

## LETTER TO THE EDITOR

## Clinical-scientific notes

### Utilisation of inpatient rehabilitation following elective total knee or hip replacements in private hospital setting declined during the COVID-19 pandemic

Use of inpatient rehabilitation following elective total knee and total hip replacements is more common among patients with private health insurance in Australia (56% and 33% vs 8% and 4% uninsured respectively).<sup>1</sup> However, for uncomplicated cases, inpatient rehabilitation is not associated with improved patient outcomes compared with home-based rehabilitation<sup>2–4</sup> and is more costly.<sup>5</sup>

Cabrini Health, a large Victorian not-for-profit private healthcare service, conducts a high volume of elective orthopaedic surgery and offers home-based and inpatient rehabilitation. However, pre-COVID-19 hospital data indicate that the majority of patients received inpatient rehabilitation following knee and hip replacements (55% and 58% respectively). These data have led our team of academics, clinicians and hospital leaders to explore strategies to increase use of home-based rehabilitation. A qualitative study based on one-on-one interviews with 31 patients who had undergone an elective total knee or hip replacement at Cabrini suggests that barriers to home rehabilitation in this setting include fears about home safety (e.g. something might ‘go wrong’), as well as a preference for greater support (i.e. to manage pain and potential complications, to exercise correctly and to lessen burden for themselves and family members).

The COVID-19 pandemic presented an opportunity for a natural experiment. We compared utilisation of inpatient rehabilitation following elective, total knee or hip

replacements for the period March–June 2020 ( $n = 222$ ) at Cabrini Health to the same period in 2019 ( $n = 268$ ). We extracted the following data from the hospital’s administration system: age; gender; acute hospital length-of-stay; acute discharge destination (home or inpatient rehabilitation); and adverse events (hospital readmissions within 28 days following surgery).

Results are reported in Table 1. Mean age and sex distribution were similar for both time periods. Compared to the corresponding period in 2019, during the COVID-19 pandemic inpatient rehabilitation reduced by 20% and 55% for knee and hip replacements respectively. Mean acute length-of-stay also declined (0.5 days and 1.1 days for knee and hip replacements respectively). Readmission rates were low across both time periods.

The observed reductions in inpatient rehabilitation following hip and knee replacement appear to reflect a change in patient and/or clinician preference as a direct result of the pandemic. One possibility is that concern about the risk of contracting the virus in hospital facilities may have assumed greater importance over other concerns. Although our data are limited to two 3-month snapshots, the findings indicate that it is possible to reduce reliance on inpatient rehabilitation services in the private setting without any observed detrimental effect on outcomes. It remains to be seen whether reduced utilisation of inpatient rehabilitation will be maintained post-pandemic, or whether these changes will return to pre-pandemic levels. If these changes can be maintained, this will be important due to the backlog of people waiting for elective joint replacement in Victoria, and this will have flow on effects for demand for rehabilitation services following the pandemic. These data should

**Table 1** Comparison of demographic data and hospital utilisation following elective total knee or hip replacements in a private Victorian hospital setting before (March–June 2019) and during (March–June 2020) the COVID-19 pandemic

Characteristic	Total knee replacements			Total hip replacements		
	2019 (N = 175)	2020 (N = 138)	P-value†	2019 (N = 93)	2020 (N = 84)	P-value†
Mean age (SD) (years)	71.0 (9.5)	70.0 (9.5)	0.368	72.5 (11.1)	70.8 (10.9)	0.285
Female, n (%)	112 (64)	80 (58)	0.277	60 (65)	55 (66)	0.894
Inpatient rehabilitation, n (%)	96 (55)	60 (44)	<b>0.046</b>	54 (58)	22 (26)	<b>&lt;0.001</b>
Mean ALOS (SD) (days)	5.3 (2.4)	4.7 (1.9)	<b>0.031</b>	5.5 (2.9)	4.3 (2.3)	<b>0.005</b>
Readmissions‡						
Inpatient rehabilitation, n (%)	0	0		4 (4.3)	0	
Home rehabilitation, n (%)	0	0		1 (1.1)	3 (3.6)	

†P-value measured using independent *t*-tests for age and acute length of stay, and Pearson’s Chi-squared test for gender and inpatient rehabilitation utilisation. Low readmission rates precluded statistical analysis and interpretation. ‡Hospital readmissions for any reason within 28 days following surgery. ALOS, acute length of stay.

provide further reassurance to private hospitals that a greater proportion of patients can be safely and effectively managed at home following joint replacement.

## Acknowledgements

The authors acknowledge our academic colleagues for their input into the conception of the paper: Justine Naylor (Whitlam Orthopaedic Research Centre, NSW), Ian Harris (University of NSW), Emma Gearon (Monash Department of Clinical Epidemiology, Cabrini Institute and Department of Epidemiology and Preventive Medicine, School of Public Health and Preventive Medicine, Monash University) and Denise O'Connor (Monash Department of Clinical Epidemiology, Cabrini Institute

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Received 2 September 2020; accepted 8 September 2020.

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