

# Establishing the Patient Perspective on Day Case Arthroplasty

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## Abstract

Day case surgery has been validated as a strategy to reduce hospital stays for arthroplasty patients. With pressure on hospitals such pathways offer an option to conduct elective activities safely. We aim to establish patient demographics, aiding selection, whilst identifying concerns that adversely affected perception. Data was collected using an anonymized questionnaire during preoperative assessment allowing qualitative and

quantitative analysis. Seventy-nine patients responded with 43% preferring same day discharge. Postoperative pain and surgical complications were significant concerns. Younger patients preferred same-day discharge. Our results confirm interest in day case arthroplasty and understanding patient perspectives enables perioperative protocols to be formulated.

**Keywords:** Patient perspective, Day Case Surgery, Enhanced Recovery, Joint Replacement Surgery, Arthroplasty.

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## Introduction

Total joint arthroplasty is a core element of elective orthopaedics. According to the National Joint Registry, over 160,000 total hip (THA) and knee (TKA) replacements are performed in the UK each year [1]. The length of stay (LoS) for arthroplasty patients varies between units, with a number of influencing factors. Foote et al in 2009 demonstrated a median length of stay of 8 days with a majority leaving the hospital by two weeks following primary total hip replacement [2]. Furthermore, Burn et al discovered that average length of stay in 1997 was 16 and 14.4 days respectively for primary knee and hip replacements respectively. In comparison to 2014, the average length of stay fell to 5.4 and 5.6 days [3]. A recent study demonstrated mean length of stay for 2000 patients at a high-volume unit of four days [4]. The Reducing Length of Stay programme announced in June 2018 has been a priority for NHS trusts to improve efficiency in elective services [5]. There have been advances with Enhanced Recovery Programs which aim to have standardised perioperative protocols with combined participation and input from all professionals within the multi-disciplinary team. Day Case Joint Replacement offers the next evolutionary step in this development, encouraging early mobilisation and further reducing length of inpatient hospital stay, and as a result reducing the demands on acute healthcare settings.

The ongoing Covid-19 pandemic has intermittently halted many elective activities including joint replacement surgery [6]. As a result, waiting-lists for surgery have increased dramatically, with widely published issues in both scientific and national media [7]. A recent study estimated in November 2020, the national waiting list for joint replacements would be up to 1.4 million, three times the pre-COVID average [8]. There will inevitably be interest in strategies able to tackle this increasing demand. Day Case Arthroplasty offers one such solution, achieving improved cost effectiveness of arthroplasty [9,10] and shorter inpatient stays for patients, reducing opportunity for nosocomial transmission of infections and improving hospital efficiency.

Outcomes of Day Case Joint Replacements have been published and recent evidence has suggested that these protocols are equivalent to more traditional inpatient rehabilitation. Darrith et al validated the safety of outpatient arthroplasty when looking at ninety-day complications [11]. Rosinsky et al demonstrated improved 2-year patient reported outcomes including postoperative pain in patients

undergoing outpatient THA when compared to inpatient pathways [12]. Hoorntje et al discovered lower anxiety and depression scores in outpatient groups when compared to a fast-track discharge pathway [13]. Day case patients are also more likely to recommend the procedure to friends or family [14].

Patients on enhanced recovery pathways with early mobilization would also benefit from clinical benefits such as lower risk of complications from inpatient stays such as hospital acquired infections and thromboembolic events [15]. Other benefits would include faster recovery and quicker return to normal activities [16].

The patient perception of outpatient joint replacements has been investigated previously. In a cohort of patients interviewed preoperatively, 34.3% were comfortable with outpatient arthroplasty, with men more likely to approve [17]. Considering perceived barriers to same-day discharge, the involvement of the primary caregiver and the presence of a support network are essential [18]. In another previous study on patient perspective, seventy per cent of patients did not think they would be able to have their joint replacement as an outpatient for concern of postoperative pain, ability to go to the bathroom and an increased risk of falls [19].

Our study aims to further investigate the patient perspective into day case arthroplasty. We aim to establish preference for same-day discharge and highlight patient-perceived barriers to day case arthroplasty through a preoperative questionnaire for patients undergoing joint replacement (hip and knee) surgery. We also hope to identify demographic factors in our population that may aid in patient selection. These will be investigated with an aim to formulate effective perioperative protocols for patients on the day case pathway.

## Materials and Methods

Data was collected using a structured, anonymized questionnaire during preoperative assessment for patients undergoing THA or TKA. The questionnaire design incorporated both quantitative and qualitative questions, allowing patients the opportunity to elaborate further on aspects of day case joint replacement.

The questionnaire covered (Figure 1):

- Patient demographics including age, gender, occupation, driving status, presence of pets and any previous history of joint replacements

- Issues pertaining to discharge planning such as home environment issues and the presence of a caregiver
- Level of concern related to several common problems faced by patients after joint replacement surgery e.g. postoperative pain, nausea and vomiting, access to medical support
- Whether patients feel their rehabilitation from surgery and postoperative symptoms could be managed effectively at home
- Patients were asked to hypothetically choose between day case

arthroplasty or more traditional rehabilitation protocols

Data was analysed using Microsoft Excel 2016 (Microsoft, Washington, USA) and IBM SPSS Statistics Software (SPSS (version 28, Chicago, USA)). The Chi Square Test was used for all categorical values with the paired T-test used to analyse the relationship between continuous and categorical variables. To define the level for statistical significance  $p < 0.05$  was used. Thematic analysis of free text answers was conducted to establish the key themes in patient responses.

Figure 1 Questionnaire given to patients.

**Demographics:**

1. What is your Age? .....

2. What is your Gender? .....

3. Are you currently working? Yes  No   
If so, what is your occupation? .....

4. Do you drive? Yes  No

5. How many flights of stairs do you have in your home? .....

6. Are your kitchen, bathroom and bedroom on the same level? Yes  No

7. Do you have a family member or friend, living with you, who can look after you after the operation?  
Yes  No   
If not, do you have someone who will come to stay with you after the operation?  
Yes  No   
Do you have a neighbour or friend nearby who will be able to support you?  
Yes  No

8. Do you have any pets?  
Yes  No   
If so, how many? ..... Which type? .....

**Operation Details:**

9. Have you had a previous joint replacement?  
Yes  No   
Hip  Knee  Other (please specify): .....

10. What procedure are you on the waiting list for?  
Hip  Knee   
Right  Left

12. Where do you think your postoperative pain could be managed effectively?  
(If given the appropriate medication)  
Hospital  Either home or hospital

13. Where do you think your postoperative nausea could be managed effectively?  
(If given the appropriate medication)  
Hospital  Either home or hospital

14. Where would you feel most comfortable seeking advice?  
Advice Line  Calling 111  Accident & Emergency  GP

15. Would you be happy receiving physical therapy at home, following an initial assessment in hospital prior to discharge?  
Yes  No

16. How would you feel if you were offered a day case joint replacement?  
No concern      Mild concern      Moderate Concern      Major Concern

17. Do you have any other comments? If so please specify:  
.....  
.....  
.....  
.....

18. If you were initially offered a choice, would you have chosen to have a day case joint replacement?  
Yes  No

**Yours thoughts:**

11. How concerned would you be regarding these factors?  
*If you were having the procedure as a day case:*

Postoperative Pain:  
0 1 2 3 4 5 6 7 8 9 10

Postoperative wound healing problems/infection:  
0 1 2 3 4 5 6 7 8 9 10

Access to appropriate physiotherapy:  
0 1 2 3 4 5 6 7 8 9 10

Home environment/equipment issues:  
0 1 2 3 4 5 6 7 8 9 10

Access to medical help if required from the:  
a) Hospital  
0 1 2 3 4 5 6 7 8 9 10  
b) GP  
0 1 2 3 4 5 6 7 8 9 10

Complications from the surgery:  
0 1 2 3 4 5 6 7 8 9 10

Availability of an advice line:  
0 1 2 3 4 5 6 7 8 9 10

Any anaesthetic issues such as nausea or vomiting:  
0 1 2 3 4 5 6 7 8 9 10

Other – Please specify .....

0 1 2 3 4 5 6 7 8 9 10

## Statement of Ethics

Approval was granted in line with local research policies and due to the nature and design of data collection ethical approval was not required. Consent was implied when completing the anonymous questionnaire.

## Results

The patient demographics are shown in Table 1 (near here). Data were collected for a consecutive series of 79 patients with a mean age of 68 with our population in keeping with the standard arthroplasty population [20]. On further statistical analysis, decreasing age was the only factor found to be significantly related to a preference for day-case surgery ( $p = 0.038$ ).

**Table 1** Patient Demographics.

Patient Demographics	Number (%)	P value
Age (Mean in years)	68 (range: 34-92)	0.038
Gender (Male Gender)	41 (52%)	0.183
Still Working? (Yes)	23 (29%)	0.136
Do you still Drive? (Yes)	61 (77%)	0.692
Presence of Stairs? (Yes)	49 (62%)	0.265
Is someone available to look after you postop? (Yes)	77 (97%)	0.215
Presence of Pets (Yes)	34 (43%)	0.143
Have you previously had joint replacement surgery? (Yes)	33 (42%)	0.171
What joint are you having replaced? (Hip: Knee)	46:33	0.859

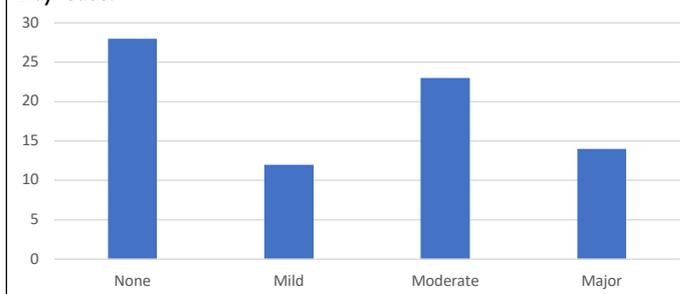
Thirty-four (43%) of patients would choose day case arthroplasty if given the choice. When asked about level of concern for day case surgery, 36% of patients reported that they would have no concern if discharged on the same day with the most significant concerns being postoperative pain, complications from surgery and wound healing problems (Figure 2 and Table 2). The majority of our patients felt that their postoperative recovery and rehabilitation could be completed at home just as safely as in hospital (Figures 3 and 4).

Important themes raised in free text comments from our cohort included some apprehension with same-day discharge (“Would feel safer in hospital”, “Would be scared to leave hospital on the day”). Patients with previous difficult experiences with postoperative symptoms displayed more concern for day case arthroplasty (“Sick with previous hip replacement, 6-day inpatient stay;” “Worried partner wouldn’t cope if day case;” “Concerned about day surgery as have previously passed out/vomited over 24 hours post-surgery”).

## Discussion

Increasing demand paired with a reduction in capacity for elective care has led to a need to for shorter hospital stays and more efficient practices. Day case arthroplasty potentially plays a key role in onward strategies for improved service provision, and by understanding the patient perspective, we will be better able to design a patient-centred service, using patient feedback to guide these changes. The NHS Five Year Forward View identifies the need to involve people in their own care [21] and evidence has shown that this approach enhances

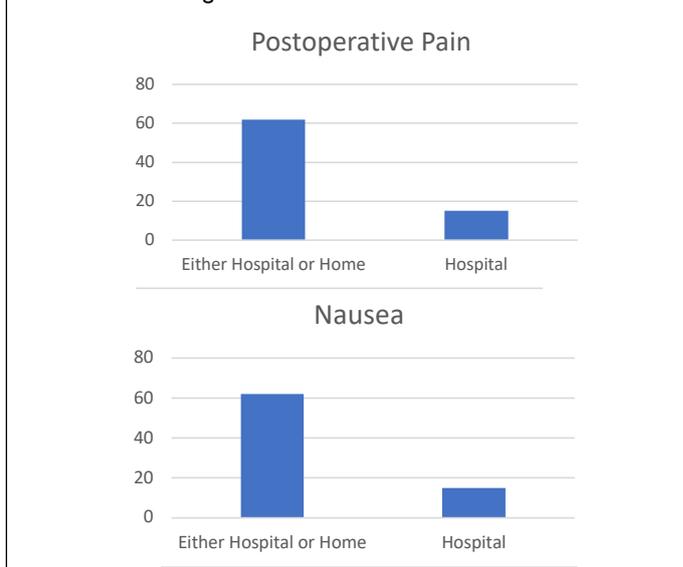
**Figure 2** Degree of Concern if having Joint Replacement as Day Case.



**Table 2** Mean Patient reported concern when undergoing day case arthroplasty for common postoperative problems..

Common patient concerns post joint replacement	Mean patient reported concern on a numerical scale from 0-10
Postoperative Pain	6.1
Complications	5.8
Wound Healing Problems	5.7
Access to GP	5.5
Access to Hospital Services	5.2
Access to Appropriate Physiotherapy	5.2
Availability of an advice line	5.1
Postoperative anaesthetic issues such as nausea	5.0
Problems with home equipment	4.1

**Figure 3** Where do you think your postoperative symptoms could be best managed?



patient satisfaction [22]. The results from this study inform and guide this approach to develop the creation of a patient-centred day case arthroplasty service.

We identified the most significant patient perceived barrier as postoperative pain, further building on the work of Adelani et al. Further to this, the other key themes identified included a fear of postoperative complications and problems with wound healing. With these identified, it is possible to formulate an effective perioperative protocol and focus preoperative patient education, to improve

the uptake of day case arthroplasty while improving the patient journey. Patients selected for this pathway should be provided with information on peri- and post-operative pain control. Clear guidance must be given on when and where to seek help should further assistance be required.

Although the majority of patients preferred rehabilitation protocols with an inpatient stay, 43% of patients showed a preference for same day discharge which is comparable to the figure quoted by Meneghini of 34.5%. In our cohort, however, we found no statistical difference for preference in gender, however we observed a statistical difference in patient age, with younger patients more likely to favour same day discharge. The protocol currently in place for day case arthroplasty in our unit includes a further review by the therapy team between three and five days postoperatively, to help mitigate some of these concerns.

The limitations of this study lie in sample size with a relatively small number of participants making subgroup analyses difficult. Due to the anonymized nature of the data collection, the free text responses were limited and lacked depth into the patient's viewpoint. Further research with more in-depth interviews with focus groups would give a more detailed picture of the patient perspective.

Having established the degree of interest from our patient group, day case arthroplasty has started being implemented. As greater numbers of patients go through the day-case arthroplasty protocol in place at our unit, we will further review the patient cohorts who succeed or not to achieve same-day discharge for any additional indicators to help in patient selection. It is currently discussed with and offered to more active, younger (under 70 years) patients, at operating surgeon discretion, prior to a more detailed discussion in the preoperative "joint school" education clinic.

## Conclusion

Our study identifies postoperative pain, complications and wound healing as patient perceived barriers to day case arthroplasty. However, it does also confirm an interest in such a service with younger patients favouring same day discharge. The results of this study will contribute to the development of effective patient selection and perioperative protocols to ensure successful implementation of a patient-centred day case arthroplasty service.

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