


Patterns of specialist out-of-pocket costs for Australian Medicare services: implications for price transparency

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ABSTRACT

Objective. To explore out-of-pocket (OOP) costs within specialties and individual specialists, and use of Medicare Benefits Schedule (MBS) data for potential price transparency initiatives. **Methods.** We conducted a cross-sectional descriptive study of claims for a 10% random sample of Medicare enrollees for out-of-hospital MBS-billed subsequent and initial consultations between 1 January 2014 and 31 December 2014, specific to cardiologist, oncologist and ophthalmologists (with at least 10 patient visits in 2014). Our main outcomes were the number of locations per provider, number of unique OOP consultation costs per provider and provider-location, and the proportion of bulk-billed visits for these visits. **Results.** We studied 970 cardiologists, 913 ophthalmologists and 376 oncologists. At least 67% of specialists across each specialty had at least two practice locations: cardiologists had a median of three (interquartile range [IQR]: 2–4) and ophthalmologists and oncologists both had a median of two (IQR: 1–3). For subsequent consultations, cardiologists had a median of three unique costs per location (IQR: 2–3), whereas ophthalmologists had a median of four unique costs per location (IQR: 3–5). In contrast, oncologists had a median of one unique cost per location (IQR: 1–2) (57.6% of oncologists' provider-locations charged only the bulk-billing amount). **Conclusions.** Specialists have distinct fee lists that can vary based on location. Summary statistics on price transparency websites based on a single amount (like a median or mean OOP charge) might mask substantial variation in costs and lead to bill shock for individual patients.

Keywords: consultation costs, Medicare Benefits Schedule, out-of-pocket costs, price transparency, specialist costs.

Introduction

Out-of-pocket (OOP) medical costs are high in Australia compared to other Organisation for Economic Co-operation and Development (OECD) nations.¹ These costs are particularly high for consultations and services provided by specialists in their private offices, and price transparency is touted as one possible way to redress this issue. The Australian government introduced a website in 2019 that details the median costs for inpatient procedures in private hospitals in order to provide some information to patients on their expected costs. The government also announced in their 2020 budget that this website would be expanded to include charges by individual specialists, giving patients even more price information.² However, the current *Medical Cost Finder* website only lists the median OOP cost for a selected specialty, service and region.³ It is unclear how useful these median cost figures are, given that they mask individual provider-level variability in charging. Private health insurers too are ramping up their own price transparency efforts.⁴

It is not known whether the government will move ahead with providing data on individual specialist fees or OOP costs on their *Medical Cost Finder* website.⁵ Assuming it does, these data might be provided voluntarily by specialists, or the government could use the collected Medicare Benefits Schedule (MBS) data to show an estimate of these fees. Specialists, however, are not required to have a single fee for a given service, and previous work suggests that fees vary within providers based on patient characteristics or

ability to pay.⁶ Thus, if in fact a future website does use MBS data to summarise individual specialists' prices, the full range of fees will need to be considered in order to provide complete information to prospective patients trying to shop for their health care.

Our aim in this study was to explore OOP cost variation within specialties and by individual specialists who practice in multiple locations, and examine the use of MBS data for potential price transparency initiatives focussed on out-of-hospital services. We focus on three specialties (cardiology, oncology, and ophthalmology) to provide a snapshot of differential charging behaviour within and between specialists, and illustrate the challenges that might be faced by individuals using such data to choose their provider.

Methods

Medical services in Australia are subsidised by the government through Medicare, with reimbursement fees for individual services specified by the MBS.⁷ Providers can charge the specified MBS fee and patients will have no OOP costs (bulk-billing), or they can charge more than the MBS fee with patients and/or private health insurance (PHI) paying the difference. For this analysis, we focus only on initial and subsequent specialist consultations provided in private offices, out of hospital, where PHI is prohibited from covering these excess charges, so as to capture financial burden placed on patients, not insurers.

Data

We used data from a random 10% sample of Medicare enrollees and all of their Medicare-funded services from calendar year 2014, the most recent year for which these data are currently available.

These data include the MBS item (specific to a type of service listed on the MBS), the date of service, the service provider (a scrambled identifier) and their specialty, the charge for the service and whether this was bulk-billed (i.e. the charge was the same as the MBS reimbursement and there was no patient OOP cost). There is also a provider-location identifier, which is a unique label within a provider indicating a distinct practice location.

Provider exclusions and encounter types

Supplementary Fig. S1 illustrates the cohort inclusions. There were 1024 cardiologists, 420 medical oncologists and 943 ophthalmologists in the MBS data set. We excluded providers with <10 patients throughout 2014 (53 cardiologists, 43 oncologists and 29 ophthalmologists). Within each specialty, we also excluded specialists with an implausibly high volume of patients. This exclusion included one cardiologist (2059 patients in 2014, where the next highest count was 772 patients and the median was 118), one oncologist (226

patients, as the next highest count was 146) and one ophthalmologist (728 patients, the next highest count was 514).

We defined an 'encounter' as a unique record for a single person, provider, service date, and location. An encounter might include one or multiple billed MBS items. We included encounters where either an initial consultation (MBS Items 110 or 104) or a subsequent consultation (MBS Items 116, 105) were the only MBS item billed during the encounter. In our reported results, we excluded providers and locations with <10 patients and/or encounters with an initial or subsequent consultation.

Statistical analyses

Our analyses are primarily descriptive. For each specialty, we examined the distribution of bulk-billing and OOP costs by location across all providers. OOP cost was defined as the provider charge for the service minus the MBS reimbursement amount. For each provider, overall and for each of their locations, we identified the percentage of encounters that were bulk-billed as well as the unique OOP costs. We defined a fee list for each provider-location as the unique OOP costs for these encounters. In order to illustrate patterns within individual providers, we present data on a sample of individual specialists to illustrate the broader patterns that we observed.

We conducted analysis using R version 4.0.3 with the *data-table* (version 1.13.6) and *ggplot2* (version 3.3.3) packages.^{8,9}

Ethics approval

This study was approved by the NSW Population and Health Service Research Ethics Committee (2013/11/494).

Results

Bulk-billing proportions and locations across all encounters

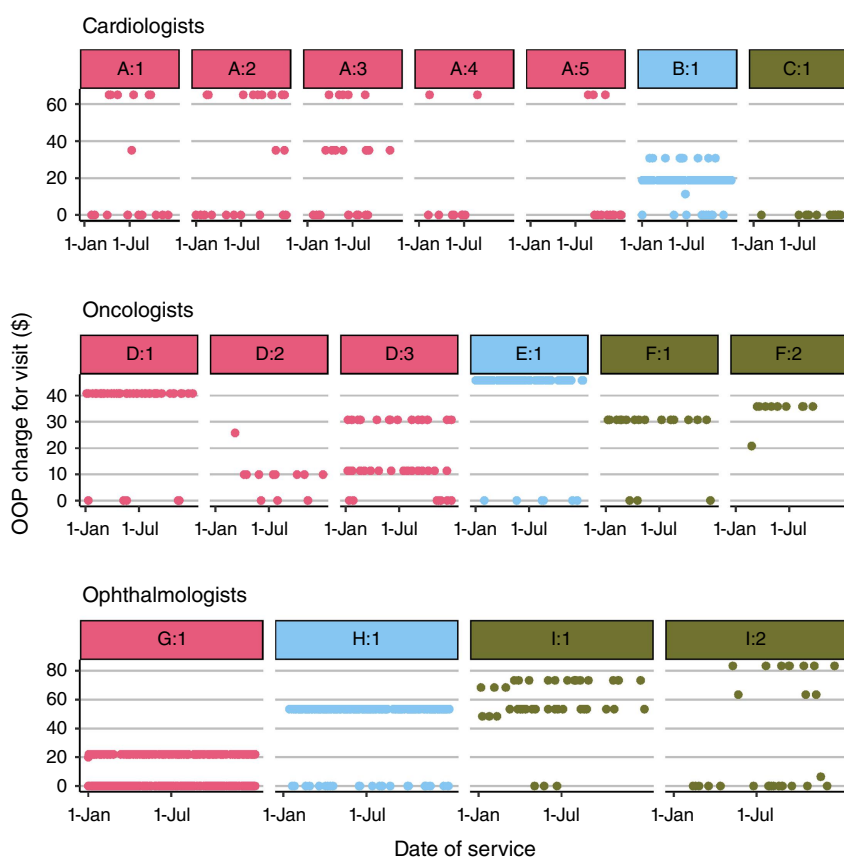
There were 970 cardiologists, 376 oncologists and 913 ophthalmologists included in our results. There was large variation in the median proportion of bulk-billed encounters by providers: the median percentage of bulk-billed encounters for cardiologists was 61.7% (IQR: 29.5–89.5), ophthalmologists 15.3% (IQR: 8.1–27.4) and oncologists 91.0% (IQR: 57.8–100) (Table 1). Over 67% of specialists from each specialty had at least two practice locations; the median number of locations for cardiologists was three (IQR: 2–4) and two (IQR: 1–3) for both ophthalmologists and oncologists.

Fee lists for subsequent consultations

Fig. 1 shows the OOP costs for subsequent consultations charged by a random selection of nine providers by their locations. It is clear that each provider has a discrete set of charges, or a 'fee list', which can vary by location. For

Table 1. Characteristics of included specialists in the study sample.

	Cardiology	Oncology	Ophthalmology
Providers (N)	970	376	913
Total encounters per provider ^A	201 (96, 314)	144 (76, 255)	274 (160, 397)
Percentage bulk-billed visits per provider ^A	61.7 (29.5, 89.5)	91.0 (57.8, 100.0)	15.3 (8.1, 27.4)
Locations (N) per provider ^A	3 (2, 4)	2 (1, 3)	2 (1, 3)
Provider-locations (N)	3466	890	2354
Total visits per provider-location ^A	31 (9, 82)	43 (14, 113)	58 (16, 159)
Percentage bulk-billed visits per provider-location ^A	73.5 (18.2, 100.0)	100.0 (35.7, 100.0)	12.9 (4.3, 30.6)

^AMedian (IQR).**Fig. 1.** Individual out-of-pocket charges for a sample of providers. A selection of nine individual providers (labelled A to I) and their charged out-of-pocket (OOP) costs by service date in 2014 for a subsequent consultation encounter. The fees are split by different, unique locations for each provider (e.g. A:1, A:2 refers to the two locations for provider A). Individual specialists within specialty type are shown in different colours. Currency is in Australian dollars.

example, Cardiologist A has charges from five locations, with three possible OOP costs: AU\$0, AU\$35, and AU\$65.

Table 2 provides a breakdown of OOP costs for subsequent consultations. For cardiologists, the median OOP cost was AU\$41 (IQR: AU\$29–58). The median number of unique OOP costs charged by cardiologists was three (IQR: 2–4). There were 244 out of 610 (40.0%) cardiologists with at least two locations, and 191 (78.3%) had different charges between their locations. Each location had a median of three unique charges (IQR: 2–3), including the bulk-billed amount.

Of the three specialties, ophthalmologists had the lowest proportion of bulk-billed subsequent consultations (27.3%

vs 44.4% for cardiologists and 64.5% for oncologists). The median number of unique OOP costs per ophthalmologist was five (IQR: 3–7) for visits with MBS Item 105, and the median number of unique OOP costs per provider-location was four (IQR: 3–5). There were 104 ophthalmologist provider-locations where only the bulk-billing fee was charged (6.8% of 1539 provider-locations); the next most frequent unique fees were AU\$0 (bulk-billed), AU\$43, and AU\$63 (for 20 provider-locations).

Oncologists had a median of two unique OOP costs per provider (IQR: 1–3). Within oncologist provider-locations, there was only a median of one unique OOP cost (IQR: 1–2).

Table 2. Unique out-of-pocket costs for subsequent consultations by three specialties in 2014. Providers are included if they have at least 10 patients, and locations are included if they have at least 10 encounters with a consultation in 2014.

	Cardiology	Oncology	Ophthalmology
MBS item	116	116	105
Benefit paid (AU\$)	64	64	37
All encounters			
Total encounters (N)	39 164	35 972	104 328
Unique fees (N)	120	59	177
Bulk-billed encounters (N,%)	17 358 (44.3)	23 206 (64.5)	28 421 (27.2)
OOP costs (AU\$) per encounter, for non-bulk-billed encounters ^A	41 (29, 58)	42 (30, 56)	48 (33, 63)
Range	1336	5326	3483
Within providers			
Providers (N)	610	343	855
Visits (N) per provider ^A	45 (23, 87)	93 (55, 140)	111 (66, 163)
Unique fees (N) per provider ^A	3 (2, 4)	2 (1, 3)	5 (3, 7)
Providers with ≥2 locations (N)	244	172	426
Providers with different unique OOP costs across locations (N)	191	119	376
Within provider-locations			
Provider-locations (N)	977	589	1539
Visits (N) per provider-location ^A	27 (16, 47)	46 (26, 81)	47 (22, 93)
Unique fees (N) per provider-location ^A	3 (2, 3)	1 (1, 2)	4 (3, 5)
Top 3 unique OOP costs across all provider-locations (AU\$, N)	0 (223)	0 (319)	0 (104)
	0, 26 (28)	0, 36 (15)	0, 43, 63 (20)
	0, 36 (26)	0, 26 (11)	0, 53, 83 (16)

^AMedian (IQR).

The majority of these were the bulk-billing amount (319 provider-locations out of 589; 54.2%).

Fee lists for initial consultations

Supplementary Table S1 provides the same set of results across specialties for initial consultations. Like the subsequent consultations, we observed unique fee lists by individual providers and their locations. For example, there were 319 individual cardiologist-locations with a median of 17 (IQR 12–25) encounters each, with a median of 2 (IQR 1–3) unique OOP costs per location.

Individual OOP costs versus summary statistics for individual specialists

Fig. 2 shows the minimum and maximum OOP costs for a subsequent consultation from a random selection of 200 providers per specialty. The minimum cost across all providers is, of course, AU\$0 (the bulk-billing charge), whereas the maximum OOP cost across this selection of providers is

AU\$191 for cardiology, AU\$136 for oncology and AU\$363 for ophthalmology.

The providers in Fig. 2 are ordered by their median cost. Consider a theoretical price transparency website where users could compare individual providers' median OOP cost for a consultation. If a user wants to choose the provider with the lowest OOP cost, they may select one of the providers that have a low median cost but, unbeknown to the user, some of these providers do sometimes charge high fees. Conversely, providers with the highest median costs still use bulk-billing or have lower charges for some visits. For example, Fig. 2 shows that the highest median cost for an ophthalmologist was AU\$213. There were eight providers with a higher maximum OOP cost than this provider's median cost, including one provider with a median charge of AU\$0 (i.e. the majority of their visits were bulk-billed).

Discussion

The Australian Institute for Health and Welfare reports that in 2016–17, 72% of individuals who visited a specialist out

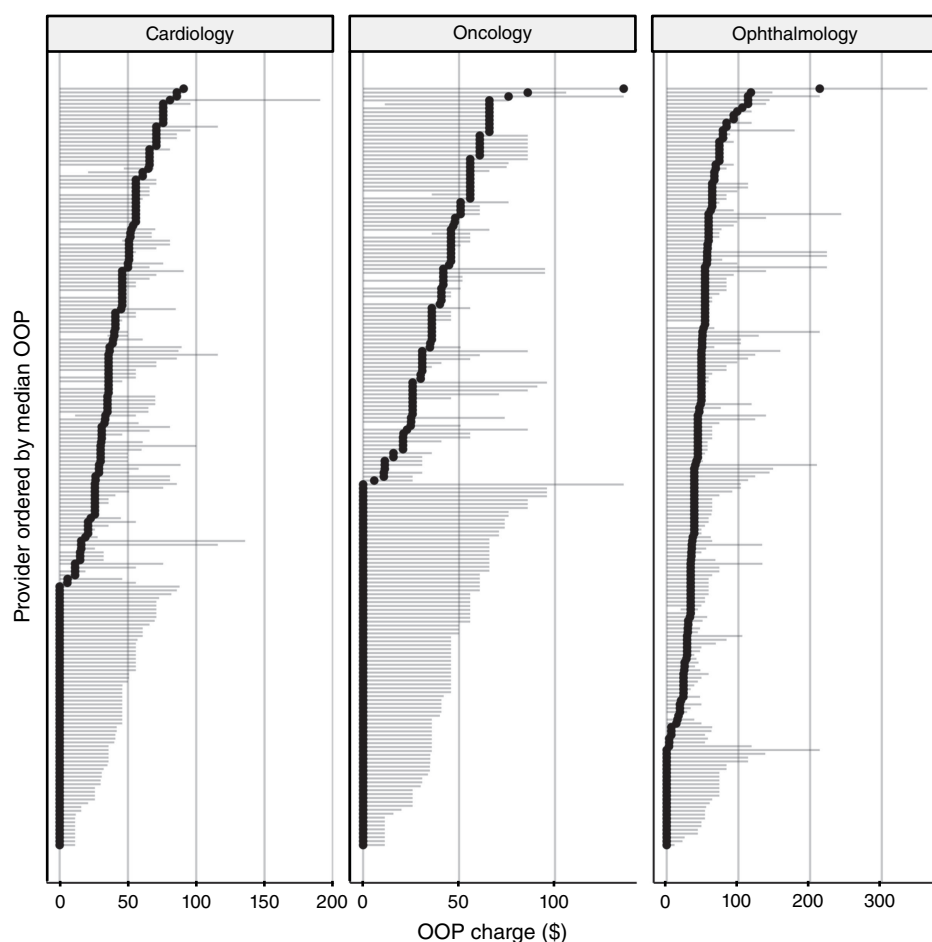


Fig. 2. Maximum, minimum and median out-of-pocket charges for a sample of providers. A random selection of 200 providers (out of those that do not solely bulk-bill) for each specialty type and their minimum and maximum fees for a subsequent consultation in 2014 (grey lines), ordered by the lowest median fee to the highest (black points). Currency is in Australian dollars.

of hospital incurred an OOP cost.¹⁰ Amidst calls for increased transparency to help guide patients and their general practitioner when choosing a specialist, we report the first national data on OOP costs charged in three important specialties that go beyond data aggregated at the level of all specialists in a particular state. Our study has several notable results. First, though not required to do so, most specialists have a discrete fee list that they charge for a consult. These fees, however, vary substantially across different locations, as does the frequency with which they charge any fee at all beyond the bulk-billing rate. Moreover, even within a location, fees charged to different patients vary, with many patients not being charged at all (i.e. they are bulk-billed). Second, this location-specific fee list is likely more useful for price transparency purposes compared to summary statistics (such as the mean or median charge), but still does not provide concrete information on how much an individual patient can expect to be charged. Providers with the highest fees within their specialty may still bulk-bill many of their patients, and providers with relatively low fees within their specialty may occasionally charge a very high fee.

Australia has a relatively unique healthcare system wherein physicians are free to charge any amount they

want for visits above and beyond the fee specified in the MBS. This is in contrast to most other healthcare systems where patients typically face relatively small co-payments for physician services at the point-of-care. There have been few studies examining fee variation within Australian providers. Freed and Allen¹¹ examined initial consultation fees in 11 specialties using Medicare data. They found relatively large differences in bulk-billing rates by specialty, as we observed in our data. However, these authors analysed and reported aggregate data by specialty and state or territory, so the unique fee lists we observe here would not have been obvious from their data.

There also is evidence that providers adjust fees based on patient factors. Using data from a large prospective cohort of NSW residents aged ≥ 45 years, Johar *et al.*⁶ found that individual specialists price discriminate, in that they do not charge a uniform or fixed-fee to all patients, charging higher fees to patients perceived as more able to afford them, but because that study is based on a relatively small sample, the full range of fees charged could not be elucidated. Similarly, De Abreu Lourenco *et al.*¹² used a patient survey to find that patient sociodemographic characteristics were associated with having GP services bulk-billed. Both phenomena (ability to afford OOP costs and socioeconomic

characteristics) are interrelated with geographic location, and our results add weight to their price-discriminating effects. Finally, Wong *et al.*¹³ found that targeted incentives to decrease OOP charges were effective in decreasing fees for targeted groups, but non-targeted groups ended up paying more OOP for care. Our results build upon these studies by highlighting the ‘tiered’ fee lists that exists in MBS data; if and when providers charge different fees depending on patient factors, they will choose one of potentially several fees. This is a result that is perhaps not surprising to those with their own fee list, but it is an important feature of these data that should be considered when analysing provider fee variations.

This fee data structure also raises the question of how useful summary charges are for a prospective healthcare consumer using a price transparency website, even if summary charges are given for individual providers. Multiple providers might charge the same amount to this particular person, but a providers’ median or mean will change depending on the mix of different patient types they see at their location. Early discussions of the price transparency website described obtaining voluntary data from providers, which could require the fee list by patient class and/or location. If this approach is not taken, the federal government could use the datasets they have to get this information and tailor their transparency efforts accordingly.

Limitations

This study is not based on recent data because we were limited to the most recently publicly released de-identified MBS data. Despite this, we assume that similar patterns in charges still exist today (note the selected MBS items were not impacted by the MBS Review). We only looked at services provided outside of hospital, as inpatient fees might partly be covered by PHI funds.

This is a 10% beneficiary sample, so these data might not be representative of each providers’ charges. It is likely, however, that the observed patterns with unique fee lists are consistent, although with different fee amounts.

Conclusion

Evidence for the effect price transparency has on reducing costs is mixed.¹⁴ That being said, if the Australian government does expand its medical cost finder website to include individual specialist fees, the most transparent approach might be to publish a specialist’s complete fee list for a given service. This would allow users to see their actual expected costs (or range of potential costs), or prompt them to find out which fee they would likely face. It would also mean individual specialists are not labelled as the highest charging provider based on their mean or median fees, which might hide their lowest potential fees to prospective patients. Future research on Australian OOP

medical fees should investigate the relationship between patient characteristics and the fee level within providers, for those providers that charge more than two fees, as well as what drives the differences of fees across locations for the same provider. Understanding these data and being transparent about the sources of fee variation will help both price transparency efforts, as well as building evidence for other potential approaches to reduce Australia’s increasingly burdensome OOP healthcare costs.

Supplementary material

Supplementary material is available [online](#).

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Data availability. The data that support this study were obtained from the Federal Government by permission. Data will be shared upon reasonable request to the corresponding author with permission from the Federal Government.

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