



Marked variations in medical provider and out-of-pocket costs for radical prostatectomy procedures in Australia

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ABSTRACT

Objectives. Unwarranted clinical variations in radical prostatectomy (RP) procedures are frequently reported, yet less attention is given to the variations in associated costs. This issue can further widen disparities in access to care and provoke questions about the overall value of the procedure. The present paper aimed to delve into the disparities in hospital, medical provider and out-of-pocket costs for RP procedures in Australia, discussing plausible causes and potential policy opportunities.

Methods. A retrospective cohort study using Medibank Private claims data for RP procedures conducted in Australian hospitals between 1 January 2015 and 31 December 2020 was undertaken.

Results. Considerable variations in both medical provider and out-of-pocket costs were observed across the country, with variations evident between different states or territories. Particularly striking were the discrepancies in the costs charged by medical providers, with a notable contrast between the 10th and 90th percentiles revealing a substantial difference of A\$9925. Hospitals in Australia exhibited relatively comparable charges for RP procedures. **Conclusions.** Initiatives such as enhancing transparency regarding individual medical provider costs and implementing fee regulations with healthcare providers may be useful in curbing the variations in RP procedure costs.

Keywords: hospital costs, medical costs, out-of-pocket costs, prostate cancer, radical prostatectomy, surgical cost variations, specialist costs, unwarranted variations.

Introduction

Surgical removal of the prostate gland, referred to as radical prostatectomy (RP), is a common treatment option for localised prostate cancer, along with active surveillance and ablative radiotherapy.¹ All three approaches are considered clinically valid, demonstrating comparable 10 year survival rates.² The Australian Commission on Safety and Quality in Healthcare reports unwarranted clinical variations in RP rates, influenced by geography, treatment availability and patient demographics.³ Notably, men from socioeconomically disadvantaged backgrounds, from rural areas and those without private health insurance exhibit lower rates of RP in Australia. Similar variations in RP rates have also been reported in the United Kingdom, where Black men, individuals from poorer demographics, those with comorbidities and residents in poor areas experience lower RP rates.⁴ While variations in clinical practice by sociodemographic factors are well documented, limited discussions surrounding the cost variations associated with RP procedures represents a gap in the literature. Unwarranted variations in the cost charged by medical providers and hospitals for the same procedure can exacerbate disparities in access to care and diminish the overall value of the procedure.^{5–8} The purpose of this paper is to explore the cost variations in RP procedures within Australia, discussing their plausible causes and implications, and proposing potential policy opportunities.

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Methods

Study design and sample

A retrospective cohort study using Medibank Private claims data for surgeries conducted in Australian hospitals between 1 January 2015 and 31 December 2020 was undertaken. De-identified information on patient characteristics, treatment and claims were obtained from Medibank Private administrative claims data that were provided from hospitals and specialists for hospital-based treatment delivered to Medibank Private members.

Surgical procedure identification

RP procedures were identified through the following Medicare benefits schedule (MBS) item numbers: 37210, 37211, 37213 and 37214. Item numbers 37213 and 37214 were designated as complex procedures, reflecting prior or additional treatments involved. However, all procedures within our dataset were non-complex, falling under items 37210 and 37211.

Hospital cost, medical provider cost and out-of-pocket costs

The total hospital charge amount was calculated by summing all hospital related charges for each claim and included costs for intensive care unit (ICU), theatre, accommodation and prostheses. The total amount charged by medical providers (e.g. principal surgeon or other providers such as anaesthetists) refers to the total cost charged by the provider for each procedure and included the benefit paid by Medibank Private, benefit paid by Medicare, principal surgeon out-of-pocket (OOP) charges and any other OOP charges paid by the patient. OOP charges denote expenses directly borne by patients or their families for these claims. The demographic details of the sample are reported in Supplementary Table S1.

Analysis

The 10th and 90th percentiles of the hospital costs, medical provider costs and OOP costs were calculated and are discussed here to show the cost distribution and spread with any outliers removed by jurisdiction. This approach has been used previously in healthcare cost studies (R. Walsan, *et al.*, unpubl. data).^{9,10} The 10th and the 90th percentile imply that only 10% data values lie below the 10th percentile and only 10% lie above 90th percentile. All costs are provided in Australian dollars (AUD).

Ethics

Ethical approval for the study was provided by Macquarie University Human Research Ethics Committee (reference: 520211045634157).

Results

There were 5096 RP procedures performed by 695 surgeons in 105 distinct hospitals across Australia. The average hospital costs, medical provider costs and OOP costs for the RP procedures in Australia were \$12,093 (90% CI 12,037.05, 12,149.67), \$8586 (90% CI 8494.57, 8677.52) and \$3195 (90% CI 3121.59, 3266.76), respectively. Hospitals in Australia exhibited comparable charges for RP procedures, with a modest \$3954 difference between the 10th and 90th percentiles. In contrast, medical providers billed substantially different fees for the same procedure, with variations totalling \$9925 between the 10th and 90th percentiles; a 248% difference. OOP costs, representing expenses paid directly by patients for the surgery, also exhibited a notable spread between the 10th and 90th percentiles, amounting to approximately \$8063. The study also revealed a strong correlation between higher medical provider fees and increased OOP costs ($r = 0.87$, $P < 0.001$), suggesting that patients subjected to higher medical provider fees incurred greater OOP expenses. Importantly, the RP data indicate that these cost variations were not associated with surgical outcomes (R. Walsan, *et al.*, unpubl. data).

Variations in hospital cost, medical provider costs and OOP cost by state or territories

Considerable variations in medical provider costs and OOP costs for RP procedures based on state were also observed (Fig. 1). Patients in the Australian Capital Territory (ACT) and New South Wales (NSW) faced the highest median medical provider fees, amounting to \$14,157 and \$10,850, respectively. The gap between the 10th and 90th percentiles was also most pronounced in these regions, with ACT showing a difference of \$12,225 and NSW \$11,888. In contrast, medical providers in South Australia charged the lowest median fees at \$4948, accompanied by the smallest range between the 10th and 90th percentiles, totalling \$4449. Examining OOP costs, a similar trend emerged, with patients in NSW and ACT paying the most from their pockets for RP surgery with the difference between the 10th and 90th percentile being \$9053 in NSW and \$8552 in ACT. Patients in South Australia recorded the lowest difference in OOP costs at \$2368.

Discussion

In Australia, healthcare costs are often cited as barriers to access. Inconsistent pricing for the same procedures can exacerbate disparities in access and utilisation. This research has highlighted substantial disparities in both medical provider fees and OOP expenses for RP procedures in Australia. A previous paper also documented variations in surgical fees in the country in the context of hip and knee replacement.⁹



Fig. 1. Hospital, medical provider and out-of-pocket fees for radical prostatectomy procedures in Australia by state and territory, 2015–2020.

Interestingly, the above study reported low correlation between costs and the quality outcomes. Furthermore, similar inconsistencies in fee structures for RP procedures have been noted in the United States.¹⁰

Potential factors contributing to cost disparities

Various factors may contribute to the observed disparities in costs between medical providers and OOP expenses for RP procedures in Australia. Some of these variations could be associated with the expenses related to robotic surgery, as medical providers often factor in additional costs for training, insurance and liabilities when charging patients. However, it is important to highlight that robotic RP is the predominant approach in Australia, with over 80% of RP procedures completed utilising robotic techniques.¹¹ Operational factors, including fee structures, patient case mix, operation room equipment and the technical proficiency of surgeons, can

collectively influence surgical costs.¹⁰ Nevertheless, these factors should not disproportionately govern the overall variations in costs, particularly in light of the fact that hospital charges for RP procedures demonstrated a notable degree of consistency across Australia.

The observed variations in medical provider and OOP costs might fundamentally stem from market dynamics as reported previously.¹² A distinctive characteristic of the Australian healthcare system is the autonomy of medical providers to set their own fees and generate profits, a practice influenced by demand and the consumers' willingness to pay for services. In a market where there is a greater demand and greater willingness to pay, the fees charged tend to be higher. Previous research has also shown that in an unregulated fee setting environment, medical providers engage in price discrimination mainly based on the income status of the patients.¹³ Moreover, variations in market demand and supply dynamics may play a role, as

elevated costs could arise from a shortage of medical providers. In such instances, limited competition due to scarcity may allow certain practitioners to charge well above the standard rates for these services.¹² Additionally, there is an issue with information asymmetry,¹⁴ where providers possess more information on procedure costs than patients. Patients have limited access to price information before referrals, and the lack of transparency in the cost of procedures hampers potential competition, ultimately leading to market failure in price setting. Further research is needed to delineate the causal effects of cost disparities and to determine the price setting behaviours of medical providers in Australia. The reasons for variations in costs between jurisdictions are not clear and warrant further investigation. Higher fees charged by many consultant physician specialities in the ACT have been previously reported and could reflect the economic status of the region.¹⁵ Moreover, it remains uncertain whether certain states encounter a higher prevalence of complex patient cases. In addition, patient selection and risk factors may be important considerations warranting further investigation. This study, utilising available data, indicated that individuals who were charged higher fees were predominantly older adults (≥ 65 years), urban residents, individuals residing in the most advantaged neighbourhoods and those in the ACT (Supplementary Table S1). However, understanding the impact of cancer stage and complexity on cost variations necessitates additional investigation.

Addressing cost disparities in RP and enhancing healthcare affordability

The cost variations associated with RP procedures may pose significant challenges for patients, especially those in socio-economically disadvantaged communities. Despite the public healthcare sector being free for Australians, prolonged waiting times often drive many patients to opt for private care, seeking faster access to treatment. However, it is noteworthy that most patients also bear OOP costs when receiving care in the private sector and when treated as a private patient in public healthcare. In the realm of prostate cancer, disparities in medical provider and OOP costs charged add extra layers of complexity to the decision-making process regarding the treatment options.

A pivotal initial step in addressing the variations in costs involves enhancing transparency regarding individual providers' charges. Currently, patients have limited information about the value offered by different providers and treatments. The Australian Government's Medical Cost Finder website, which lists the median costs for various specialties, services and regions, represents a commendable stride in the right direction.⁸ However, expanding the website to include individual surgeon data including costs, outcomes and complexity of patients seen could significantly augment transparency. This move will improve the opportunity for

healthcare consumers to make well-informed decisions regarding their care and providers. Such an approach may also stimulate healthy competition among healthcare providers and encourage consumers to seek value in their care. In the United Kingdom, surgeons funded by the government have their performance details including surgical outcomes publicly available on the National Health Service (NHS) website.¹⁶ Additionally, general practitioners are mandated by law to provide patients with a selection of specialists to choose from.¹⁷ Likewise, the hospital price transparency policy in the United States mandates hospitals to transparently disclose negotiated rates specific to each provider for all items and services in an easily understandable format for consumers.¹⁸

Although enhancing cost transparency has the potential to enhance overall healthcare delivery and disparities to some extent, it falls short of directly controlling costs and may inadvertently result in unintended consequences, such as an overall increase in fees to align with the highest price point.¹⁹ Cost transparency also does not effectively attend to the disparities in resources between affluent and less privileged patients, or the ability of patients to make optimal use of price information to advocate for their interests.²⁰ Moreover, in situations where there is a shortage of medical providers, the absence of competition may lead to practices such as price gouging, price fixing or the formation of oligopolies, where prices are heavily influenced by a select few providers.^{21–23} Hence, supplementing these efforts with regulations to achieve more disciplined pricing and billing practices on the part of providers, to promote efficiency, and to safeguard socioeconomically disadvantaged patients is important. Direct regulation of medical fees by the government may spark considerable debate among healthcare providers. Nonetheless, developing the appropriate strategies using a collaborative approach is essential to ensure equitable access to cost effective care.

Limitations

Use of data from Medibank Private members, who constitute just over one-quarter of Australia's private health insurance clients, may limit the generalisability of the study findings to a broader population. Certain relevant characteristics, such as cancer stage, complexity and comorbidities, were not able to be incorporated, due to the lack of reliable information. Additionally, this study could not explore the differences between privately insured patients and uninsured patients.

Conclusion

Significant disparities in both medical provider and OOP costs were noted in RP procedures across Australia, with variations evident between jurisdictions. Considering data

suggesting that these cost differences are not linked to surgical outcomes,^{4–6} there exists a compelling motivation to address these discrepancies and protect patients from higher medical fees. Enhancing transparency of individual medical provider costs and implementing fee regulations with healthcare providers may be useful in controlling unwarranted variations in procedure costs.

Supplementary material

Supplementary material is available [online](#).

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Data availability. The data that support the findings of this study are available from Medibank Private, but restrictions apply to the availability of these data, which were used under license for the current study, and so are not publicly available. Further information regarding data access can be obtained from the corresponding author.

Conflicts of interest. The authors declare that there is no conflicts of interest.

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