RESEARCH PAPER

Appropriateness for Total Joint Replacement: Perspectives of Decision-Makers

Pertinence de l'arthroplastie totale : point de vue des décideurs

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Abstract

Background: Improving access to total joint replacement (TJR) has been a priority. Without robust mechanisms to ensure appropriateness, these procedures may be overused, incurring substantial costs. In that context, decision-makers are particularly concerned with the appropriateness of TJR.

Objective: While our previous research focused on the appropriateness of TJR from clinical and patient perspectives, this study is aimed at understanding decision-makers' perspectives.

Methods: Using a semi-structured guide, we interviewed a convenience sample of decision-makers in four Canadian provinces (Alberta, Manitoba, Nova Scotia and Quebec) between February and March 2013. For the purposes of this study, a decision-maker was defined as a manager, institutional leader or policy maker.

Results: Fifteen interviews were conducted with decision-makers at ministry (n = 3), regional (n = 6) and institutional levels (n = 8). Decision-makers see themselves as having a key role in the appropriateness discourse, that of optimizing resource allocation and efficient delivery of services for TJR, to improve population outcomes.

Conclusion: The decision-makers' view of appropriateness recognizes the importance of the clinical view, but it offers a very different input into the appropriateness discourse, more closely aligned with appropriateness of setting, which refers to cost-effectiveness considerations.

Résumé

Contexte : L'amélioration de l'accès à l'arthroplastie totale de la hanche et du genou est devenue une priorité. Sans mécanismes solides pour en assurer la pertinence, ces procédures pourraient être surutilisées, ce qui engendrerait des coûts importants. Dans ce contexte, les décideurs sont particulièrement concernés par la pertinence des prothèses totales de la hanche et du genou.

Objectif : Alors que notre recherche antérieure portait sur la pertinence de l'arthroplastie totale de la hanche et du genou du point de vue clinique et du point de vue du patient, la présente étude vise à mieux comprendre le point de vue des décideurs.

Méthodes : Sur la base d'un échantillon de convenance et à l'aide d'un guide semi-dirigé, nous avons interviewés des décideurs provenant de quatre provinces canadiennes (Alberta, Manitoba, Nouvelle-Écosse et Québec) entre février et mars 2013. Pour les besoins de cette étude, un décideur était défini comme un gestionnaire, un dirigeant d'institution ou un responsable de politiques.

Résultats : Nous avons mené 15 entrevues auprès de décideurs travaillant dans un ministère (n = 3), au niveau régional (n = 6) et au niveau institutionnel (n = 8). Les décideurs considèrent qu'ils jouent un rôle important dans le discours qui porte sur la pertinence, à savoir l'optimisation des ressources et l'efficacité de la prestation de services pour l'arthroplastie totale de la hanche et du genou, et ce, dans le but d'améliorer les résultats pour la population.

Conclusion : Pour ce qui est de la pertinence de l'intervention, les décideurs reconnaissent l'importance du point de vue clinique, mais ils offrent une toute autre perspective dans le discours sur la pertinence, plus près de celui des établissements qui s'intéressent aux aspects liés au rapport coût-efficacité.

Earlier research on appropriateness focused on unwarranted variations in treatment and practices (Blais 1993; Casparie 1996; Wennberg 2002, 2011; Wennberg and Cooper 1998), geographic variations (Bernstein et al. 2011; Birkmeyer et al. 2013), appropriateness of interventions (Brook and Kamberg 1993; Caulfield 1996; Wennberg 2002), criteria for appropriate care and methods to assess appropriateness (Brook et al. 1986; Hicks 1994; Kahan et al. 1994; Kahn 1988). Traditionally, appropriateness has been seen as a determination of net clinical benefit, but, over time, it has become more directly linked to cost-effectiveness and efficiency. This perspective focuses on ensuring that services are realized in the most efficient way (i.e., lowest cost and maximum effectiveness) (Lavis and Anderson 1996; Sanmartin et al. 2008). In the context of scarce resources, there is pressure on policy makers to deliver a set of rational rules that decision-makers can use to determine what care is considered appropriate (World Health Organization 2000). Consequently, many countries have started to develop priority-setting mechanisms based on criteria such as cost of services, potential impact (health impact and cost effects) and cost-effective alternatives (Elshaug et al. 2009; Holm 1998; Tromp and Baltussen 2012).

In Canada, pressures to reduce waiting times and increase access have led to an expansion in the supply of total joint replacement (TJR) surgery. Acknowledging that supply-induced demand can occur, it is reasonable to question whether, without robust mechanisms to ensure appropriateness, these procedures may be overused or misused, thereby incurring substantial costs with either no or little improvement in patients' health status (Fisher et al. 2003; Sirovich et al. 2006). Studies in Spain and Canada have demonstrated that 60–80% of TJRs were considered appropriate, according to established evidence-based criteria (Quintana et al. 2008; van Walraven et al. 1996). Another Canadian study demonstrated that the implementation of routine evaluation of indications for TJR surgery can largely improve patients' outcomes and quality of life (Wright et al. 2002). While the appropriateness of TJR is currently based on clinical criteria, at the system level, there are no criteria and mechanisms to ensure that these services are appropriately delivered. In that context, it seems particularly important to know what decision-makers think of the issue of appropriateness for TJR.

Our previous research elicited both surgeons' and patients' perspectives on appropriateness of TJR. These two studies informed clinical criteria to guide appropriateness for surgery, for example, levels of pain and mobility, co-morbidities and patients' expectations and motivation (Frankel [in preparation]; Frankel et al. 2012). While these studies have addressed the clinical and patient perspectives of the appropriateness of TJR, the decision-maker perspective is required. Hence, the purpose of this qualitative study is to understand decision-makers' perspectives on appropriateness of TJR. For the purposes of this study, a decision-maker was defined as a manager, institutional leader or policy maker.

Methods

Using a semi-structured guide, we interviewed a convenience sample of decision-makers in four Canadian provinces (Alberta, Manitoba, Quebec and Nova Scotia) between February and March 2013.

Members of the research team identified 27 potential interviewees at the provincial ministry, regional and institutional levels. All potential candidates were initially contacted by the principal investigator (TN) to alert them of the project. Within days, each of the provincial team members sent formal invitations and consent forms to the potential participants in their respective province. The consent form included a fax-back sheet, indicating consent to participate.

Telephone interviews were scheduled to take approximately 30 minutes. Interview questions were sent in advance to permit decision-makers the time to reflect on the questions (Appendix 1, available at: <http://www.longwoods.com/content/24522>). For the Quebec interviews, the questions were translated into French. Consent to record the interviews was obtained for all respondents. Recorded calls were transcribed and assigned a unique identification number. French interviews were first translated to English and then transcribed. To protect privacy, interviewers avoided using names during the interview.

In compliance with criteria for methodological rigour in qualitative research (Creswell 2003; Patton 2002), two techniques were used for coding: primary open coding, followed by thematic and selective coding. Initially, two authors independently coded three transcripts, developed relevant codes and themes independently, and then met to discuss and reach consensus on the relevant codes and themes. Three additional transcripts were independently coded using the established codes and themes, and then compared to assess reliability. Subsequently, all transcripts were coded separately by both coders. Data were then analyzed using NVivo (Version 9).

This study was approved by the Conjoint Health Research Ethics Board of the Faculty of Medicine at the University of Calgary.

Results

In total, 15 interviews were conducted with decision-makers from Alberta, Manitoba, Quebec and Nova Scotia, representing the provincial ministry of health (three), regional health system (six) and institutional (eight) levels. Two respondents operated at both regional and institutional levels. Two respondents at the institutional level were also physicians. Responsibilities of the respondents included monitoring of quality and standards of care; allocation of resources; and measurement, reporting and interpretation of data on access to TJR. To protect privacy, the quotes below refer only to the type of decision-makers (ministry, regional and institutional).

Defining appropriateness and related issues

All respondents recognized that appropriateness included clinical factors, such as pain, mobility and quality of life. Decision-makers stated that appropriateness for surgery for an individual patient was a decision between the surgeon and the patient. They did not see themselves involved in that decision ($n = 6$). Instead, decision-makers saw their key role with respect to appropriateness of TJR as being focussed on efficient allocation of resources, to provide a range of services and to maximize patient outcomes ($n = 7$). By monitoring population outcomes, creating ways to improve the efficient use of resources and monitoring clinical standards, decision-makers saw that scarce resources would be allocated appropriately to meet population need.

> We have a really big role. I think our role is to do what we're trying to do, and that is really to do the exploration into not individual patient level data, but high system level data, and start looking at, from a population perspective, what are the criteria for which it is appropriate to go for surgery? What are the appropriate times to do interventions? What are the outcomes of those interventions? *(Regional)*

In defining appropriate delivery of TJR, decision-makers provided insights regarding current trends and practices, some of which may be contributing to the inappropriate use of TJRs. These are primarily associated with a focus on the supply of TJR versus the need for services. This focus is due, in part, to the need for reducing waiting times. As a result, much of the strategy has been on increasing volumes "without casting doubt on appropriateness." (*Institutional*)

> We're growing the number of cases at an alarmingly high rate and maybe that's just not appropriate. We've been so hung up on wait times, with good reason, that we've forgotten that maybe we're doing too many people. *(Ministry)*

From the decision-makers' point of view, this focus raised several issues mostly related to budget allocation (n = 8). They raised concerns that if payment mechanisms continue to reward the volume of surgery, it could be to the detriment of preventive programs or other medical or less invasive options.

> We end up driving volume to keep orthopaedic surgeons productive on doing activity that maybe is not where the most benefit for the patient would be. (…) we aren't necessarily incenting our system always in the best way. *(Ministry)*

The focus on increasing the supply of TJR services has several consequences. Decision-makers (n = 5) raised concerns that TJRs may sometimes be considered prematurely or without offering all alternative non-surgical options. While this may not have been a problem in Canada in the past because of excessively long waiting times, with facilitated access to TJR, timing is emerging as an important appropriateness issue.

> We have had some patients where they may have been offered or encouraged to have hip or knee joint replacement perhaps prematurely, and they've ended up suffering more pain and frustration post-op than they were experiencing pre-op. *(Regional)*

Opportunity costs were also identified as a key issue (n = 9). Decision-makers recognized that money spent on TJR could not be spent on other needed services, and that prioritizing TJR could have a crowding-out effect on other things. While trade-offs were seen as necessary, what was being traded off was often not explicit. Decision-makers wanted

to get it right, wanted to spend money where there was demonstrable need and, furthermore, allocate it to maximize population outcomes.

> One of the things that we do get challenged with is balancing our budgets (…). How do you balance out elective joints versus massive trauma? *(Regional and Institutional)*

Finally, decision-makers (n = 3) also raised cost-effectiveness of TJR as an appropriateness issue. It was noted that there were many prostheses on the market and that efficacy evidence was not always available to guide decisions. Over time, some prostheses have been shown to exhibit relatively high failure rates, thus exposing the patient to a higher-risk revision procedure. Beyond efficacy considerations, decision-makers were also concerned about the costs associated with the prostheses.

> What we're really lacking is information around the outcome associated with different types of joints. That's a huge issue: do we have to buy the most expensive joint, or would a lesser-cost joint do the trick? What are the outcome studies that have been done to prove that we need a fancier kind of joint with fancier materials so that it really does make a substantive difference and makes economic sense? *(Regional)*

Toward efficient delivery of services

When decision-makers defined appropriateness of TJR, they all addressed efficiency. Efficiency is one of the components of appropriateness from their system-level perspective. For them, efficient allocation of resources and delivery of services involved several aspects, including educational programs for patients to inform them about their options and choices, centralized intake to reduce variation in waiting lists among surgeons, implementation of care pathways or trajectories resulting in the best use of surgical and supportive resources, sharing and monitoring of clinical standards and analyzing population benefits. All of these activities lead to improved efficiencies, and decision-makers suggested that it was part of their role to ensure that these programs and strategies are in place (n = 12).

Patient Preparation: Educational programs were said to be important to ensure that the patient and family understood the risks and benefits of TJR, what to expect both during and after their hospital stay and to explain some of the alternative options and treatments (like weight loss, physiotherapy and pain management) (n = 8).

> From a more system point of view and appropriateness to us also speaks to the patient has received all of the options (…) to move forward with the most appropriate options for them and to make those options available to them so that we're not driving only one solution. *(Ministry)*

Central Intake: Central intake was one method to apply standards and reduce variation. Having one intake ensures that the process for referral is the same for every surgeon and helps to distribute referrals evenly among surgeons. Most decision-makers (n = 9) stated their perception that overuse and misuse were not major problems, as access has been so constrained, albeit they reported that confirming overuse or misuse is difficult, since clinical criteria are not explicit.

> We created a central intake, so the referrals come through it now, as opposed to directly from the family physician, or primary care physician, to the orthopaedic surgeon. We screen if all the referral information is included before it goes off to the orthopaedic surgeon, and if it's appropriate. *(Regional)*

Care Pathways: Decision-makers (n = 5) identified the need to standardize and optimize the care pathway for patients undergoing TJR. Incorporating guidelines, standardized care maps and checklists not only ensures that all patients receive the care that they need but also makes the best use of surgical and supportive resources. Sharing and monitoring of clinical standards was also important in maximizing resources and reducing variation.

> We tried to isolate each of the variables so the duration of the stay in the ER, the time pre-surgery, the type of surgery required, the percentage of costs related to the patient post-surgery, or the load also placed on the hip if the patient can't bear with a certain load, and complications in post-op. We tried to isolate each of the variables, and then we sent letters to all orthopaedists signed by Orthopaedic Heads in order to tell them how we might adopt the best hip replacement surgery process and practices. *(Institutional)*

Information needs

In their efforts to improve appropriateness of TJR, decision-makers identified several information needs including better information on the need for services, outcomes and cost-effectiveness evidence.

Decision-makers wanted to know that money was being allocated among the population based on need, not just demand. They wanted to be able to estimate need better within a local population in order to better forecast and adjust volumes (n = 3). But decision-makers are also thinking about estimating the need for surgery and projecting that into the future.

> It goes into some of our decision-making when we're looking at the demand of a population and the rate of need in a population and where we see a higher rate of need in a smaller population. It does raise questions about why is this population looking at a higher incidence of joint replacement than the region next door. *(Ministry)*

Decision-makers also wanted (n = 2) information on patient outcomes (like quality of life, readmission rates, functional scores, revision rates or patient satisfaction) that could be aggregated into a regional or provincial view. Patient outcomes also permitted decision-makers to monitor quality and clinical standards (n = 3). Even though the perspective of decision-makers was at a system or population level, patient data enabled a better understanding of clinical appropriateness of TJR and helped with decision-making at a system-level perspective.

> While I don't want to explore every individual patient's journey individually to try to analyze it, we need individual level data from patients in order to aggregate it and to actually do the analysis that we need to do. *(Regional)*

To support their allocation decisions, decision-makers (n = 3) wanted information on indicators that permitted comparisons between surgeons, sites or regions. They also needed evidence of outcomes to plan for the level of resources that would permit patients to access TJR appropriately in the future.

> We need to understand the variability in the services that we provide from region to region or clinician to clinician to really understand if we have a consistent provision of that service. In many cases it's more in terms of a regional clinician management point of view, so ensuring as a medical standard that the clinicians providing those services within the region are providing those services equitably. *(Ministry)*

Decision-makers also identified the need for cost-effectiveness evidence, not only the cost-effectiveness of devices used for the surgery but also economic evaluations of TJR for different population groups, especially in relation to age, and the cost-effectiveness of alternative treatment options (n = 5).

Usefulness of a decision-support tool

When asked about the usefulness of a decision-support tool for TJR appropriateness, all decision-makers stated that a tool would be useful to facilitate clinical decisions between surgeons and patients. Such a tool would assist in educating patients and in standardizing indications for surgery. It would also assist in understanding the appropriateness of clinical criteria, and help in co-managing priorities between managers and clinicians.

> If there was an objective tool to look at indications, then I think decision-makers would be quite eager even now to have that tool applied so that it provides further reassurance that we're practicing within an acceptable norm. *(Regional)*

Gathering the data from the components of a decision-support tool would help to develop standards and guidelines for surgery. Three decision-makers stated that the information could also be useful to family physicians to help them in making appropriate referrals, and to share in the decision-making between the patient, the family doctor and the surgeon.

> But once those policy guidelines are established (...) patients need to be made acutely aware of that too, as does primary care. I think that it's very important to develop decision-support aides and criteria, how frequently should these patients be seen? How effectively are they being managed and by whom? (...) Maybe we have the services, but they're not well used or we are not providing the caregivers with better tools to help manage those patients. *(Ministry)*

Another use for a decision-support tool would be to assess and monitor patients who are currently on waiting lists. The tool would give decision-makers some assurance that patients who are waiting for surgery are appropriate and ready for the procedure.

> Tool sounds like it would be extremely useful … what I would particularly love about it is that we would then have a higher level of confidence, that the patients who are on the wait list are in fact, ready for surgery, and appropriate for surgery. We don't currently have that confidence. *(Ministry)*

Discussion

Decision-makers recognized their need to be a part of the appropriateness issue. In keeping with their systems' perspective, they wanted to be assured that surgeons were applying clinical criteria or guidelines in determining clinical appropriateness for surgery and that patients who were on the waiting list for surgery were appropriate candidates. Nevertheless, decision-makers did not see themselves as having a role in the individual surgeon–patient determination of appropriateness for surgery. They also see themselves as having a key role in optimizing resource allocation to improve population outcomes, especially in regard to the standardization of care processes (or ways that patients received care). Decision-makers struggled with lack of information to better inform resource allocation decisions, especially concerning need for services, patients' outcomes and cost-effectiveness evidence on prostheses. While some of this lack of information may be related to the absence of data, some of it is no doubt related to having analytical products that are better designed to convey needed information. Supporting high-quality care requires decision-makers to have timely and accurate information (Braine 2006) regarding clinical effectiveness and cost-effectiveness of treatments and services (Elliott 2006; Elshaug et al. 2008, 2009).

Decision-makers and clinicians cooperation for appropriateness issues

Decision-makers clearly wanted a bigger role in the appropriateness issue and were in favour of closer cooperation with clinicians. This type of concern is found in the implementation of clinical governance initiatives, showing that managers need to ensure that clinical decision-making is informed by evidence-based criteria (Arulkumaran 2010; Braine 2006) to support continuous quality improvement (Brault et al. 2008; Pomey et al. 2008; Vanu Som 2004).

In terms of efficiency (i.e., optimization of resources allocation) decision-makers felt a responsibility to spend money wisely – to offer the right procedure for the right patient in the right place and in the right time (Donaldson and Gray 1998; Lavis and Anderson 1996). Efficiency principles are increasingly advocated to optimize the use of limited resources (Elshaug et al. 2009; Institute of Medicine 2013). From a clinical governance perspective, seeking efficiency requires managers to document procedures to guide all critical aspects of clinical care processes, ensuring integrated and standardized processes and pathways (Halligan and Donaldson 2001). To achieve efficiency, managers within healthcare organizations are encouraged to redesign processes by the identification of non–value-added activities (Chadha et al. 2012).

Strengths and limitations of the study

While TJR appropriateness was previously studied from a clinical perspective, this is the first study on appropriateness of TJR from a decision-maker's perspective, providing a system view of that issue. The qualitative method used allowed in-depth examination of perspectives (Lincoln and Guba 1985; Rubin and Rubin 2004) and provided rich data regarding appropriateness. However, there are some limitations to this research. First, our sample was relatively small in keeping with the objective of the study to gain an understanding of decision-makers' perspectives. Second, our sample was not necessarily representative, although the themes we extracted from the four provinces and the three decision-maker levels yield broad and valuable insights. The number of decision-makers at the provincial level was also a limitation, since only three were interviewed. Finally, decision-makers' opinions were likely influenced by current-day constraints and circumstances; they represent the lens of decision-makers from a particular perspective, at one point in time. For these reasons, our findings may not be generalizable to other settings.

Implications for policy and practice

In the context of resource scarcity, there is pressure on policy makers and decision-makers to develop a set of rules or criteria that could be used to determine what is appropriate from an efficiency perspective (Elshaug et al. 2009; Tromp and Baltussen 2012). This may also be termed the appropriateness of setting, that is, the least expensive mix of services to deliver the service (Lavis and Anderson 1996). A recent report (Ministère des affaires sociales et de la santé, direction générale de l'offre de soins 2012) offers a methodological guide for decision-makers in order to improve healthcare appropriateness.

It focuses on three areas for appropriateness improvement in terms of effectiveness and efficiency: clinical practices, healthcare pathways and models of care management.

Our previous research on patient and provider perspectives of appropriateness showed that their views reside in the domain of clinical appropriateness or appropriateness of service. The decision-makers' view of appropriateness recognizes the importance of the clinical view, but it offers a very different input into the appropriateness discourse, more closely aligned with appropriateness of setting. They expressed their need to take a greater part in the appropriateness issue, not to be directly involved in clinical decisions, but rather to ensure that the clinical decision-making process is informed by evidence-based criteria and also to ensure the optimization of resources allocation.

Our group is merging the patient and surgeon perspectives into a multi-faceted tool to guide both patients and surgeons. While decision-makers did not see themselves as directly part of that clinical decision, they expressed a thirst for such a guideline to inform their understanding of issues, such as access and equity, to collect data that will contribute to the development of clinical standards and to contribute to the understanding of patient outcomes.

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