

Consumer and clinician perspectives and pathways to inpatient rehabilitation after arthroplasty

Understanding consumer and clinician perspectives and the pathway to inpatient rehabilitation following arthroplasty in the private sector

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Abstract

Objective

To understand stakeholder perspectives and attitudes towards rehabilitation following arthroplasty and the factors which affect the chosen rehabilitation pathway. Specifically, to understand private consumer (patient and carer) and clinician (orthopaedic surgeon, physiotherapist and rehabilitation physician) perspectives and attitudes towards inpatients rehabilitation and alternative rehabilitation pathways.

Data sources

Primary data were collected in two stages. The first involved consumers, with data collected from 38 consecutive eligible private arthroplasty patients' and 19 carers from two sites within Sydney, Australia, between January 13th and May 20th 2014. The second stage involved clinicians, with 19 orthopaedic surgeons, 10 physiotherapists, and eight rehabilitation specialists interviewed between November 3rd 2014 and February 16th 2015. Clinicians were randomly selected, and work within the private healthcare system in Sydney, Australia.

Study design

Qualitative, cross sectional study involved semi-structured interviews. Participants were asked about the perceived benefits and detriments of different models of rehabilitation provision, with a particular focus on inpatient rehabilitation, and rated the acceptability of five service models (outpatient group-based, outpatient one-to-one, domiciliary, hotel-based and inpatient rehabilitation). The decision-making process regarding whether inpatient rehabilitation was utilised was also investigated.

Data collection

Semi- structured interviews took place either face-to-face or over the phone. They continued until it was determined that no new information was being revealed from the interviews. Qualitative analysis software was utilised to electronically manage data and create reports for analysis. All data presented were categorised into emergent themes.

Principle findings

Consumer preferences for rehabilitation following arthroplasty tended towards the type of rehabilitation the patient had received. There was a variety of clinician-reported preferences for rehabilitation modes following arthroplasty. One-to-one outpatient physiotherapy was rated most acceptable by orthopaedic surgeons and physiotherapists, while inpatient rehabilitation was rated most acceptable by rehabilitation specialists. Three main themes emerged: the perceived benefits of inpatient rehabilitation; the perceived benefits of modes other than inpatient rehabilitation, and; the factors affecting the pathway to rehabilitation following arthroplasty.

Conclusion

No one mode of rehabilitation provided following arthroplasty is singularly preferred by stakeholders. Various factors, including many unrelated to clinical outcomes, affect a patients' path to the rehabilitation mode they receive following arthroplasty. Notions about the superior effectiveness of inpatient rehabilitation were only one of these many factors, indicating that high-level evidence about the relative effectiveness of this mode may not be, of itself, sufficient to influence care provision in the private sector.

Key Words

Background

This project aimed to understand consumer and clinician preferences for and attitudes towards models of rehabilitation following arthroplasty, as well as factors which affect the pathways to rehabilitation. The increasing annual volume of arthroplasty surgery requires sustainable models of service delivery. Given that inpatient rehabilitation is a comparatively costly option, understanding its perceived value when measured against other modes may help to inform decisions regarding the provision of alternative, more sustainable models of care.

In Australia, inpatient rehabilitation is a commonly utilised treatment option after total knee arthroplasty (TKA) and total hip arthroplasty (THA). More than two thirds of primary TKA and THA procedures are performed in the private sector in Australia (AOA, 2014). Inpatient rehabilitation is more commonly provided for privately insured TKA and THA recipients when compared to their public counterparts, particularly in New South Wales. Though the datum is not directly available, the proportion of arthroplasty recipients who attend inpatient rehabilitation after arthroplasty can be derived from unpublished data from the Australian Rehabilitation Outcomes Centre (AROC) and the National Joint Replacement Registry. In the 2011/12 financial year, approximately 46% of patients undergoing knee arthroplasty in the private sector (primary, revision or unicompartmental) in New South Wales received inpatient rehabilitation, compared to 9% of public patients in New South Wales and 32% of private patients Australia-wide.

As the demand for rehabilitation has necessarily increased consequent to increasing rates of surgery, the ongoing viability of the cost of inpatient rehabilitation provision following arthroplasty has been called into question (MPAC, 2005). The cost-effectiveness of inpatient rehabilitation has not been shown to be significantly superior when compared to an outpatient alternative from a health care insurer's perspective (Krummenauer 2008). In order to restrain costs, policy changes in the US point towards tightening admission criteria restricting inpatient rehabilitation after arthroplasty surgery (MMSEA, 2007; Gans, 2008). Implicit in these changes is the assumption that arthroplasty patients can be managed by outpatient services in a more affordable manner without diminishing outcomes.

The reasons for the comparatively high uptake of inpatient rehabilitation in the private sector are speculative. Utilisation may be driven by a belief that it yields superior joint-related recovery or health-related quality of life, but to date no trial has been published that either supports or contests the benefits of inpatient rehabilitation over outpatient or home programmes (excluding domiciliary) after TKA or THA. Interestingly, there is consistent evidence that more intensely supervised outpatient programmes do not, in the main, yield superior patient outcomes to less supervised programs (typically monitored or unmonitored home programmes) after TKA or THA (Coulter, 2013; Ko, 2013; Kramer, 2003; Mockford, 2008; Rajan, 2004). It is possible then that intensive inpatient programmes may also not yield better outcomes, in the main, than less intensive programs delivered in the community. This is not to say that closely supervised programs do not have their place. A recent study suggests that TKA patients presenting with the most impairment in mobility two weeks post-surgery may benefit more from supervised programs compared to those with less impairment (Naylor et al 2015).

In the absence of evidence regarding who may benefit most from the different types of rehabilitation programs on offer, the journey from the post-operative acute care setting to inpatient rehabilitation services for patients following TKA and THA surgery is presumably

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guided by the consumer and also the clinicians involved in post-operative care. In relation to the latter, there is variance in the preferences and attitudes of clinicians involved in arthroplasty in regards to rehabilitation options after surgery (Tian 2012). It is unclear why this is the case, but it is important that these variations are understood. The decision to send patients to inpatient rehabilitation may be guided by reasons related to a patient's clinical status but other factors, such as patient expectations, healthcare professionals' personal preferences and conveniences related to this particular mode may also influence their treatment recommendations (Stineman, 2009; MPAC, 2005). Whether evidence of effect is incorporated into dialogues between the consumer and care provider are unknown. An unambiguous understanding of patient preferences and how these are formed at an organisational, process and interpersonal level when investigating options for improvement to current systems or designing new health care delivery systems will clearly be useful when formulating policies in this area (Mühlbacher, 2015).

Primary Objective

The primary objectives of this study were to identify the perceptions and attitudes of consumers (patient and carer) and clinicians (orthopaedic surgeons, physiotherapists, and rehabilitation specialists) in regards to the different models of rehabilitation utilised after knee or hip arthroplasty, and the factors which influenced the decision for a patient to receive the model of care provided to them following arthroplasty.

Methods

Recruitment and consent

The consumer component of this qualitative, cross-sectional study was conducted as a nested study within a larger multicentre, observational study investigating the relationship between care received and outcomes after primary knee or hip arthroplasty (ClinicalTrials.gov NCT01899443). Consecutive eligible private arthroplasty patients and their carers were invited to participate in the study by two investigators (JN, MB) while attending the pre-operative admission clinic at two sites in New South Wales involved in the larger study. The decision was made to involve two sites with different business models; whilst both sites were private facilities, one owned an associated inpatient rehabilitation facility and the other did not. This choice was made to allow comparisons between sites, and investigate whether business models may have an impact on a patient's pathway after surgery. All individuals in this component of the study either underwent a unilateral or bilateral THA or TKA, or were identified as the primary carer for one of these individuals.

For clinicians, three separate computer-generated randomisation lists were created by one of the investigators (MB) for each of the individual groups; orthopaedic surgeons, rehabilitation specialists and physiotherapists. For orthopaedic surgeons and physiotherapists, the hospitals listed in the Australian Orthopaedic Association (AOA) National Joint Replacement Registry were used to generate a random sample of sites and a surgeon and physiotherapist at each identified site were invited to participate. For rehabilitation specialists and physiotherapists working in the sub-acute rehabilitation services, a list provided by the AROC was used to generate a random sample of sites, with the same method of recruitment and random sample generation utilised. All individuals in the clinician component of the study met the criteria of being responsible for the care of knee or hip arthroplasty recipients in the private healthcare sector in New South Wales within the last 12 months.

All participants were volunteers and provided written, informed consent at time of recruitment.

Ethical approval

Ethical approval for the consumer component of the study was provided by Hunter New England Human Research Ethics Committee (Ref: 12/11/21/5.02). A separate ethics application was submitted to and granted by St Vincent's Hospital Human Research Ethics Committee for the clinician component (LNR/14/SVH/301).

Sampling and data collection

The determination of an appropriate sample size in qualitative research is a key component of the legitimacy of analysis and conclusions drawn (Sandelowski 1995). The quality of the information collected was assessed after each interview, with consideration of newly emerging themes (Carlsen 2011). The sample ceased once it was determined no new information was being revealed from the interviews, i.e. at the saturation threshold (Fossey, Harvey, McDermott and Davidson, 2002). For patients, this occurred after 38 interviews, while the threshold was 19 for carers. It also took 19 interviews to reach this point with orthopaedic surgeons, while only 10 physiotherapy and eight rehabilitation specialist interviews were required to reach this point due to the relative homogeneity of responses from these groups.

Data were collected between January 13th 2014 and February 16th 2015, with interviews taking from seven to 25 minutes. Demographic and other contextual data obtained at the time of consent included age, gender, working status, Oxford Knee or Hips Score (Murray et al, 2007) and EuroQol Health related quality of Life scores (EuroQoL, 1990). One-to-one semi-structured interviews, either in person or over the phone, were conducted (by MB) for both consumers and clinicians. Consumer interviews took place approximately six weeks after the patient participant had their surgery. Heterogenous sampling was used for both consumer and clinician components to capture a wide range of experiences relating to models of rehabilitation (Patton, 2015). A generalizable cross-section of consumers participated, including knee and hip patients, males and females, workers and retirees, and those with significant comorbidities. The same was the case with clinicians, with participants from different age groups and with varying levels of experience.

Five alternative rehabilitation types presented in the interview were based on models provided in other countries, and those composed by the investigators based on current knowledge of patient preference for rehabilitation (Naylor 2012). These were: outpatient group therapy; outpatient one-to-one therapy, domiciliary therapy, hotel-based rehabilitation and inpatient rehabilitation. For consumers, the semi-structured interviews were developed by clinicians familiar with the pre-admission and post-surgery settings (MB and JN), and were piloted before use, with no changes deemed necessary following same. For clinicians, the semi-structured interviews were developed in consultation with an expert panel (orthopaedic surgeon, rehabilitation specialist and physiotherapist) and were piloted before use. A question around the benefits to the interviewee (question 3) was added to the clinician interview as a result of this pilot. Where possible, clinicians scheduled to take part in an interview were sent the questions in advance via email (Appendix 1) to enhance the productivity of the interaction.

Data management and analysis

Data analysis

All interviews were digitally recorded and transcribed verbatim. To maintain confidentiality, any identifying elements in interviews were deleted prior to analysis. Surface analysis was initially undertaken by three investigators (MB, GS, JN) independently to elicit preliminary themes (Sandelowski, 2000).

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The purpose of the study - to investigate consumer and clinician perspectives of rehabilitation following arthroplasty, and factors affecting the pathway to rehabilitation provided - guided our data analysis. Initial analysis included data reduction and display to organise subject matter into preliminary categories. QSR's NVivo qualitative analysis software (QSR International, 2010) was utilised to electronically manage data and create reports for analysis. All data presented were categorised into emergent themes, for example, 'transport arrangements' and 'sense of entitlement'. During the analysis, consumer respondents were stratified according to mode of post-operative rehabilitation received, which allowed mapping of possible trends that were related to the participants' recent experiences. In the final stages of data analyses, categories were merged into larger groups, culminating in the finalisation of major and sub themes, and drawing and verification of conclusions (Miles 2013). All researchers took part in the final interpretation of the data, with the original objectives and emerging themes guiding this process (Corbin, 2008).

Other data

Consumers were presented with five alternative rehabilitation modes, and asked to rank these in order of preference, with 1 being the most preferred option. The options presented were outpatient group-based, outpatient one-to-one, domiciliary, hotel-based and inpatient rehabilitation therapy. Similarly, clinicians were asked to score a one-purpose designed item that specified these same five alternative rehabilitation modes and used a five point Likert scale, with one being Highly Unacceptable, and five being Highly Acceptable (Appendix 1).

Data management

Recorded interviews were transcribed verbatim by typographers for collation and analysis. As recommended by Miles (2013), transcripts were reviewed against audio recordings (MB) to maximise integrity and trustworthiness of the data.

Study organisation

Study co-ordination and study progress

The principal investigator (JN) oversaw the study with the assistance of the coordinating investigator (MB), and led regular meetings of the field team and co-investigator group. The progress of the study was monitored and supported by the co-investigators (FK, IH, GS). The coordinating investigator managed recruitment, interviews, recordings, transcriptions and data analysis and storage.

Results and Interpretations

Descriptive statistics

A consumer sample comprising 38 patients and 19 carers, along with a clinician sample of 19 orthopaedic surgeons, 10 physiotherapists, and eight rehabilitation specialists, participated. One patient, four carers and one orthopaedic surgeon approached did not consent to be part of the study. Respondent characteristics for consumer participants are listed in Table 1, and for clinician participants in Table 2.

Table 1: Consumer and carer respondent characteristics

Demographic	Consumers <i>n</i> =38	Carers <i>n</i> =19
Age (years), mean (sd)	66 (11)	63 (12)
Female, n (%)	25 (67)	11 (58)
Employed, n (%)	11 (29)	5 (26)

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Oxford Score pre surgery, mean (sd)	23 (9)	-
EQ5D VAS pre surgery, mean (sd)	67 (17)	-
Knee surgery, n (%)	21 (55)	-
Unilateral surgery, n (%)	34 (89)	-
Previous arthroplasty, n (%)	7 (18)	-
Acute hospital length of stay (days), mean (sd)	6.2 (1.4)	-
Attended inpatient rehabilitation, n (%)	20 (53)	-

VAS: Visual Analogue Scale

Table 2: Clinician respondent characteristics

Demographic	Orthopaedic Surgeons	Rehabilitation Specialists	Physiotherapists
Age (years) , mean (sd)	52.1 (6.7)	51.9 (7.8)	36.3 (13)
Female, n (%)	0 (0)	4 (50)	4 (50)
Years practising, mean (sd)	18.5 (7.1)	16.4 (12.9)	11.6 (10.2)
Operations per year, mean (sd)	161 (91)	-	-

There were a variety of consumer-reported preferences for mode of rehabilitation provision post-surgery. Sixty-six per cent of respondents stated a preference for the same therapy if they were to have surgery again (Table 3). A total of 13 from 20 patients who received inpatient rehabilitation following surgery rated it as their preferred option, while 12 of the 18 patients who received other modes of rehabilitation nominated the one which they received as their preferred option. This trend was the same with carers, with 16 of the 19 carers nominating the mode of therapy delivery received by their spouse/parent as their preferred option.

Table 3: Rehabilitation preference according to mode received

Demographic	Received (n=38)	Prefer same mode
Supported home programme, n (%)	8 (21)	6 (75)
Outpatient based therapy, n (%)	6 (16)	3 (50)
Domiciliary therapy, n (%)	4 (11)	3 (75)
Inpatient therapy, n (%)	20 (53)	13 (65)

There were also a variety of clinician-reported preferences for mode of rehabilitation provision post-surgery. One-to-one outpatient physiotherapy was rated as the most acceptable by orthopaedic surgeons and physiotherapists, while inpatient rehabilitation was rated most acceptable by rehabilitation specialists. See Table 4 for a more detailed breakdown of the acceptability rating (out of 5) for the five modes of rehabilitation included.

Table 4: Acceptability rating of rehabilitation modes by clinicians

Option	Orthopaedic Surgeons	Rehabilitation Specialists	Physiotherapists
Outpatient rehab group	3.2	2.3	2.9
Outpatient 1:1 rehabilitation	4.1	3.5	4.6

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Domiciliary rehabilitation	3.6	3.1	3.9
Hotel based rehabilitation	3.1	2.8	3.2
Inpatient rehabilitation	3.6	5.0	4.5

Qualitative Analysis

Three overarching themes and their components (Table 5) guided the interpretive discussion of the research.

Table 5: Themes

Overarching theme	Sub theme
Preference for inpatient rehabilitation	<ul style="list-style-type: none"> · Previous experience of self or known others · Sense of entitlement · Perceived benefits for patient
Preference for mode other than inpatient rehabilitation	<ul style="list-style-type: none"> · Perceived unnecessary level of care/support · Previous experience of self or known others · Convenience · Competing priorities · Environment
Pathway to rehabilitation following surgery	<ul style="list-style-type: none"> · Role of orthopaedic surgeons, and influence of consumer preference for inpatient rehabilitation · Clinical status post-surgery · Private hospital business model · Insurance provider

Theme 1: Preference for inpatient rehabilitation

Inpatient rehabilitation was a highly valued option amongst many consumer and clinician participants. It was clear that there were many perceived benefits of inpatient rehabilitation as a mode of service delivery, which were directly linked to a preference for it post-surgery.

Sub theme: Previous experience of self or known other

A personal positive experiences with inpatient rehabilitation, either their own or that of family and friends, was a common factor for patients who preferred this mode of rehabilitation delivery. Often a patient's previous experience of attending inpatient rehabilitation fortified the idea in their mind that it would again be necessary following their upcoming surgery, while in other instances it was the words and experiences of family or friends that led to this as the preferred option or expected outcome. Patients and carers frequently described the convenience of having everything on hand, from the medical support to medication and meals:

'I had the medical service [at inpatient rehabilitation] if I needed it, I had pain relief on hand if I needed it, and it was a simple matter of walking down to the gym and hydro pool, and getting that twice a day and getting the regular exercise, and so I would've opted to do that again'. (Patient 32)

'...just having the medical staff and the monitoring going on. I mean at least for the first week just so that she's able to get fully mobile and gain the confidence to be able to get around, shower and that sort of stuff'. (Carer 5)

Patients also appreciated the opportunities to compare progress and interact with others in the same situation as themselves:

'Being with the other patients and chatting and comparing notes was excellent too, 'cause you felt that you weren't alone'; 'If she can do it, I can do it'. (Patient 20)

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Sub theme: Sense of entitlement

Consumers identified inpatient rehabilitation as a tangible way of getting value for the money they had put towards their private health insurance:

'...the fund was paying for [inpatient rehabilitation], so I was prepared to get the benefit of the whole thing'. (Patient 10)

On some occasions this sense of entitlement ran alongside the perception that inpatient rehabilitation would also be advantageous for their recovery from surgery, but in others it seemed to be a primary motivating force for their preference for this mode of delivery.

Clinicians verified this sense of entitlement, from orthopaedic surgeons:

'We do get a cohort of people who want their entitlement, they've paid for it...'
(Orthopaedic Surgeon 19)

to physiotherapists:

'...they've paid their private health insurance premiums for however many years, they think, "well, why shouldn't I get to go [to inpatient rehabilitation], other people get to go. Yeah my knee might be good or my hip might be good but I want to go as well".'
(Physiotherapist 10)

In some instances, clinicians themselves shared these sentiments:

'I mean, to a large extent, they're paying for private health insurance, so they're entitled to go to [inpatient] rehab.' (Orthopaedic Surgeon 12)

Sub theme: Perceived benefit for patient

There was a strong sense from consumers and clinicians that inpatient rehabilitation was an essential component of treatment for a select group of patients with particular characteristics. Many of the reasons for this perception revolved around clinical or social issues, and in some instances personal factors such as 'laziness' or a need for motivation. Factors frequently mentioned included weakness, advanced age, the presence of significant comorbidities, the home environment and/or a lack of support at home. Orthopaedic surgeons and physiotherapists involved in the decision to recommend inpatient rehabilitation for their patients often indicated that such factors influenced this decision, both pre and post-surgery:

'[I recommend inpatient rehabilitation] if they're old, if they've got significant co morbidities, if they lack family support, if they have more than 12 steps, if they're slow while they're in hospital.' (Orthopaedic Surgeon 18)

'if they live alone, they are older, more deconditioned, they are slower, not motivated, or not able to comprehend what we are trying to get across to them as easily as some.'
(Physiotherapist 2)

The rehabilitation specialists interviewed also expounded the many and varied benefits of inpatient rehabilitation

'[Inpatient rehabilitation] can really improve the joint range of motion, pain management, confidence in managing mobility and functioning and preparing them better to be discharged home after rehabilitation, compared to getting them home straight out of surgery.' (Rehabilitation Specialist 4)

One of the main reasons identified by both consumers and clinicians for a preference for inpatient rehabilitation was the lack of carer support in the home. This was frequently expressed throughout the interviews.

'[I prefer inpatient rehabilitation] mainly because I'm home on my own during the day and I had nobody else here...' (Patient 20)

'I knew that I would not be able to come home and manage on my own' (Patient 15)

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'I'd recommend it for someone living alone, [those with] steps or access issues, poor family social support, [or] difficulty accessing outpatient therapy support.'
(Rehabilitation Specialist 1)

The option of inpatient rehabilitation was also identified as an excellent option for people living in a rural environment.

'But the things that would steer me towards using [inpatient rehabilitation] would be geographically isolated patients who might have difficulty obtaining physiotherapy services.' (Orthopaedic Surgeon 15)

'Inpatient rehab is a huge advantage because lots of our patients come from two, three hours away... and so by the time they drive [to the physiotherapist] and drive back, they've lost the benefit of the actual physio treatment session.' (Orthopaedic Surgeon 13)

Theme 2: Preference for mode other than inpatient rehabilitation

Eighteen of the patients interviewed had received non-inpatient modes of rehabilitation following their surgery, and both the orthopaedic surgeon and physiotherapy cohorts nominated outpatient therapy as the mode of rehabilitation most acceptable to them.

Sub theme: Perceived unnecessary level of care/support

Consumers who expressed a preference for modes other than inpatient rehabilitation often spoke of it as unnecessary, given their individual circumstances. Some saw it as an option *'for old people'*, while others referred to the support they had available at home as making an early discharge to that environment more advantageous to their recovery. For some, it was simply affection for their own home environment, or dislike of the hospital environment, that led them in this direction.

When compared to those with a preference for inpatient rehabilitation, this group of consumers tended to describe a more supportive home environment, with services such as transport, cleaning and meal preparation more frequently provided for by family and carers. About half of patients interviewed indicated that they would have utilised transport, cleaning and meal services if these had been available, while the other half saw no need for this additional assistance. There was evidence of these being offered or available in some cases, and this having had an influence on decisions made. For example, when asked why inpatient rehabilitation was considered unnecessary, one carer responded:

'because [the patient] had transport provided so that he could stay here [at home] and just go and have his physio.' (Carer 19)

A number of patients also indicated that they had utilised local community transport services for appointments.

Sub theme: Previous experience of self or known other

In the same way that a personal positive experience with inpatient rehabilitation was a common factor for patients who preferred that mode of rehabilitation delivery, a personal positive experience with a mode other than inpatient rehabilitation often led patients and carers towards a preference for these modes. This highlighted the finding that patients and carers tended towards a preference for the same mode of therapy received if they were to have surgery again.

This theme was also a factor for clinicians who rated modes other than inpatient rehabilitation highly, whether from the private or public health sector. As one orthopaedic surgeon stated:

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'I think [outpatient rehabilitation] works very well for most [of] my public patients... they go straight home.' (Orthopaedic surgeon 7)

Sub theme: Convenience and competing priorities

Closely tied to the sub-themes above, convenience was often a factor which led patients and carers towards a mode other than inpatient rehabilitation. The reasons for this perceived convenience were many and varied, from finding it easier to attend a private physiotherapist nearby (Patient 27) or having transport provided for outpatient therapy (Carer 19) to having a preference for the physiotherapist to come to one's own home.

Competing priorities also played a part, particularly when patients had a role as a carer. For one woman (Patient 6) it was the needs of her daughter with a bi-polar disorder that led her to a preference for an early discharge with outpatient 1:1 therapy follow up, while for another (Patient 5) it was the needs of a husband and household pets that made this same mode the preferred option. One gentleman (Patient 38) was led in this same direction by the prospect of a loss of income with a prolonged admission.

While outpatient services were well utilised, domiciliary physiotherapy was arranged in a number of cases, allowing patients to be treated in their own home. Others to whom it was not offered would have preferred it as an option if available:

'I've got kids. Staying away for a longer period of time is really hard for them and, yes, it would have been easier to have [the physiotherapist] actually coming to the house. It would have been much more appropriate.' (Patient 31)

Sub theme: Environment

Almost every patient who expressed a preference for a mode other than inpatient rehabilitation expressed that their preference was linked in some way to getting back to the familiar environment of their own home. For some it was simply being able to sleep in one's own bed, others again spoke of the support of family, friends and neighbours.

While many patients and carers found the hospital environment of inpatient rehabilitation conducive to their recovery, that setting led others towards a preference for other modes of rehabilitation. In one instance (Patient 13) a previous negative experience in the hospital environment (acquiring an infection following surgery) led a patient towards a preference for a facilitated early discharge. Another patient spoke of her experiences as a child at a boarding school, and the impact this experience had on her feeling of aversion towards similar environments, in which category she placed hospitals:

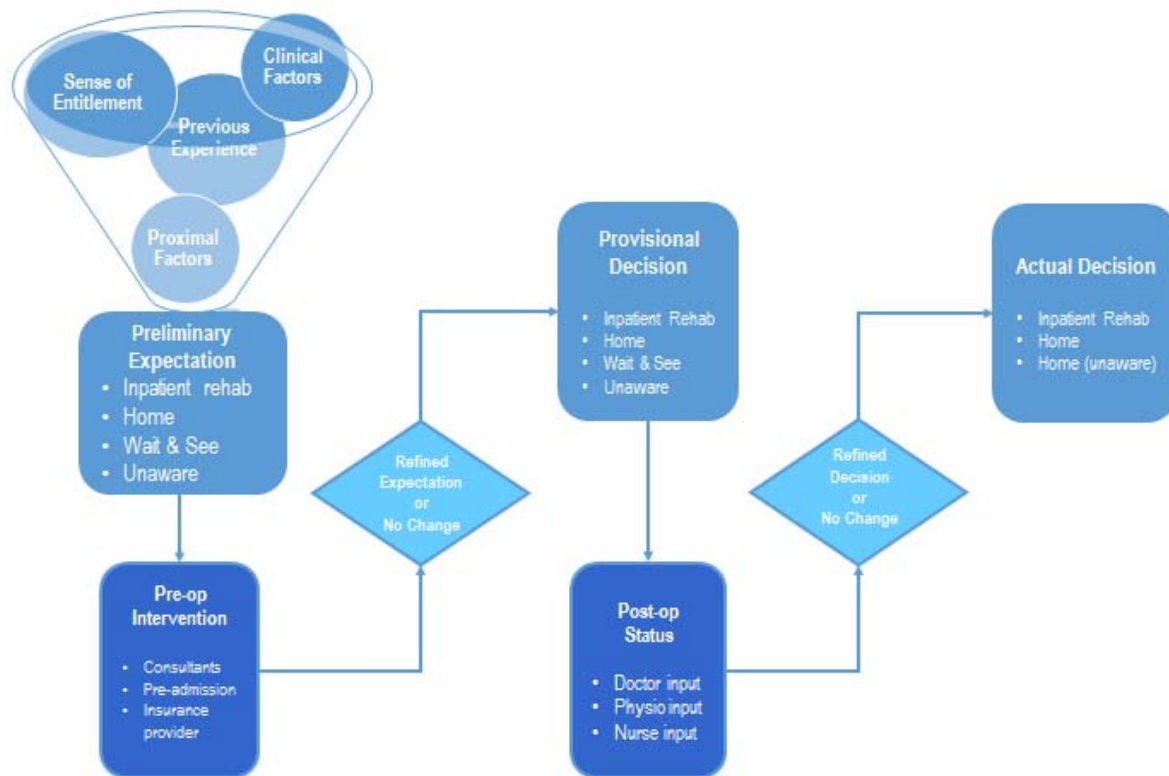
'...this bit might sound a bit silly, but ... I just don't want to go [to hospital], where I have to do things at a regular time all the time.' (Patient 6).

Theme 3: Decision pathway to rehabilitation type following surgery

There were varied experiences reported by patients on their journey towards different modes of rehabilitation following surgery, but most shared a number of common characteristics. Although the information provided at different sites varied, most patients reported attending a pre-admission visit to their nominated hospital, meeting with their orthopaedic surgeon prior to and after surgery, and having some physiotherapy intervention after discharge. However, there were a number of different factors both before and after surgery which led patients towards different modes of rehabilitation following arthroplasty. Figure 1 illustrates the main points to the definitive decision of rehabilitation type received following arthroplasty.

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Figure 1: Points of potential influence on path to definitive decision of rehabilitation type



Sub theme: Role of orthopaedic surgeons, and influence of consumer preference for inpatient rehabilitation

As a group, orthopaedic surgeons reported differences of opinion in regards to the perceived clinical value of inpatient rehabilitation following knee arthroplasty, and different approaches to recommendations made to their patients regarding post-operative care. For some surgeons, it was a case of one-size fits all:

'99% of my patients go to inpatient rehab... I tell them they're going to go. They don't have to, they can always make the decision after they've had the surgery and not go, but pretty much I just say they're going.' (Orthopaedic Surgeon 14)

One surgeon, who expressed a conviction that inpatient rehabilitation had a positive impact on the clinical outcomes for his patients, also implied that this approach had the effect of attracting patients to his services:

'I think [inpatient rehabilitation] is a big part of what sells my joints to patients. I know surgeons who sent patients home one or two days after surgery [and] I get a lot of their patients.' (Orthopaedic Surgeon 17)

Others tailored the mode to the individual, with the default set as an alternative mode and inpatient rehabilitation only suggested if deemed clinically or socially advantageous:

'My words vary with every patient I see. My default position is that you go home and access outpatient facilities. However, if [they are old, live alone, are have medical issues], then I understand that inpatient physio might be more appropriate' (Orthopaedic Surgeon 3)

However, while these variations in approach existed within the group, the impact of a consumer preference for inpatient rehabilitation on the decision made was consistently reported by all orthopaedic surgeons interviewed. When consumers saw their orthopaedic surgeons pre-

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operatively and expressed a desire to go to inpatient rehabilitation after surgery, all surgeons interviewed indicated that they would go along with that wish, even if they didn't see a clinical need for it:

'If the patient is really keen on it, I don't say no. I don't feel strongly about it, that they should or shouldn't go.' (Orthopaedic Surgeon 7);

'[I'm] probably more often [guided] by what they want, because sometimes a patient will come and say "I want rehab post-op" and you think "Oh, you're too fit and healthy, you don't need that", but if they want it, they get it.' (Orthopaedic Surgeon 10)

This was even the case when it directly contravened the clinicians own personal preferences:

'In many occasions I'd prefer the patient to go home, but you're caught between a rock and a hard place a lot of the time.' (Orthopaedic Surgeon 12)

Sub theme: Clinical status post-surgery

As outlined in Diagram 1, patients went into surgery with either an expectation to go to inpatient rehabilitation, to utilise another mode, or were undecided or unaware of their post-operative care plan. Following surgery, their clinical status was reviewed in the acute phase of their recovery, with orthopaedic surgeons and physiotherapists playing a part in this decision along with, at times, nursing staff. Depending on their condition and rate of recovery at this point, the decision that had been made prior to surgery was either enacted, clarified or changed to take into consideration an unforeseen occurrence. The latter included post-operative complications, as well as better-than-expected patterns of recovery. Even at this late stage of the pathway three patients indicated that they were unaware of the option to go to inpatient rehabilitation.

Rehabilitation specialists reported playing virtually no part in this component of the decision, except on very rare occasion. This was confirmed by patients, orthopaedic surgeons and physiotherapists interviewed.

Sub theme: Private hospital business model

The journey towards or away from inpatient rehabilitation appeared to be influenced by the model of service delivery in place at the hospital in question. At one site, three of the 11 patients interviewed went through surgery and the associated therapy afterwards without even knowing that inpatient rehabilitation was available as an option. Alternatively, at the second site, all 27 patients interviewed were aware of inpatient rehabilitation as an option, and it was often presented as 'part of the package' at preadmission sessions rather than being offered as one of a number of possible options following surgery. Although many patients indicated they had already made a decision in regards to their preferred mode of rehabilitation following arthroplasty before attending these sessions, others were clearly influenced by this approach:

'I think it was just sort of a done deal that you went to rehab after.' (Patient 9)

Clinicians confirmed this approach at other sites, and indicated that patients admitted for therapy to particular rehabilitation inpatient units may have had no significant clinical indicators for such therapy.

'...up here, the inpatient therapy, they can do their own thing... There is certainly a bit of encouragement from the rehabilitation physicians, and also from the hospitals, because there is a financial benefit for them as well... The strike rate for people going to [inpatient] rehab [here] is almost one hundred percent, and I guess the reality is maybe 60% may not need it. Maybe they'll do just as well at home. It's just the reality.' (Orthopaedic Surgeon 12)

'In our facility most of the patients are going straight into rehab. It's like a normal routine.' (Physiotherapist 2)

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A number of clinicians indicated that patients admitted for therapy to particular rehabilitation inpatient units may have had no significant clinical indicators for such therapy.

'I think there are people that come to rehab that don't really need to come to rehab. It's not really that anything bad happens because of it, just that they don't really need to be here.' (Physiotherapist 5)

Sub theme: Role of private health funds

There were scattered references to health funds through both consumer and clinician interviews, but in only one case was there evidence of direct involvement on the choice of mode of rehabilitation delivered. In that instance Patient 33 described how his health fund had arranged domiciliary therapy provision for him following surgery, as part of his coverage.

One of the physiotherapists made an interesting observation about the out-of-pocket expenses that accumulated for patients who attended private outpatient therapy.

'It can get pretty expensive by the time they come in and pay the gap all the time.'
(Physiotherapist 6)

The other references to health funds generally alluded to the fact that the funds would cover inpatient rehabilitation as a treatment option after surgery and, as detailed earlier, knowledge of this cover did lead to a sense of entitlement in some. However, other patients elected a mode other than inpatient rehabilitation even when aware they were covered for this option. When questioned, some patients were unclear of their entitlements in regards to health cover after surgery.

Discussion

It is clear that there are many factors which influence consumer and clinician preferences for particular modes of rehabilitation following arthroplasty, and which influence the path to these various modes following surgery. These factors generally fall into clinical and social categories, but also include a sense of entitlement and external influences. The pattern of consumer preference tending towards the mode of rehabilitation they received mirrors those outlined by Naylor et al (2012) in a previous study investigating patient preferences after knee replacement in the public sector. That preference is linked to past experience suggests a general satisfaction with therapy received. It is unclear whether this is because the mode of rehabilitation delivery undertaken by each patient was the one that was most appropriate for their unique situation, or that the perceived quality of care across modes was high so the mode itself was a secondary consideration. If the latter, this not discount the importance of the mode itself, but suggests that alternative modes of rehabilitation are likely to be acceptable to patients if they are of high quality. As outlined by Perkovic (2014), if it can be demonstrated that alternative models of care were as effective as existing services, but cheaper, an efficient system would encourage the uptake of these services. The cost effectiveness of these different modes of rehabilitation warrants further investigation, particularly if inpatient rehabilitation is shown to have no superior effect on clinical outcomes when compared to other modes of rehabilitation delivery.

The clear preference for inpatient rehabilitation by rehabilitation specialists is largely unsurprising, and revolved primarily around the perceived clinical benefits of this mode when compared to the others presented. The fact that these same rehabilitation specialists depend on this service, as they work in the private sector treating these patients, was acknowledged during the interviews. Their preferences in this regard, however, seemed to have limited influence on the decision to send patients to inpatient rehabilitation, as they were generally not a part of the decision pathway leading to that setting. Rather, they played an important role in the sub-acute management of the patients once they had already arrived at the inpatient rehabilitation facility.

While acknowledging the benefits of inpatient rehabilitation in a variety of cases and settings, one point for consideration is a re-examination of the pathway to inpatient rehabilitation, and ways to reserve this intensive, and costly, mode of rehabilitation delivery for those patients who have a specific clinical or social need for it. Our interviews showed that healthcare staff involved in the decision to send patient to inpatient rehabilitation, particularly orthopaedic surgeons, are aware of options other than inpatient rehabilitation that are available for their patients, and often have a preference for these options. However, they are reluctant to modify consumer expectations and sense of entitlement, or simply do not see the need for this course of action. This principle of entitlement alluded to by both consumers and clinicians during the interviews can be seen to be somewhat at odds with the attribute of efficiency, which has long been a pillar of the Australian healthcare system (Blewett, 1983). This is particularly pertinent when a sense of entitlement overrides clinical judgement, as inappropriate care is inefficient.

When exploring possible reasons for this situation, there were indications of a number of potential dilemmas for those involved. A simple reason may be the additional time it would take within an orthopaedic consultation to provide information and talk through other options available, extra time which would not be 'reimbursed'. Another may be the financial implications for surgeons who did not refer patients with a preference for inpatient rehabilitation to that mode. If a patient presented with a strong preference for inpatient rehabilitation that the clinician opposed the patient could always go to another surgeon who supported their preferred treatment. A lack of conclusive evidence comparing the effectiveness of these modes may also play a part in this regard. Further studies comparing these modes and their impact on clinical outcomes is warranted and encouraged.

For practice to change, if change is deemed necessary, orthopaedic surgeons and healthcare providers need to consider the clinical and social needs of their patients prior to surgery in relation to what mode of rehabilitation would suit them after surgery, and play a more active role in promoting these options to their patients. Private health funds could do the same for their members by looking to address competing financial tensions. One option may be the removal of financial barriers in the form of 'out of pocket expenses' for members who elect to go directly home from the acute facility following joint arthroplasty. The removal of such disincentives for non-inpatient therapy could be considered. Also, although familial relationships cannot be changed, what could be offered to facilitate an early discharge home after surgery are services such as transport, cleaning and meal preparation, which were identified as determining factors for participants who chose not to go to inpatient rehabilitation, and from those to whom alternative modes were preferred. Another avenue which could be considered to, at least partially, overcome the issue of transport is domiciliary physiotherapy.

A separate factor influencing the treatment pathway after arthroplasty may be the business model of the site in question. The site at which inpatient rehabilitation was generally presented as 'part of the package' was run by a healthcare organisation which owned both the acute and rehabilitation facilities. The second, where patients went through surgery and associated treatment without knowledge of inpatient rehabilitation as an option, was owned by an organisation which did not have a business interest in any local rehabilitation facilities. Further study in this area may establish whether this pattern exists on a wider scale.

Conclusion

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The increasing annual volume of arthroplasty requires ongoing monitoring of current systems, to ensure the sustainability of existing models of care and to consider new and innovative models of service delivery. This study has provided a unique opportunity to obtain information on stakeholder attitudes towards various rehabilitation pathways and the factors which guide consumer and clinician decisions relating to referral to and the uptake of different rehabilitation modes following arthroplasty. An understanding of consumer and clinician preferences for rehabilitation, particularly inpatient rehabilitation, should help to inform ongoing and future models of care delivery, hand-in-hand with new evidence of effectiveness as it emerges. This will be particularly crucial to consider if alternative, less costly models of care are to be developed for, and acceptable to, the private sector.

This study indicates that no one model of rehabilitation provided following joint arthroplasty is singularly preferred by stakeholders. Consumers may have a preference for the type of rehabilitation mode that they received, opening the door to the potential exploration of new and more tailored modes of rehabilitation provision following arthroplasty. If change is to be enacted, clinicians involved in the decision making process will need to consider the evidence of comparative effectiveness as well as the clinical and social needs of their patients prior to surgery, in relation to what mode of rehabilitation would suit them after surgery, and play a more active role in promoting these options to their patients

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Abbreviations

AROC: Australian Rehabilitation Outcomes Centre; LOS: length of stay; OA: osteoarthritis; RCT: randomised controlled trial; SWSLHD: South Western Sydney Local Health District; TKA: Total knee arthroplasty; THA: Total hip arthroplasty; WJRC: Whitlam Joint Replacement Centre.

Authors' contributions

MB: led the coordination of the study, participated in the design of the study, participated in consumer recruitment, data collection, collation and analysis, and wrote the first draft of the study protocol. JN conceived of the project and led the design of the study, and participated in consumer recruitment and data collection. IH, GS and FK participated in the design and coordination of the study. All authors assisted with the design of the interview questions, provided comments on drafts of this report, and approved the final manuscript.

Competing interests

The authors declare that they have no competing interests.

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Appendix 1: Clinician Questionnaire

Clinician Perspectives of Inpatient Rehabilitation: Interview Questions

Name: _____ Profession: _____ Date: _____

For surgeons: Years you have been performing joint arthroplasty: ____ No. per year: _____

For specialists: Years you have worked as a rehabilitation specialist: _____

For physiotherapists: Years you have worked in orthopaedics/rehabilitation: _____

1. What do you see as the benefits (if any) of inpatient rehabilitation for patients after knee and hip joint arthroplasty?

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Meals for two weeks and transport provided if desired.

1	2	3	4	5
Highly unacceptable				Highly acceptable

c. **Home-based physiotherapy:** Physio comes to pts home twice a week for three weeks.

Meals for two weeks and transport provided if desired.

1	2	3	4	5
Highly unacceptable				Highly acceptable

d. **Hotel based rehabilitation:** Pt sent to local hotel for 2 weeks where meals are provided, along with daily 1:1 and/or group based therapy. Outpatient physio on discharge.

1	2	3	4	5
Highly unacceptable				Highly acceptable

e. **Inpatient rehabilitation:** Pt sent to local rehabilitation facility for 2 weeks, where they receive daily 1:1 or group based therapy. Outpatient physio on discharge.

1	2	3	4	5
Highly unacceptable				Highly acceptable