

Outpatient consultant physician service usage in Australia by specialty and state and territory

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Abstract

Objectives. To determine national service usage for initial and subsequent outpatient consultations with a consultant physician and any variation in service-use patterns between states and territories relative to population.

Methods. An analysis was conducted of consultant physician Medicare claims data from the year 2014 for an initial (item 110) and subsequent consultation (item 116) and, for patients with multiple morbidities, initial management planning (item 132) and review (133). The analysis included 12 medical specialties representative of common adult non-surgical medical care (cardiology, endocrinology, gastroenterology, general medicine, geriatric medicine, haematology, immunology and allergy, medical oncology, nephrology, neurology, respiratory medicine and rheumatology). Main outcome measures were per-capita service use by medical speciality and by state and territory and ratio of subsequent consultations to initial consultations by medical speciality and by state and territory.

Results. There was marked variation in per-capita consultant physician service use across the states and territories, tending higher than average in New South Wales and Victoria, and lower than average in the Northern Territory. There was variation between and within specialties across states and territories in the ratio of subsequent consultations to initial consultations.

Conclusion. Significant per-capita variation in consultant physician utilisation is occurring across Australia. Future studies should explore the variation in greater detail to discern whether workforce issues, access or economic barriers to care, or the possibility of over- or under-servicing in certain geographic areas is leading to this variation.

What is known about the topic? There are nearly 11 million initial and subsequent consultant physician consultations billed to Medicare per year, incurring nearly A\$850 million in Medicare benefits. Little attention has been paid to per-capita variation in rates of consultant physician service use across states and territories.

What does this paper add? There is marked variation in per-capita consultant physician service use across different states and territories both within and between specialties.

What are the implications for practitioners? Variation in service use may be due to limitations in the healthcare workforce, access or economic barriers, or systematic over- or under-servicing. The clinical appropriateness of repeated follow-up consultations is unclear.

Additional keywords: consultations, variation, workforce.

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Introduction

Per capita, the overall utilisation of Medicare services in Australia has been increasing.¹ It is unclear whether this increase is appropriate or whether it reflects a problem of medical over- or under-servicing. Variation in rate of service use has been identified for many aspects of medical care, including doctor consultations and specific procedures.^{2–4} This variation may reflect factors such as burden of disease, distribution and accessibility

of services, differences in culture and education and differences in economic circumstances and affordability of healthcare around the country.²

Rates of general practitioner (GP) service use have been a frequently addressed topic in recent years.¹ There is variation in GP service use between regions and between specific doctors. Although some variation is to be expected, over-servicing by GPs is monitored by the federal government and excessively

high billing of Medicare services is investigated to determine appropriateness.¹ Despite the focus on GP service use, little attention has been paid to variation in rates of consultant physician service use.

In Australia, consultant physicians provide care to millions of patients each year. In the 2016 calendar year, Medicare processed claims for nearly 2.4 million initial consultant physician consultations (Medicare item 110),⁵ resulting in the payment of more than A\$306 million in Medicare benefits.⁶ Over the same period, more than 8.5 million subsequent consultant physician consultations (Medicare item 116) were processed,⁵ incurring A\$540 million in benefit payments.⁶ As would be expected, the most populous states were the states in which most overall service use occurred, namely New South Wales (NSW), Victoria, and Queensland.⁵

Where a patient has two or more morbidities (such as complex congenital, developmental or behavioural disorders) and a consultant physician spends at least 45 min developing a treatment and management plan, they can use Medicare item 132, which has a higher associated rebate than item 110.⁷ Subsequent review of the management plan for such a patient comes under item 133 (item 133 can only be used twice within a 12-month period, after which the lower fee item 116 is to be used).⁷ In the 2016 calendar year, Medicare processed more than 918 000 claims for item 132 and more than 631 000 claims for item 133.⁵ Although there are other item codes available for consultant physicians attendances, no other item was used more than 100 000 times.⁵

Previous research has found that the per-capita rate of general paediatric initial and subsequent outpatient consultations varies markedly across states and territories (G. L. Freed and A. R. Allen, unpubl. data). Similar to adults, the absolute number of consultations for children is higher in the states with the greatest populations. However, when accounting for the variation in population between states, NSW and Victoria still had higher per-capita rates of service use than the other states. The ratio of subsequent consultations to initial general paediatric consultations also varied significantly between states and territories (G. L. Freed and A. R. Allen, unpubl. data).

Similar studies of per-capita utilisation of specialist consultations have not been conducted for adults. Because of variation in practice and workforce distribution, we hypothesised that there would be different rates of utilisation of adult consultant services across the Australian states and territories when adjusting for population differences. To examine the rate of consultant service use per 100 000 adults for multiple specialties across all Australian states and territories, we used Medicare claims data available from the Commonwealth Department of Health.

Methods

This study examined aggregate non-identifiable Medicare service use data obtained from the Commonwealth Department of Human Services (DHS). The specific Medicare item numbers of interest were item 110 (initial consultation) and item 116 (subsequent consultation in the same course of treatment) with a consultant physician following a referral.⁷ We also analysed item 132 (initial assessment and management plan of a patient with multiple morbidities, lasting at least 45 min) and item 133

(review of management plan for a patient with multiple morbidities, lasting at least 20 min).⁷ The data provided by DHS included the number of initial and subsequent outpatient consultations between 1 January 2011 and 31 December 2014 for which a claim for benefit was rendered.

We focused on the most recent year available (2014) and analysed data from 12 medical specialties representative of common adult non-surgical medical speciality care provided by consultants. These were cardiology, endocrinology, gastroenterology, general medicine, geriatric medicine, haematology, immunology and allergy, medical oncology, nephrology, neurology, respiratory medicine and rheumatology. To account for variation in population across the states and territories, the initial and subsequent consultation service usage data were analysed relative to the number of adults in each geographic area based on the 2014 Australian Bureau of Statistics population estimates grouped by age (aged 15+ years) and state or territory.⁸

This study received ethics approval from the University of Melbourne Human Research Ethics Committee. Prior to being released to the research team, the data file was reviewed by the Department of Health. To prevent the potential identification of any specific providers through the data, DHS imposed the suppression of data in instances where there were fewer than 20 services provided in a specific speciality in an individual state or territory.

Results

Overall service use: initial (item 110) and subsequent (item 116) consultations

Of the specialties examined, nationally in 2014 cardiology consultant physicians completed the highest number of both initial consultations (512 773) and subsequent consultations (1 346 177). Conversely, medical oncology consultant physicians completed the fewest initial consultations (28 921) and immunology and allergy consultant physicians completed the fewest subsequent consultations (90 340; Fig. 1).

Overall service use (patients with multiple morbidities): initial assessment and management plan (item 132) and subsequent review of management plan (item 133)

For patients with multiple morbidities, over all of the specialties examined, nationally in 2014 neurologists completed the highest number of initial assessment and management plans (75 464) and endocrinologists completed the highest number of management plan reviews (58 954). Immunology and allergy consultant physicians completed the fewest of both initial assessment and management plans (11 081) and reviews of such plans (3951; Fig. 1).

Overall service use: initial consultations (items 110 and 132 combined) and subsequent consultations (items 116 and 133 combined)

Of the specialties examined, when Item 110 and 132 were treated together as 'initial consultations', consultants in medical oncology completed a higher proportion of initial consultations (58.2%) as item 132 (detailed management plans for patient with

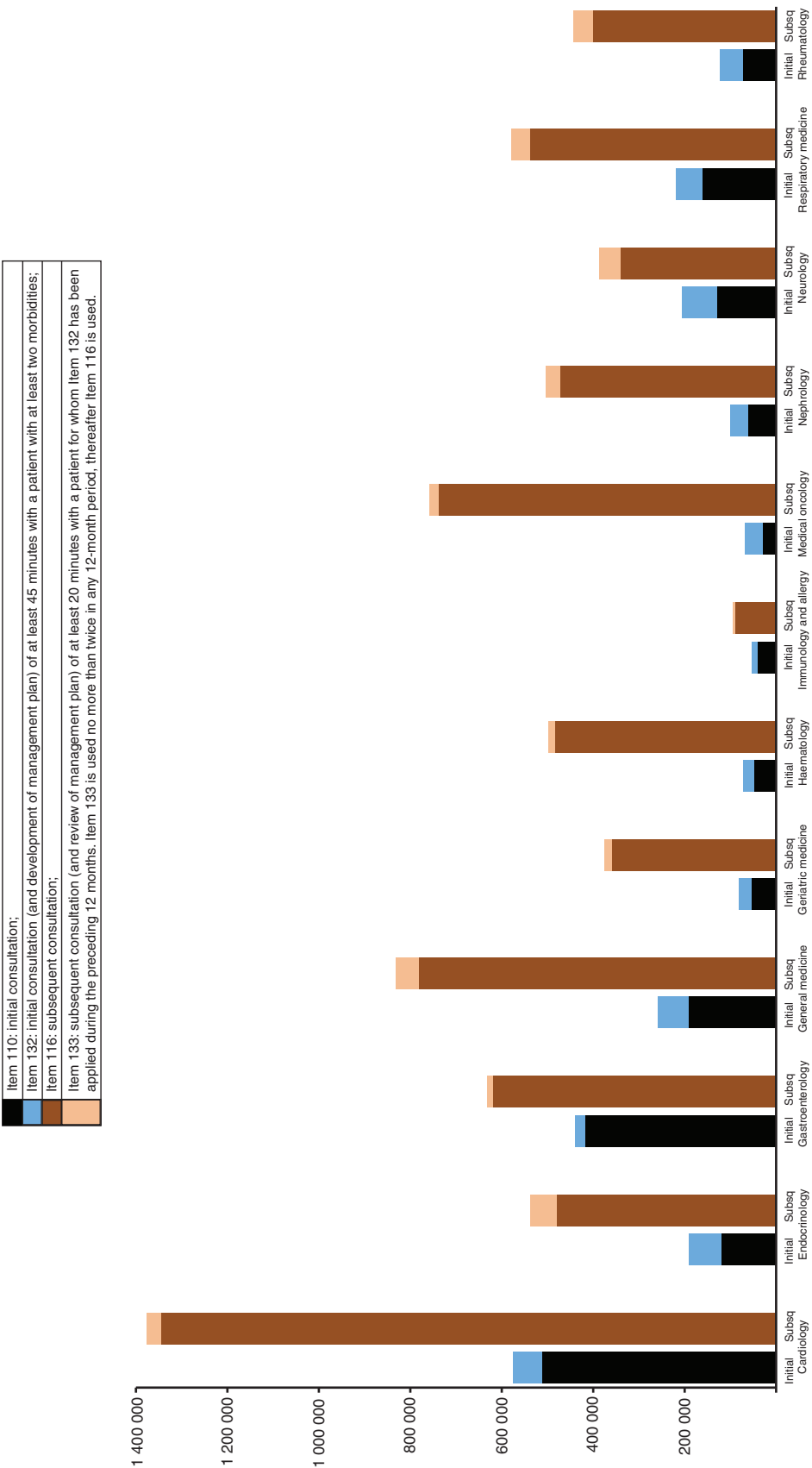


Fig. 1. Number of consultant physician consultations in 2014 (Medicare items 110, 116, 132 and 133) by medical specialty. Subsq, subsequent.

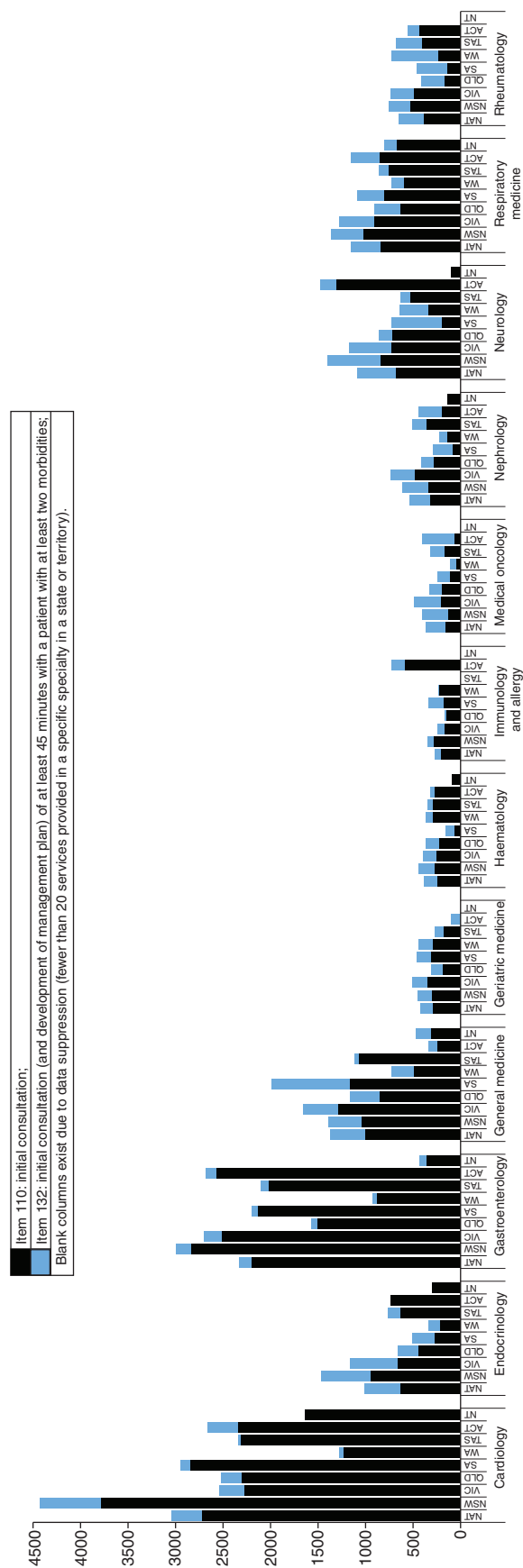


Fig. 2. Number of initial consultant physician consultations in 2014 (Medicare items 110 and 132) by state and territory per 100 000 adults.

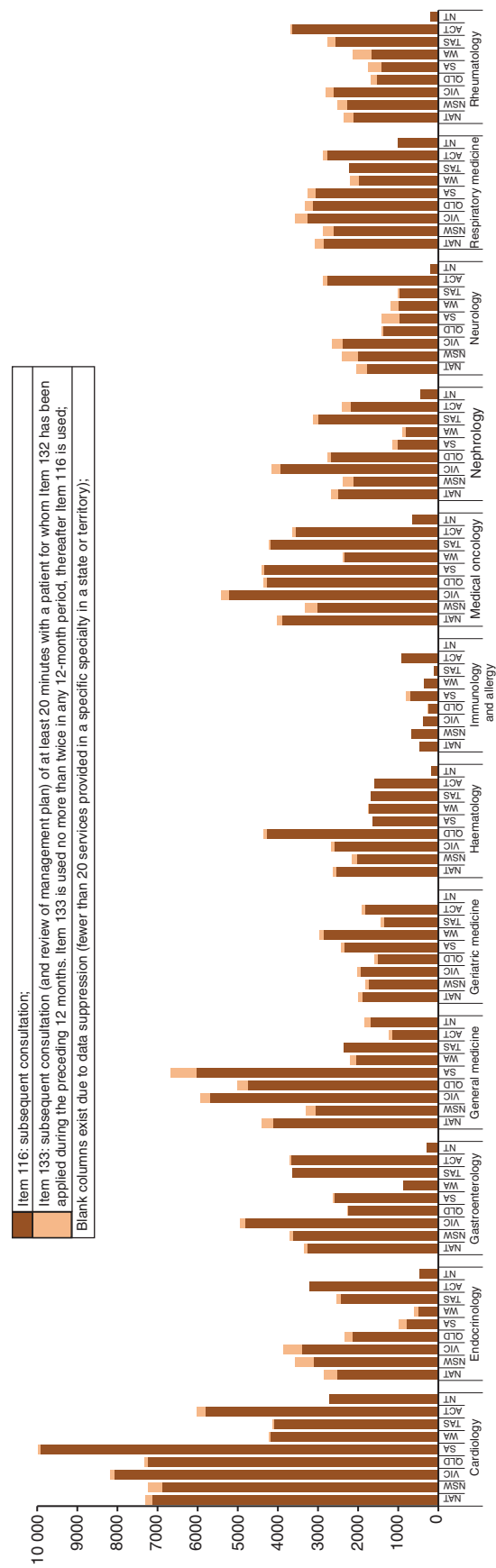


Fig. 3. Number of subsequent consultant physician consultations in 2014 (Medicare items 116 and 133) by state and territory per 100 000.

multiple morbidities) than as item 110 (simple initial consultation). Rheumatologists completed 41.3% of initial consultations as item 132 and all other specialties completed less than 40% of their initial consultations as item 132.

When item 116 and 133 were examined together as ‘subsequent consultations’, all specialties included in this study completed less than 12.5% of their subsequent consultations as item 133 (Fig. 1).

Service use relative to state or territory population: initial consultations (items 110 and 132 combined) and subsequent consultations (items 116 and 133 combined)

When analysing the number of initial consultations relative to the population in each state and territory, we found that neurology showed a high degree of per-capita variation across the states and territories, with the highest service-using territory (Australian Capital Territory; ACT) having a rate of use more than 14 times greater than the lowest service using territory (Northern Territory; NT). For subsequent consultations, haematology showed the highest degree of per-capita variation, with the highest service-using territory (Queensland) having a rate of use more than 22 times greater than the lowest service using territory (NT). Other specialties also showed a marked variation in population-adjusted service use across the different states and territories (Figs. 2 and 3).

In the ACT, population-adjusted initial consultation service use (items 110 and 132 combined) was more than 2.6 times the national average for the speciality immunology and allergy.

Overall, population-adjusted initial consultation service use (items 110 and 132 combined) was most frequently above the national average in NSW, occurring in all 12 of the specialties examined. Population-adjusted subsequent consultation service use was most frequently above the national average in Victoria, occurring in 11 of the 12 specialties examined. Only immunology and allergy population-adjusted service use was below the national average in this state. In both NT and Queensland, population-adjusted service use was below the national average of initial consultations for all 12 specialties examined (Table 1).

Ratio of subsequent consultations (items 116 and 133 combined) to initial consultations (items 110 and 132 combined)

There was variation across medical speciality and state and territory in the ratio of subsequent consultations to initial consultations (Table 2).

The speciality with the most subsequent consultations per initial consultation was medical oncology. In NT consultant physicians across the selected specialties were performing, on average, fewer outpatient subsequent consultations per initial consultation than any other state or territory.

Discussion

The most important finding from this study was the marked variation in the population-adjusted service use across different states and territories. Consultant physician service use for the examined specialties (adjusted for population) tended to be higher than average in NSW and Victoria, and lower than average in the NT. It is not possible from this study to determine the reasons for the variation. However, some variation may be due to underlying health status or demographic differences of the population (such as median age or residency in remote areas).

Variation in the healthcare workforce across states and territories may also contribute to the differences observed in this study. Concerns have been expressed regarding a potential current and projected undersupply of doctors in many specialties. Others have noted a seeming maldistribution of specialists throughout Australia,⁹ particularly in regional and rural areas.^{10,11} Both of these issues suggest the possibility that some states and territories may not have an adequate medical workforce to meet actual public needs.⁹ If true, this may impact actual rates of service use. Unfortunately, this is difficult to assess with certainty at this time as accurate doctor workforce data are lacking in Australia as demonstrated in a recent study.¹²

Another possibility is that in states and territories where there are relatively fewer consultations per capita, there may be access or economic barriers to care. For the same specialties as examined in the current study, previous research has shown that bulk billing

Table 1. Number of the 12 examined medical specialties where initial and subsequent consultant physician consultation rate per 100 000 adults (Medicare items 110, 116, 132 and 133) was above the national average by state and territory
Demographic data on state and territory median age and percentage of the population residing remotely have been added for context

	Median age of population (years) ⁸	Percentage of population residing remotely ¹⁴	Number of the 12 examined specialties where population-adjusted service use rate was above the national average					
			Initial consultations			Subsequent consultations		
			Item 110	Item 132	Items 110 and 132 combined	Item 116	Item 133	Items 116 and 133 combined
New South Wales	37.9	0.5	11	10	12	5	11	5
Victoria	37.3	0.1	10	8	10	11	7	11
Queensland	36.8	2.9	2	1	0	6	0	6
South Australia	39.8	3.6	3	5	3	6	4	6
Western Australia	35.8	6.6	3	2	2	1	2	1
Tasmania	41.5	2.0	6	1	1	4	0	3
Australian Capital Territory	34.9	0.0	7	3	4	5	2	4
Northern Territory	31.8	42.6	0	0	0	0	0	1

⁸Percentage of state and territory population in ‘remote’ or ‘very remote’ areas, according to Australian Bureau of Statistics, 2014.¹⁴

Table 2. Number of consultant physician subsequent consultations (Medicare items 116 and 133 combined) per initial consultation (items 110 and 132 combined), by medical speciality and state and territory in 2014

	Cardiology	Endocrinology	Gastroenterology	General medicine	Geriatric medicine	Haematology	Immunology and allergy	Medical oncology	Nephrology	Neurology	Respiratory medicine	Rheumatology
Australia	2.39	2.82	1.44	3.22	4.62	6.82	1.81	10.96	4.97	1.88	2.66	3.60
New South Wales	1.64	2.42	1.24	2.37	4.04	4.86	1.99	7.89	3.87	1.71	2.10	3.31
Victoria	3.23	3.32	1.82	3.59	3.95	6.76	1.67	10.94	5.60	2.28	2.78	3.83
Queensland	2.90	3.53	1.44	4.29	5.15	11.55	1.52	13.33	6.64	1.65	3.64	4.05
South Australia	3.38	1.92	1.20	3.35	5.16	10.39	2.41	17.96	3.93	1.95	2.99	3.82
Western Australia	3.27	1.74	0.97	3.03	6.69	4.74	1.52	20.62	3.84	1.86	2.89	2.94
Tasmania	1.75	3.32	1.73	2.12	5.26	4.76	ND	13.35	6.15	1.59	2.60	4.01
Australian Capital Territory	2.25	4.40	1.38	3.58	ND	5.12	1.27	8.99	5.34	1.94	2.48	6.60
Northern Territory	1.67	1.63	0.69	3.89	ND	2.13	ND	ND	3.07	2.08	1.27	ND

rates vary markedly by state and territory. For those consultations not bulk-billed, the out-of-pocket cost to the patient also varied markedly around the country.¹³ For example in this study we found lower consultation rates in NT where there may be geographical or financial limitations. It is known that a high percentage of the NT's population reside in geographical areas classified as 'remote' or 'very remote'.¹⁴ Previous research showed the NT has the highest rates of bulk billing but also the highest median fees for non-bulk billed consultations. It is possible that this seeming paradox is due to patients who are not offered bulk billing not being able to afford the consultant's higher fees. High fees may mean patients, especially those in areas of socioeconomic disadvantage, attend fewer medical consultations. A 2013–14 study found 7.9% of people who needed to see a specialist or consultant physician delayed the visit or did not go at all due to the cost.¹⁵

From the present study it is not possible to determine whether the variation in population-adjusted doctor visits signifies over- or under-servicing. In fact, it is very difficult to determine the appropriate rate of care in most circumstances.² However, both over- and under-servicing have implications for Australia's healthcare system. Under servicing may mean that disease and care requirements are not being properly addressed by the healthcare system, whereas over-servicing results in additional unnecessary costs to the healthcare system and to patients.^{4,16} Additional efforts are needed to further explore the implications of our findings.

Variation in service patterns between the specialties appears somewhat aligned with chronic disease incidence rates, for example cardiology consultant physicians completed the highest number of consultations- cardiovascular disease being the leading cause of death and disease burden.¹⁷ Variation between the specialties in the number of subsequent consultations per initial consultation may be consistent with the customary patterns in care provided by different types of doctors. For example, consultant medical oncologists were found to conduct many more follow-up consultations than any of the other specialties examined in this study. This is likely reflective of the ongoing medical care needs of patients with cancer. However, the variation across states and territories within any given speciality is not readily explained by our data. Future studies should explore this in greater detail to determine over- and under-servicing.

On average, across all of the specialties studied, consultant physicians in the NT were performing fewer outpatient subsequent consultations per initial consultation. It is not known whether this is due to doctor workload, patient ability to attend subsequent consultations (including possible economic and geographical limitations), patients moving to other service providers for follow up, or other factors, including availability of public hospital care. It is also not possible to determine the clinical appropriateness of patient follow-up consultations. Research overseas indicates that in some outpatient clinics, follow-up consultations are not always necessary.^{18,19} A high ratio of subsequent consultations to initial consultations may indicate over-servicing and is likely to have implications for access to care for new patients. Future studies should examine the variation in the ratio of subsequent consultations per initial consultation to determine the driving causes and clinical appropriateness.

This study examined consultant physician service use across 12 adult medical specialties and across Australian states and territories (relative to population). Although the variation found between specialties may be consistent with patterns in care provided by different types of physicians, the population-adjusted variation across states and territories within specialties is not reasonably explained by the available data. This phenomenon warrants further investigation to determine whether there are potential workforce issues at play, access or economic barriers to care, or systemic over- or under-servicing taking place.

Competing interests

The authors declare no competing interests.

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