years working in a TKR, THR, or HF setting			
0–5	4 (13.3)	10 (17.2)	7 (16.7)
6–10	2 (6.7)	11 (19.0)	4 (9.5)
11–15	5 (16.7)	6 (10.3)	8 (19.0)
16–20	5 (16.7)	14 (24.1)	4 (9.5)
>20	14 (46.7)	17 (29.3)	15 (25.7)
LHIN of practice*			
Erie St. Clair	0 (0.0)	2 (3.4)	0 (0.0)
South West	7 (23.3)	10 (17.2)	2 (4.8)
Waterloo Wellington	2 (6.7)	2 (3.4)	2 (4.8)
Hamilton Niagara Haldimand Brant	0 (0.0)	2 (3.4)	1 (2.4)
Central West	1 (3.3)	5 (8.6)	0 (0.0)
Mississauga Halton	2 (6.7)	8 (13.8)	3 (7.1)
Toronto Central	0 (0.0)	3 (5.2)	0 (0.0)
Central	1 (3.3)	5 (8.6)	1 (2.4)
Central East	2 (6.7)	4 (6.9)	3 (7.1)
South East	0 (0.0)	0 (0.0)	1 (2.4)
Champlain	4 (13.3)	13 (22.4)	11 (26.2)
North Simcoe Muskoka	0 (0.0)	0 (0.0)	2 (4.8)
North East	3 (10.0)	2 (3.4)	2 (4.8)
North West	8 (26.7)	4 (6.9)	13 (31.0)
Practice setting (population)			
Large urban centre (≥50,000)	18 (60.0)	44 (75.9)	26 (61.9)
Small urban centre (<50,000)	1 (3.3)	1 (1.7)	1 (2.4)
Rural/small town (≥10,000)	7 (23.3)	10 (17.2)	6 (14.3)
Remote rural (<10,000)	4 (13.3)	3 (5.2)	8 (19.0)

*Participants could select multiple responses for this question.

TKR = total knee replacement; THR = total hip replacement; HF = hip fracture; LHIN = Local Health Integration Network.

female. Four themes emerged as facilitators of or barriers to their adherence to the QBPs: (1) awareness and knowledge of QBPs or lack thereof; (2) flexibility and funding or lack thereof; (3) communication or lack thereof; and (4) available and equitable access to outpatient and community-based PT services or lack thereof.

Lack of awareness of and knowledge regarding the QBPs was considered a barrier to implementing them. This lack of awareness and knowledge was further challenged by confusion about the difference between QBP

Table 2 Perceived Adherence to Total Knee Replacement Quality-Based Procedures

Target	No. (%) of respondents		
	Total	Adherence	Unsure
Acute care length of stay 4.4 days	29	19 (65.5)	10 (34.5)
Discharge destination 90% home	25	14 (56.0)	–
Preoperative session offered	27	21 (77.8)	–
Use of outcome measures before operation	30	11 (36.7)	–
Early mobilization	29	19 (65.5)	10 (34.5)
Postoperative education	29	26 (89.7)	–
Discharge criteria	27	12 (44.4)	–
Standardized referral to outpatient services	27	17 (63.0)	–

Note: Dashes indicate no response or unsure.

Table 3 Perceived Adherence to Total Hip Replacement Quality-Based Procedures

Target	No. (%) of respondents		
	Total	Adherence	Unsure
Acute care length of stay 4.4 days	40	27 (67.5)	11 (27.5)
Discharge destination 90% home	26	22 (84.6)	–
Preoperative session offered	58	37 (63.8)	17 (29.3)
Use of outcome measures before operation	45	22 (48.9)	–
Early mobilization	52	36 (69.2)	–
Postoperative education	55	52 (94.5)	3 (5.4)
Discharge criteria	49	28 (57.1)	14 (28.6)
Standardized referral to outpatient services	46	30 (65.2)	13 (28.3)

Note: Dashes indicate no response or unsure.

and BPG, about the multiple versions of both, and about organization-specific care pathways.

Funding restrictions and lack of flexibility in the allocation of funds in the health care model were seen as another barrier to implementing the QBPs. A lack of funding affects a physiotherapist's ability to implement the QBPs and an organization's adherence to them. This is more evident in the hospital system, particularly in the small, rural hospitals that assume care of patients in the post-acute phase.

Communication about patient outcomes along the continuum of care, from "prehabilitation" (preoperative education and exercise) to community care, within the inter-professional team (patient, family, family physician, surgeon, nurses, and rehabilitation professionals, including physiotherapists) was considered both a barrier to (lack of communication) and a facilitator of (good communication) implementation.

Poor or decreased availability and equity in access to outpatient and community-based PT services was identified as a barrier, one that particularly affected small, rural communities. Conversely, good and equitable access was reported as a facilitator of implementing the QBPs.

Table 4 Perceived Adherence to Hip Fracture Quality-Based Procedures

Target	No. (%) of respondents		
	Total	Adherence	Unsure
Weight-bearing as tolerated postoperatively	41	19 (46.3)	–
Mobilized in 12–24 h	41	27 (65.8)	12 (29.3)
Standing in 24 h	41	20 (48.8)	12 (29.3)
Mobilization 7 d/wk	41	4 (9.7)	–
Discharge from acute care on Day 5	39	17 (43.6)	18 (46.1)
Physiotherapy on discharge (in-patient, outpatient, or community)	41	39 (95.0)	–
Home care assessment in 6 d	16	12 (75.0)	–
Education regarding:	49	–	–
Falls prevention		30 (61.2)	–
Home environment and hazards		29 (59.2)	–
Mobility		39 (79.6)	–
Stairs		37 (75.5)	–
Balance and gait retraining		38 (77.6)	–
Home exercise program		37 (75.5)	–
Medications		15 (30.6)	–
Pain control		30 (61.2)	–

Note: Dashes indicate no response or unsure.

Awareness and knowledge

Several participants (5 of 12) indicated they were unaware of the QBPs; however, after further discussion, many said they were aware of, and were following, various previously established BPGs. Participants discussed the fact that there were multiple care maps, pathways, and guidelines and multiple versions of them, many of which they considered lengthy. They suggested there be one document, stored in an accessible location, that clearly outlined roles, activities, targets, and location, including home care; this would be beneficial to them, the health care team, and their patients and families.

Although the goals of the QBPs would appear to match the needs of physiotherapists, the lack of awareness of a user-friendly document suggests the current QBPs were distributed primarily at the administrative level, and inconsistently reached front-line clinicians. The participants recommended that all members of their team would benefit from knowledge and awareness of the QBPs and that education should include all clinical staff. They suggested professional association Web sites, webinars, conferences, and electronic news blasts were good forums for distributing the QBPs. Using established communication forums, such as the Greater Toronto Area (GTA) Rehab Network, and participating in research or quality improvement projects were other recommended ways of increasing awareness and changing practices. These suggestions were consistent with interviewees reporting that the presence of peer support and practice leaders facilitated awareness of, and access to, QBPs.

I would say just offer more teleconferences. Keep doing mail-outs. Make sure every OPA conference, every [Canadian Physiotherapy Association] conference has something about the best care guidelines and just keep it. Keep it in the therapists', for lack of a better word, keep it in our face. (Participant 6)

Participants reported that before implementing the QBPs, many clinical care maps and pathways had been based on BPGs. After the QBPs were implemented, some inter-professional teams reviewed their existing pathway to ensure adherence and identify gaps. This review process included multi-sector stakeholders from across the care continuum, including administrators, front-line clinicians, and home care agencies, and was recommended.

Flexibility and funding

Interview participants consistently reported that QBP targets and funding changes were meaningful to hospital administration and valuable in supporting requests for resources. Appropriate staffing for weekend and vacation coverage, equipment, and space were identified as facilitators to adherence. One participant noted her facility used an algorithm to calculate and adjust staffing levels to accommodate increases and decreases in surgeries.

We happen to have a direct mathematical formula here because we do so many hip and knee replacements. When they increase the volume, there's a mathematical formula that we've created that tells senior admin how much extra physio, [occupational therapy], and rehab assistants' time we need in order to see those people before surgery, on the in-patient unit, and postop out-patient as well, so we don't have a problem from that point of view. (Participant 3)

Although participants reported that flexibility was a positive factor, variability in the care continuum and access to care were noted. Some regions transitioned patients from acute care to home care and then to outpatient care, and other regions discharged patients directly from acute care to outpatient therapy without home care. This was regarded as both a potential inefficiency and a positive source of flexibility within the system. Several participants noted the current outpatient prioritization of post-surgical intervention, which limits access to PT for prevention or delay of surgery. They suggested all individuals older than age 50 years be seen for screening and a preventative exercise program. They also noted the importance of prehabilitation in overall post-surgical planning and meeting QBP-targeted lengths of stay. More funding in the community for patient care was identified as required, with the current per-visit model described as a barrier to access. The basis of the new Patient-Based Funding model is to fund a patient through the continuum of care; this was not seen as always translating directly to care in the community, outpatient services, or small, rural hospitals. Finally, another recommendation was to promote the use of private health care for those who could afford it.

Communication

Communication about patient outcomes, within the inter-professional team, and along the continuum of care (prehabilitation to community reintegration) was considered to be a key element in the successful implementation of the QBPs. Transitions along the care continuum have previously been identified as being problematic.¹⁶ Communication gaps during the transition from acute care to home care were identified, with lack of access to hospital records being one cause. In response, alternative communication strategies were described; one participant described a single record that followed a patient.

We have a sheet that we fill in that follows the patient, that's sort of like a summary of the treatment given so far: the range of motion, the strength that they've got at that point. We give it to the patient to take with them to the next phase in the rehab. (Participant 11)

Participants described a need for a communication record, such as a checklist or standard protocol, which would be used throughout the province and could be made available to all providers, including those in private practice. One physiotherapist from a smaller hospital described networking with the regional tertiary centre to ensure continuity when patients returned to their home community.

Communication with patients was identified as facilitating good outcomes; it included encouraging patients to set goals, prepare for their discharge, and arrange outpatient appointments. Although communication with surgeons was identified as a challenge, therapist-to-therapist contact was considered valuable; many participants reported using the telephone and email to discuss transitions in care. Participants also described the advantage of having one electronic medical record they could access for a patient's prehabilitation education, surgery information, X-rays, and outcomes achieved (or not) along the continuum of care.

Available and equitable access to outpatient and community physiotherapy services

Participants thought lack of funds or insurance for private services was a barrier for many patients. Participants acknowledged that the introduction of publicly funded community clinics had improved access to outpatient PT services for TKR, THR, and HF; however, they were uncertain about which patients were eligible to access these clinics. The addition of falls-prevention classes in the community enabled them to better adhere to the QBPs with respect to falls prevention, health maintenance, and improvement for all seniors, with the caveat that advertising for these classes should be improved.

Participants thought hospital outpatient services prioritized TKR and THR and facilitated access to these services. HF's were also prioritized, but physiotherapy was not as readily available. One participant reported that because

of the prioritization of post-surgical TKR and THR populations, access to publicly funded PT to prevent or delay surgical intervention for knee or hip osteoarthritis had become essentially unavailable; this was even more apparent in rural areas, where recruiting and retaining health care professionals were additional barriers.

Transportation to outpatient facilities was described as being a barrier for patients; participants thought that it negatively affected length-of-stay targets and post-acute care QBP components. Variability in access to home care services because of an absence of services, a lengthy wait-list, or a limited number of visits approved by the local Community Care Access Centre was another barrier. Some locations reported minimal wait times or no visit limits, which facilitated QBP adherence. Participants thought barriers to transportation and home care access were accentuated in rural Ontario communities compared with urban communities.

One participant articulated several varied challenges associated with access:

I see a discrepancy in the funding from urban centres to rural centres. Urban centres usually have patients who do have private insurance for outpatient physio at private clinics, whereas [in] the rural centres, generally people do not have an insurance provider. So ... if the money could follow the patient so that the care would be accessible the same way. It doesn't seem that we have the same accessibility because of funding. (Participant 8)

DISCUSSION

Physiotherapists reported positive attitudes toward the use of both the BPGs and the QBPs but an inconsistent awareness and knowledge of and adherence to them. The results of this study suggest a large number of physiotherapists are currently using clinical experience rather than BPGs or QBPs to inform their practice. Although no trends were noted for differences in the number of years of practice, a large percentage of participants reported more than 20 years of clinical practice, which may have influenced the results. The third-quarter 2013–2014 Ontario Ministry of Health and Long-Term Care Orthopaedic Quality Scorecard reported that although 98% of both TKR and THR groups met the 90th-percentile target of a 7-day hospital stay, regional variability persists in meeting established targets for discharge home within 4.4 days for both patient groups.¹⁷ Variability in the management of HF patients has also been identified.¹⁸

Implementing the QBPs requires planning, multi-sector collaboration, and education. Adherence includes the active involvement of patients and families for surgery preparation, where appropriate, and discharge home. Many participants said that preoperative education sessions were offered at their locations, yet their questionnaire responses indicated these sessions did not encompass key aspects of the TKR and THR QBPs. For

example, only 22%–45% of respondents included education about engagement of social supports, home adaptation and equipment, postoperative complications, pain management and PT treatment, weight-bearing orders, and expected day of discharge. This suggests a knowledge gap in important aspects of the preoperative phase. The GTA Rehab Network has identified prehabilitation as being critical for successful surgical outcomes and meeting the goal of discharging home 90% of patients directly from acute care.¹⁹

In contrast to preoperative variability, physiotherapists working in acute care perceived relative consistency in the components: outcome measures, patient education, and patient mobilization. This suggests that direct care, in the hospital setting, for TKR, THR, and HF patients appears to be standardized. However, at discharge from hospital, a significant barrier to recommended post-operative care was lack of social supports. Social supports have been identified as being pivotal for successful discharge home by providing assistance with accessing and understanding educational materials, arranging for equipment and home care needs, supporting adherence to treatment, assisting with activities of daily living and transportation.⁸ This highlights the need to engage supports in the TKR and THR preoperative phase to assist patients throughout their care, prevent challenges at discharge, and meet established targeted discharge times.

One factor that complicates the relationship between perceived adherence and practice is the multiple versions of the QBPs and multiple BPGs for TKR, THR, and HF management. The goal of the QBPs was simplification by merging all the BPGs into one document that would outline the care pathway, standards, and targets for these populations along the care continuum. At the present time, unfortunately, limited evidence about the home care sector prevents inclusion of the community-based phase of rehabilitation and the home care sector into the QBPs.

The number of participants responding that they were unsure about aspects of patient care was of particular interest. Many participants were unaware of the previous care a patient had received. They suggested a checklist follow a patient through his or her entire course of care; the milestones reached should be indicated to inform the next clinician if, when, and where goals have or have not been met. It appears a lack of communication exists among the health care sectors,¹⁶ and this may contribute to a lack of optimization of patient care and resource use along the care pathway.

Related to this, terminology appeared to be a source of confusion and a potential barrier to implementing the QBPs. *QBP* and *BPG* were often used interchangeably, creating confusion for those unaware of the relationship between the two. Many therapists, particularly those working in home care, reported being unsure of what the BPGs or QBPs were, whether they used them in their practice, or both. Different terms are used to describe

the BPGs: *care paths*, *care pathways*, *clinical practice guidelines*, and *the Hip & Knee Replacement Toolkit* (often referred to as *the toolkit*). Survey participants indicated they used institution-specific protocols; however, many did not know whether the protocols were based on BPGs or QBP and, furthermore, what the current version was. This highlights a key area: Clarity in language as well as the importance of support from administration could enhance adherence through knowledge-translation strategies and appropriate resources.

The results from the qualitative phase supported those of the survey data: Physiotherapists' attitudes toward the BPGs and QBPs were generally positive, but barriers to implementation persist. Participants identified several strategies that had facilitated implementing the QBPs in their organizations or had the potential to do so. They recommended improving overall knowledge and awareness of the QBPs by making one, current version of the relevant QBPs available in one central, easily accessible location, and they recommended having multiple information-sharing strategies aimed at the entire care team. Although flexibility and funding were perceived to be a challenge, particularly in small, rural communities, they provided a way of supporting both patient care and clinicians by matching resources to care demands and needs.

Communication was identified as a key factor in addressing many of the perceived barriers to adherence. Improved communication of patient outcomes was recommended for the entire care team, along the full continuum of care, and particularly at points of transition. Several clinicians reported that communication and support from administration and practice leaders had been valuable in implementation for them and their organizations. Finally, whereas availability of and equitable access to outpatient and community-based services were perceived to be challenges in terms of making appropriate referrals, participants identified that provincially supported, clinic-based funding had the potential to address issues of joint replacement, disease prevention, and optimization of health.

This study has several limitations. Home care providers were over-represented, and private outpatient providers were not represented. There were gaps in the geographical distribution of the survey participants; therefore, study findings cannot be generalized to the whole province. In addition, determining the overall survey response rate was not possible because we used snowball sampling.

CONCLUSIONS

The findings from this study suggest most physiotherapists surveyed used clinical experience rather than the BPGs and QBPs to inform PT care after TKR, THR, and HF. The study found that physiotherapists have positive attitudes regarding the importance of implementing the BPGs and adhering to the QBPs, but only a small

majority perceive their institutions or organizations adhere to the standards set by the QBPs. It appears Ontario's QBPs for TKR, THR, and HF are currently more an administrative tool than one that informs clinical practice. Care maps and pathways often conclude once patients are discharged from hospital and are not shared with the community. This lack of inclusion of the community-based phase of rehabilitation and the home care sector has the potential to affect overall patient outcomes because home care PT is a recognized part of the continuum of care for many patients.

Of particular note, the results of this study point to the desire of physiotherapists for documents such as the QBPs, which synthesize research and best practices. Recommendations by participants suggest ongoing education and support, particularly mechanisms to support clinical care across the care continuum, such as checklists, would facilitate understanding and adherence to the QBPs.

Physiotherapists are an integral part of a rehabilitation team, and they guide the quality of health care services and patient progress through the rehabilitative continuum of care. Because health care professionals implement key aspects of the QBPs, it is important they be aware of them.

Physiotherapists are well placed to positively affect the implementation of the QBPs, thereby improving the quality of care for patients along the care continuum. This is a preliminary study; further investigation is recommended to obtain a more complete picture of how well physiotherapists working in Ontario are adhering to the QBPs and how adherence can be improved.

KEY MESSAGES

What is already known on this topic

Several resources are available for clinicians, including Bone and Joint Canada's National Hip Fracture Toolkit, its Hip and Knee Replacement Toolkit, and Ontario Quality-Based Procedures (QBPs). In addition, the Greater Toronto Area Rehab Network has identified lack of access to publicly funded physiotherapy as a barrier to meeting best practices, and it has created a care map to facilitate patient transition along the continuum of care.

What this study adds

This study was the first to examine adherence to the QBPs among physiotherapists treating patients after total knee replacement, total hip replacement, and hip fracture. Although belief that the best-practice guidelines (BPGs) improve patient care is high among clinicians, actual perceived adherence rates throughout Ontario along the continuum of care are only fair. Participants in the survey identified access to, and awareness of, the BPGs as barriers to implementation. They also believed flexibility in funding, along with improved access to outpatient care, might facilitate adherence to the QBPs.

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