



ROYAL AUSTRALASIAN
COLLEGE OF SURGEONS

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Surgical Variance Report **Vascular Surgery**

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Introduction to Surgical Variance Report: Vascular Surgery

The Royal Australasian College of Surgeons' (RACS) vision is to champion surgical standards, professionalism and surgical education in Australia and New Zealand. It is committed to advocating for sustainable, safe, affordable and high quality healthcare that represents best practice.

Similarly, Medibank, Australia's leading private health insurer, is focussed on improving the health outcomes of patients, improving patient experiences, and improving efficiencies in the health system.

Currently, there is limited available information to surgeons on indicators such as the median length of patient stay, rates of readmission or admission to an intensive care unit (ICU), and prices charged for services, for different procedures within their speciality, and particularly in the private sector.

However, such information would enable surgeons to gain a better understanding of variations, and consider how their practice could be improved for the benefit of patients.

RACS and Medibank are pleased to publish this Surgical Variance Report, which analyses a number of clinical and other indicators for common procedures within vascular surgery. This report has been prepared in consultation with the Clinical Variation Working Party, which includes Prof Michael Grigg (Vascular Surgeon, VIC) and Dr John Quinn (Vascular Surgeon, QLD).

This is the fourth in a series of reports, on common procedures within surgical specialities, including general surgery, urology, ear, nose and throat surgery, vascular surgery and orthopaedic surgery.

The data contained in these reports are based on analysis of de-identified Medibank claims data from 2014, which the College has analysed and interpreted. The reports deliberately pose questions that every clinician can reasonably ask about the possible reasons for the variations, and consider individual answers.

RACS and Medibank will continue to work together to identify opportunities to improve and enhance these reports so that they are as meaningful and useful as possible to surgeons, and we welcome everyone's feedback and comments.

The data contained in these reports do not define best practice, however it is hoped that by highlighting variation in practice, we will be able to improve clinical outcomes and patient care.



Professor David Watters OBE
Chair, Clinical Variation Working Party
Royal Australasian College of Surgeons



Dr Linda Swan
Chief Medical Officer,
Medibank

Foreword

Data collected as part of a healthcare episode contains important insights about ways to improve care, achieve better outcomes and make care more efficient. However, there is a substantial challenge in bringing this information to light. The data is inherently complex and there is a shortage of individuals with the skills to extract intelligence from it.

The collaboration between the Royal Australasian College of Surgeons and Medibank combines the perspective of specialty experts with the skills of a data custodian. The value of this collaboration is well illustrated by the high quality information that has been derived. The dataset is large, comprising approximately 25% of the separations that occurred in private hospitals in 2014 for the procedures considered.

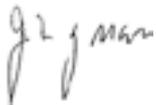
The prime purpose of the analysis is to explore variation in surgical practice and to raise questions that will allow clinicians and others to reflect on aspects of medical practice. It has been demonstrated many times that if information of this type is fed back to clinicians it often leads to greater uniformity of practice. Often the data comes as a revelation to those receiving it.

Studies of variation have become a very important part of healthcare analysis. It is frequently a sign of an evidence gap, but may also point to inefficiency or variation in outcomes. In many cases, it is the flag that initiates further more detailed analyses leading to changed practice.

Some aspects of the present report illustrate limitations typical of all large health datasets. For example, could reported variation infection rates have been influenced by variation in definitions and recording? Are readmission rates influenced by the distinction between planned and unplanned readmissions or whether the readmission was for a complication or an entirely different problem? Similarly, duration of admission is often dependent on comorbidities or social factors. So it is important that data like this is not used to reach simplistic conclusions, but should stimulate more detailed investigation.

Credible data is a powerful motivator of clinician behaviour. When convincing evidence is presented that outcomes could be better or safety improved, it is rarely ignored. One of the biggest problems at present is how little data of this type is routinely available.

For these reasons, this initiative is a welcome advance and a credit to both organisations involved in its production.



Prof. John McNeil, AM, MBBS, MSc, PhD, FRACP, FAFPHM

Professor and Head, Department of Epidemiology & Preventive Medicine, School of Public Health and Preventive Medicine, Faculty of Medicine, Nursing and Health Sciences, Monash University

Data used in this report

The data contained in this report is based on administrative claims data received by Medibank from private hospitals, for treatment of holders of Medibank-branded (but not ahm-branded) policies. The data relates to hospital separations with an admission date falling in 2014 (calendar year) and any follow-up hospital separations funded by Medibank within six months of discharge. The data comprises:

- Hospital claims data submitted to Medibank by private hospitals and used by Medibank to assess and pay benefits relating to hospital treatment on behalf of members. Hospital claims data includes details relating to the use of, amount charged and benefits paid for hospital accommodation, intensive care and prostheses provided in connection with treatment in hospital
- Hospital casemix protocol (HCP) data submitted to Medibank by private hospitals for each privately insured hospital separation, as required by legislation. HCP data includes details relating to diagnoses, interventions, demographics and financial data in connection with policy holders' treatment in hospital
- Medicare Benefit Schedule (MBS) claims data from medical practitioners, including diagnostic providers, submitted to Medibank by Medicare, medical practitioners or members, which is used by Medibank to assess and pay benefits for medical and diagnostic services provided to policy holders in relation to their hospital treatment. MBS claims data includes details relating to the use of MBS item numbers by medical practitioners as well as the amount charged, benefits paid and out of pocket costs incurred by policy holders for each MBS item claimed.

Data relating to individual surgeons and physicians have been identified using the Medicare provider number on the MBS claim, with activity aggregated and summarised across all practice locations relating to that provider number. A principal surgeon has been identified for each hospital separation based on the surgeon claiming the highest value MBS item schedule fee relating to a surgical procedure for that hospital separation.

The indicators included in this report for each procedure have been selected by RACS, having regard to the limitations of Medibank's datasets, and in consultation with the Clinical Variation Working Party, which comprises a panel of specialty experts (see page 18 for membership).

Surgeon-level analysis of the indicators included in this report has been limited to surgeons who performed at least five procedures. This has been done to ensure that each surgeon has a sufficient sample of separations to allow a value (e.g. an average, median or percentage) against an indicator to be reported. State and territory values have only been published where five or more specialists were included in the dataset, to protect the anonymity of surgeons in those areas. Medibank has not shared any information with RACS which would enable RACS to identify surgeons and only de-identified data is contained in this report.

Outliers at a separation-level and surgeon-level have been included in the analysis, although data points for some outlying surgeons are not shown in the figures.

No attempts have been made to risk adjust the data.

Disclaimer

The purpose of this report is to provide information to surgeons that highlights variation in surgical practice and encourages surgeons to reflect on their own practice and potential causes of the variation, with a view to supporting the continuous improvement of clinical outcomes and patient care.

It is important to recognise that:

- while Medibank has taken reasonable steps to ensure the accuracy and validity of the data, the report relies on the accuracy of information prepared and provided by hospitals, medical practitioners and policy holders;
- the data used for the purposes of this report relates to a specific time period (being calendar year 2014 and part of calendar year 2015);
- no adjustment has been made to the data based on casemix, patient risk or any other factor that may be taken into account when considering the data and any variation;
- the report identifies specialists by MBS provider stems, which in some limited cases may result in one individual being identified more than once;
- the report is not intended to, and is not a basis for, an assessment of relative or actual performance of specialists;
- the report does not contain any qualitative commentary or analysis; and
- the report may not reflect results of the wider private hospital sector or the health industry as a whole.

Indicators measured in this report

A selection of the indicators described below have been analysed for each of the two procedures included in this report.

Indicator	Explanation
Median age of patients	The median age of a surgeon's patients at the time of discharge.
Median length of stay (nights)	The median number of nights that a surgeon's patients stayed in hospital.
Percentage of patients that stayed in hospital overnight	Separations where the patient stayed in hospital overnight, expressed as a percentage of a surgeon's total separations for that procedure.
Percentage of separations where the patient was transferred to ICU	Separations where patients were transferred to an intensive care unit (ICU), expressed as a percentage of a surgeon's total separations for that procedure.
Rate of Hospital Acquired Complications per 1,000 separations	Separations where a Hospital Acquired Complication was identified, expressed as a rate per 1000 separations of a surgeon's total separations for that procedure. Hospital Acquired Complications are Medibank's subset of 82 International Classification of Diseases (ICD) codes drawn from the Australian Commission of Safety and Quality in Healthcare's high priority complications dataset (see Table 18). They are selected on the basis that they occur frequently in private hospitals (relative to other complications) and are likely to result in increased costs.
Percentage of patients readmitted within 30 days	Separations where patients were readmitted to the same or a different hospital within 30 days of discharge from the original separation, expressed as a percentage of a surgeon's total separations for that procedure. Readmissions for all-causes except for readmissions for rehabilitation, psychiatric treatment, dialysis and chemotherapy, were included. Separations involving a patient 80 years or older were excluded from this analysis.
Percentage of patients re-operated on within six months	Separations where patients were re-operated on for the same procedure (meaning any one of the MBS codes included in the analysis for that procedure) within 6 months of discharge from the original separation, expressed as a percentage of a surgeon's total separations for that procedure.
Average number of MBS items billed	The total number of MBS items billed by a surgeon, expressed as an average number of MBS items billed per separation for a surgeon.
Average separation cost	The total of all charges relating to the hospital separation, expressed as an average cost per separation for a surgeon. Includes all charges raised by the hospital, medical practitioners, diagnostic providers and for prostheses items.
Average surgeon out of pocket charge	The patient out of pocket charge from the principal surgeon. Expressed as an average out of pocket charge per separation for a surgeon.
Average out of pocket charge for other medical services	The patient out of pocket charge for all other medical services (including charges from the anaesthetist, assistant surgeon and for diagnostics). Expressed as an average out of pocket charge for other medical services per separation, for a surgeon.

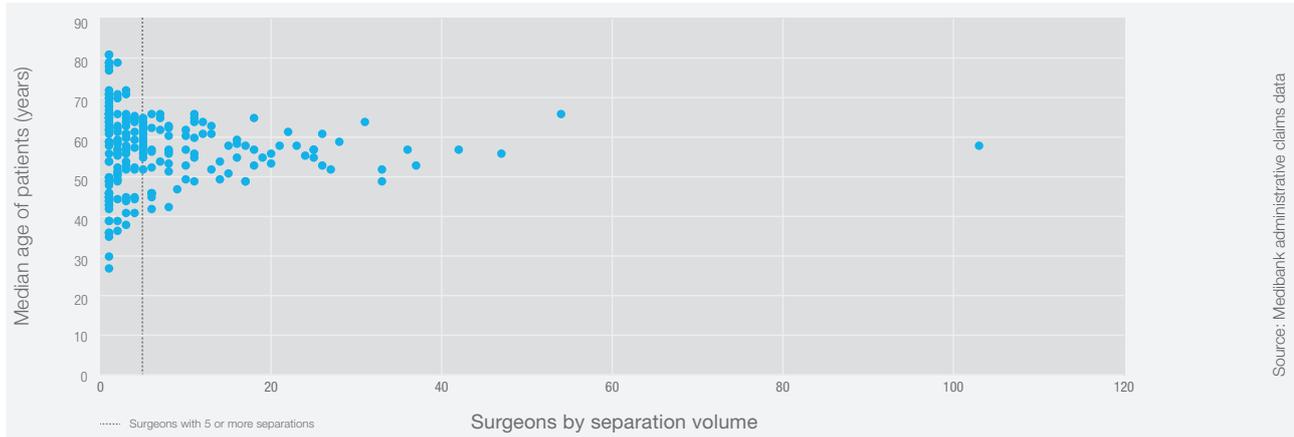
Varicose veins procedures

In 2014 Medibank funded 1,602 operations in private hospitals where varicose veins surgery was recorded as the principal procedure (highest value MBS fee from the medical claim) for the hospital admission. This analysis is limited to those 1,602 procedures. 205 surgeons (identified through the stem of their Medicare provider number) billed Medibank for those procedures. 90 (44%) of these surgeons billed Medibank for five or more varicose veins procedures during 2014. Surgeon-level analysis of the indicators considered for this procedure has been limited to those surgeons with five or more patient separations, so that each surgeon has a sufficient sample of separations from which a value (e.g. an average, median or percentage) for an indicator can be reported.

Table 1: MBS codes included in this analysis

Procedure	MBS Codes	Volume of separations	Percentage of separations	Definition
Varicose veins procedures	32504	82	5%	Varicose veins, multiple excision of tributaries, with or without division of 1 or more perforating veins – 1 leg – not being a service associated with a service to which item 32507, 32508, 32511, 32514 or 32517 applies on the same leg
	32507	135	8%	Varicose veins, sub-fascial surgical exploration of one or more incompetent perforating veins – 1 leg – not being a service associated with a service to which item 32508, 32511, 32514 or 32517 applies on the same leg
	32508	964	60%	Varicose veins, complete dissection at the sapheno-femoral or sapheno-popliteal junction – 1 leg – with or without either ligation or stripping, or both, of the long or short saphenous veins, for the first time on the same leg, including excision or injection of either tributaries or incompetent perforating veins, or both
	32511	87	5%	Varicose veins, complete dissection at the sapheno-femoral and sapheno-popliteal junction – 1 leg – with or without either ligation or stripping, or both, of the long or short saphenous veins, for the first time on the same leg, including excision or injection of either tributaries or incompetent perforating veins, or both
	32514	252	16%	Varicose veins, ligation of the long or short saphenous vein on the same leg, with or without stripping, by re-operation for recurrent veins in the same territory – 1 leg – including excision or injection of either tributaries or incompetent perforating veins, or both
	32517	82	5%	Ligation of the long and short saphenous vein on the same leg, with or without stripping, by re-operation for recurrent veins in either territory – 1 leg – including excision or injection of either tributaries or incompetent perforating veins, or both

Figure 1: Median age of patients

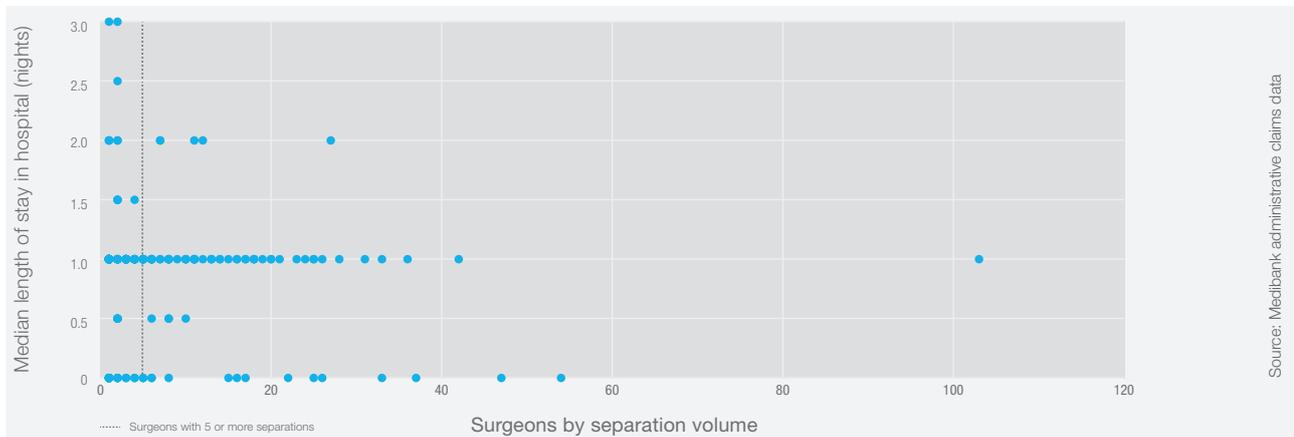


Across all separations the median patient age was 57 years.
 For the 90 surgeons who performed at least five procedures:

- The median patient age of a surgeon ranged between 42 years and 66 years.

Is this variation in age clinically expected?

Figure 2: Median length of stay in hospital



For the 90 surgeons who performed at least five procedures:

- The median number of nights that a surgeon's patients stayed in hospital ranged between 0 nights and 2 nights with a median of 1 night.

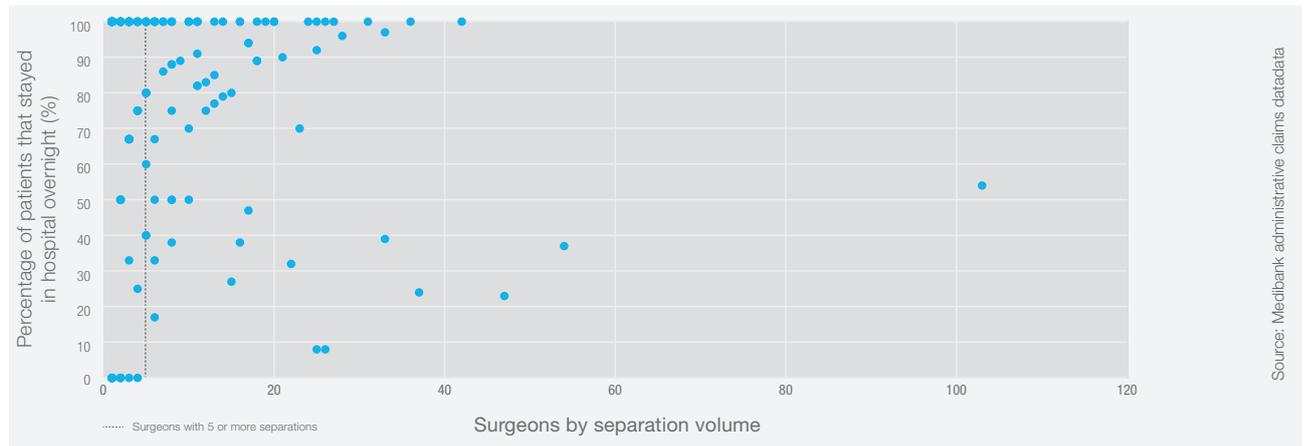
Table 2: Median length of stay (nights) by state/territory

State/territory	ACT	NSW	NT	QLD	SA	TAS	VIC	WA
Length of stay	0	1	NA*	1	1	0	1	1

* State/territory values not reported where less than five surgeons billed Medibank in that state or territory to protect anonymity.

What would you consider the most effective length of stay for this procedure?

Figure 3: Percentage of patients that stayed in hospital overnight



In 76% of the hospital separations the patient stayed in hospital for at least one night. The median age of patients that stayed in hospital overnight was 58 years, compared with a median age of 55 years for patients admitted and discharged on the same day.

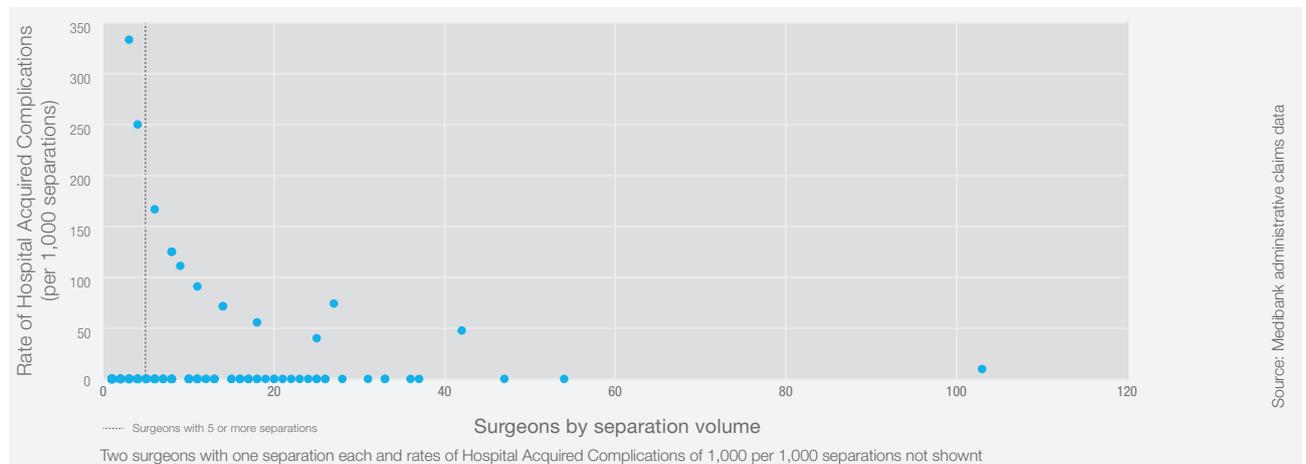
For the 90 surgeons who performed at least five procedures:

- 49 (54%) had a mix of patients that either stayed in hospital overnight or were admitted and discharged on the same day
- 41 (46%) had all of their patients stay in hospital for at least one night
- The percentage of a surgeon’s patients that stayed in hospital overnight ranged between 8% and 100% with a median of 93%.

What are the reasons for a patient staying in hospital overnight following this procedure?

What is the impact of a unilateral or bilateral procedure on the length of stay in hospital?

Figure 4: Rate of Hospital Acquired Complications (per 1,000 separations)



Hospital Acquired Complications are a Medibank subset of 82 International Classification of Diseases (ICD) codes drawn from the Australian Commission of Safety and Quality in Health Care’s list of high priority complications (see Table 18).

The rate of Hospital Acquired Complications was 12 per 1,000 hospital separations.

For the 90 surgeons who performed at least five procedures:

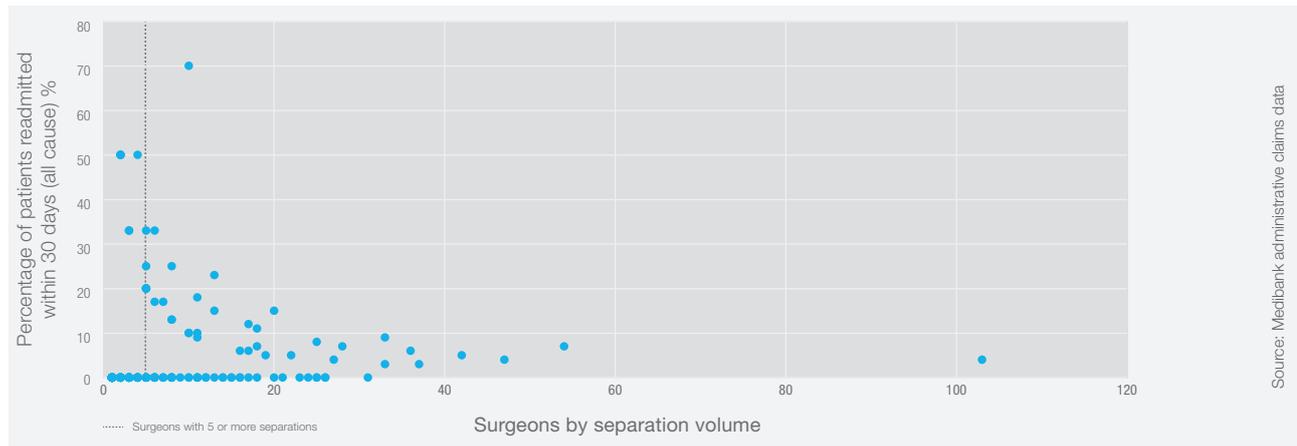
- 13 (14%) surgeons had one or more patient separations during which a Hospital Acquired Complication was identified
- The rate of Hospital Acquired Complications for a surgeon ranged between 0 per 1,000 separations to 167 per 1,000 separations with a median of 0 per 1,000 separations.

Table 3: Hospital Acquired Complications identified during the hospital separation

Category	Haemorrhage and haematoma complicating a procedure, not elsewhere classified	Total
Number recorded	19	19

What complications have you had for this procedure?

Figure 5: Percentage of patients readmitted within 30 days



In 77 (5%) of the hospital separations patients were readmitted (for all causes*) to a hospital within 30 days. Administrative claims data does not indicate whether the readmissions were planned or unplanned. The median age of patients readmitted was 62 years, compared with a median age of 56 years for those patients not readmitted. For the 77 readmissions:

- 69 readmissions were to a private hospital (the same one or a different hospital). In 5 of these separations at least one Hospital Acquired Complication was identified (see Table 4)
- 8 readmissions were to a public hospital (where the patient was treated as a private patient).

For the 90 surgeons who performed at least five procedures, the percentage of a surgeon's patients readmitted within 30 days ranged between 0% and 70% with a median of 0%.

Readmissions to public hospitals, where patients were treated as public patients, are not captured in these datasets.

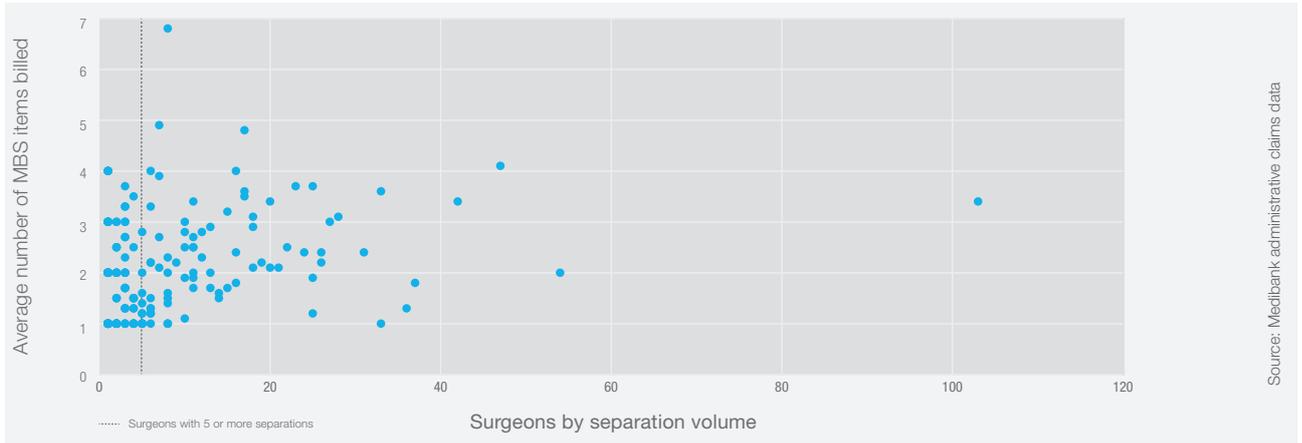
* Readmissions for rehabilitation, psychiatric treatment, dialysis and chemotherapy were excluded where identified. Separations involving a patient 80 years or older were also excluded.

Table 4: Hospital Acquired Complications identified on readmission

Category	Infection	Surgical complication	Total
Number recorded	2	4	6

What are the reasons for readmission for this procedure, and what is the acceptable rate?

Figure 6: Average number of MBS items billed



The average number of MBS items billed by the surgeon (the principal surgeon only) was 2.4 per hospital separation.

Of the 90 surgeons who performed five or more procedures, the average number of MBS items billed by a surgeon ranged between 1.0 and 6.8 with a median of 2.1.

The top five MBS items billed by the surgeon for separations where MBS item # 32508 was the principal procedure (964 separations) are shown in the table below.

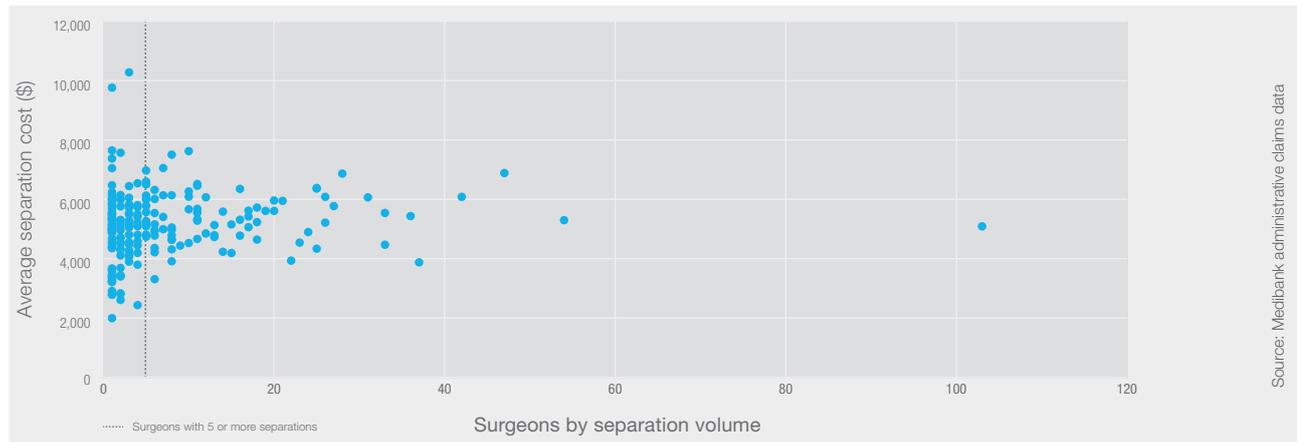
Table 5: Top five MBS items billed by the surgeon for varicose veins surgery (principal MBS item #32508)

MBS item number	Description	Total frequency	Frequency per separation
32508	Varicose veins, complete dissection at the sapheno-femoral or sapheno-popliteal junction	1177	1.22*
34103	Great artery or great vein (including subclavian, axillary, iliac, femoral or popliteal)	551	0.57
00105	Professional attendance by a specialist in the practice of his or her specialty where the patient is	454	0.47
32504	Varicose veins, multiple excision of tributaries, with or without division of 1 or more perforating	24	0.02
18270	Femoral nerve, injection of an anaesthetic agent	23	0.02

*Includes operations with bilateral procedures

What are the reasons for the wide variation in the number of MBS items billed?

Figure 7: Average separation cost



The separation cost includes the total charges for the hospital separation, including payments made by Medibank, Medicare and the patient. Costs include hospital, prostheses, medical practitioners and diagnostic services. The average total cost per hospital separation was \$5,343.

For the 90 surgeons who performed at least five procedures, the average separation cost of a surgeon ranged between \$3,304 and \$7,616 with a median of \$5,298.

Table 6: Average separation cost by state/territory

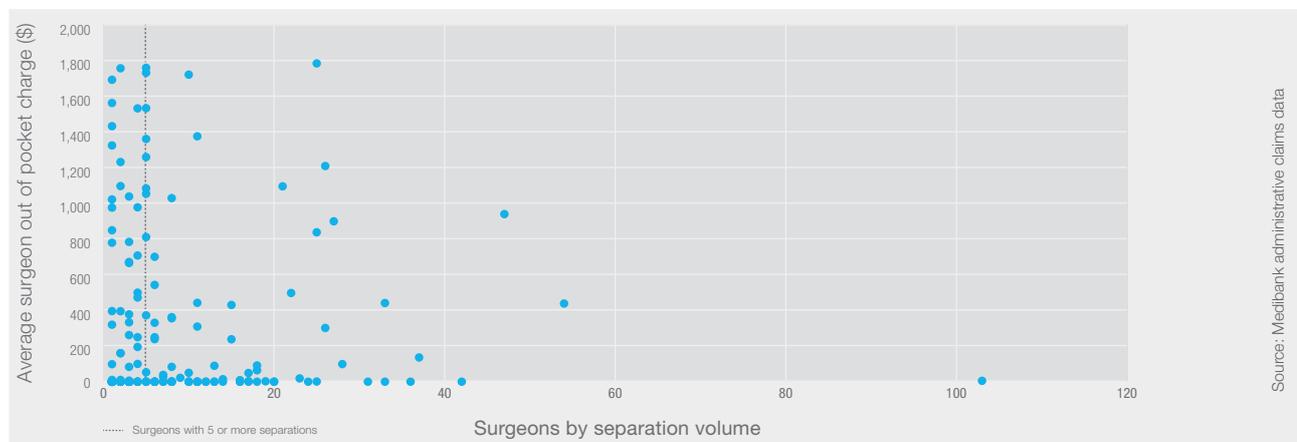
State/territory	ACT	NSW	NT	QLD	SA	TAS	VIC	WA
Average separation cost	\$5,607	\$5,606	NA*	\$5,334	\$4,356	\$4,398	\$5,566	\$4,942

* State/territory values not reported where less than five surgeons billed Medibank in that state or territory to protect anonymity

Are you aware of the associated costs for this procedure such as pathology, diagnostic imaging, surgical assistants, anaesthetists, hospital bed fees?

What are the reasons for variation in separation costs?

Figure 8: Average surgeon out of pocket charge



Patients were charged an out of pocket fee by the principal surgeon in 37% of separations and the average out of pocket charged was \$771.

For the 90 surgeons who performed at least five procedures, 36 (40%) did not charge any of their patients an out of pocket for the hospital admission. The average out of pocket charged by these surgeons ranged from \$0 (no out of pocket charged) to \$1,787 with a median of \$20.

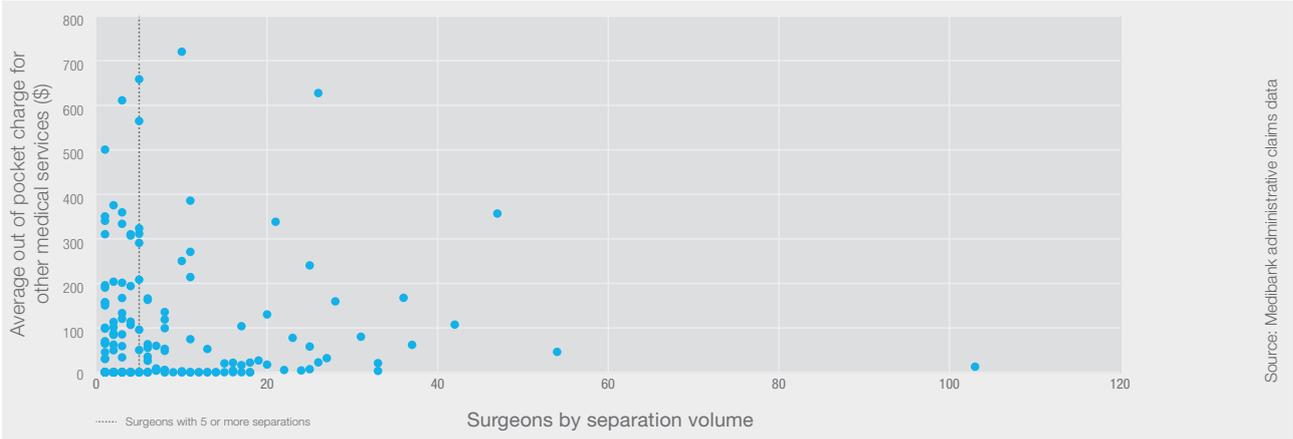
Table 7: Surgeon out of pocket charges by state/territory

	ACT	NSW	NT	QLD	SA	TAS	VIC	WA
% of separations with OOP	87%	52%	NA*	36%	35%	70%	17%	42%
Average OOP	\$1,335	\$1,138	NA*	\$740	\$17	\$197	\$476	\$546

* State/territory values not reported where less than five surgeons billed Medibank in that state or territory to protect anonymity

Why is there such variation in the average out of pocket charge?

Figure 9: Average out of pocket charge for other medical services



Patients were charged an out of pocket fee for other medical services (including charges raised by the anaesthetist, assistant surgeon and for diagnostics) in 46% of the hospital separations and the average out of pocket charge was \$188.

For the 90 surgeons who performed at least five procedures, the average out of pocket charges received by their patients for other medical services ranged between \$0 and \$720 with a median of \$22.

Table 8: Out of pocket charges for other medical services by state/territory

	ACT	NSW	NT	QLD	SA	TAS	VIC	WA
% of separations with OOP	91%	45%	NA*	40%	55%	46%	52%	23%
Average OOP	\$539	\$305	NA*	\$137	\$107	\$149	\$121	\$61

* State/territory values not reported where less than five surgeons billed Medibank in that state or territory to protect anonymity

Why is there such variation in the average out of pocket charge?

Carotid endarterectomy procedures

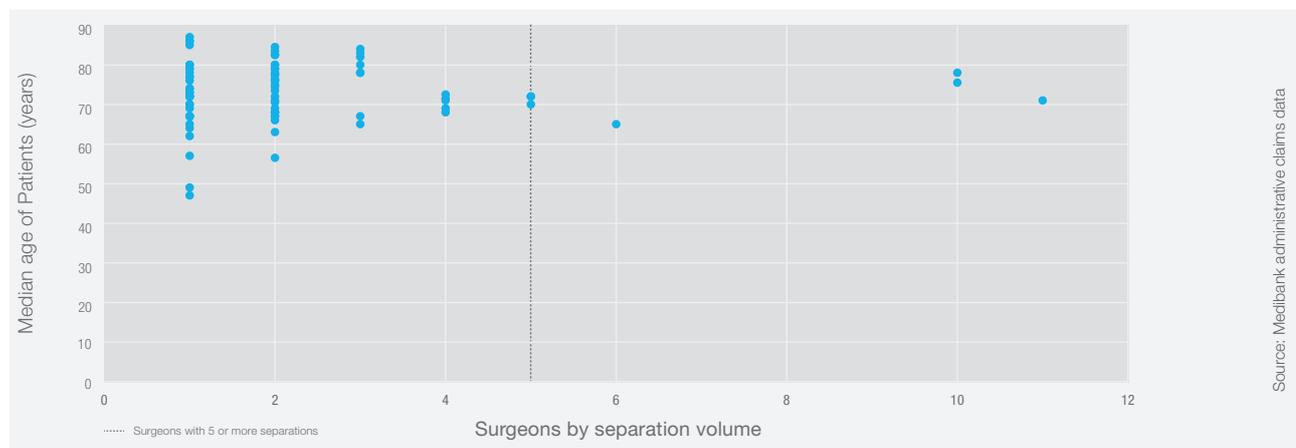
In 2014 Medibank funded 187 operations in private hospitals where carotid endarterectomy was recorded as the principal procedure (highest value MBS fee from the medical claim) for the hospital admission. The analysis is limited to those 187 procedures. 82 surgeons (identified through the stem of their Medicare provider number) billed Medibank for those procedures. 7 (9%) of these surgeons billed Medibank for five or more procedures in 2014. Surgeon-level analysis of the indicators considered for this procedure has been limited to those surgeons with five or more patient separations, so that each surgeon has a sufficient sample of separations from which a value (e.g. an average, median or percentage) for an indicator can be reported.

Table 9: MBS codes included in this analysis

Procedure	MBS Codes	Volume of separations	Percentage of separations	Definition
Carotid endarterectomy procedures	33500	185	99%	Artery or arteries of neck, endarterectomy of, including closure by suture (where endarterectomy of 1 or more arteries is undertaken through 1 arteriotomy incision)
	33548	2*	1%	Artery, vein or bypass graft, patch grafting to by vein or synthetic material where patch is 3cm long or greater

*Only two separations where MBS #33548 was the principal procedure. However MBS #33548 was commonly billed with MBS #33500 as a secondary MBS code

Figure 10: Median age of patients



Source: Medibank administrative claims data

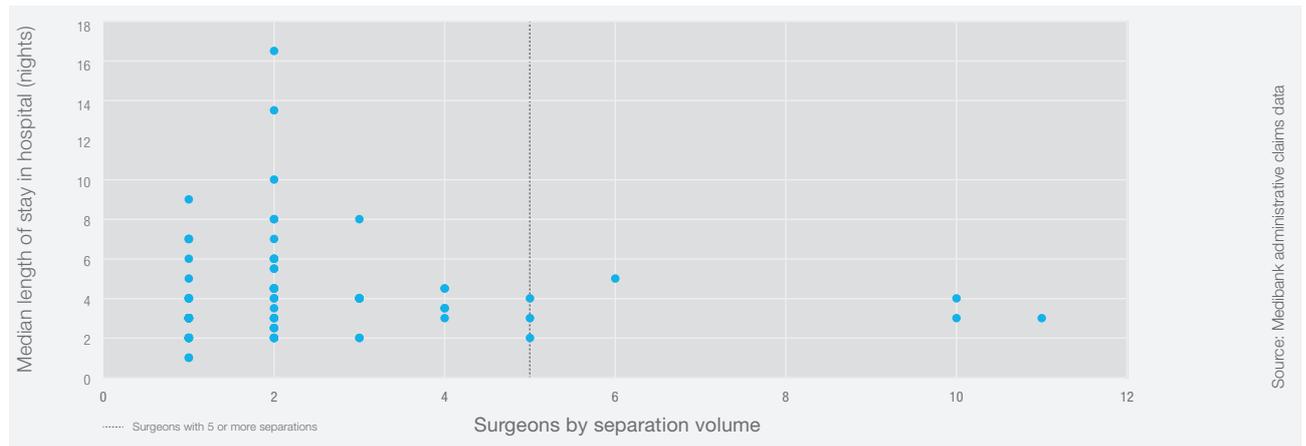
Across all separations the median patient age was 73 years.

For the 7 surgeons who performed at least five procedures:

- The median patient age of a surgeon ranged between 65 years and 78 years.

Is this variation in age clinically expected?

Figure 11: Median length of stay in hospital



For the 7 surgeons who performed at least five procedures:

- The median number of nights that a surgeon’s patients stayed in hospital ranged between 2 nights and 5 nights with a median of 3 nights.

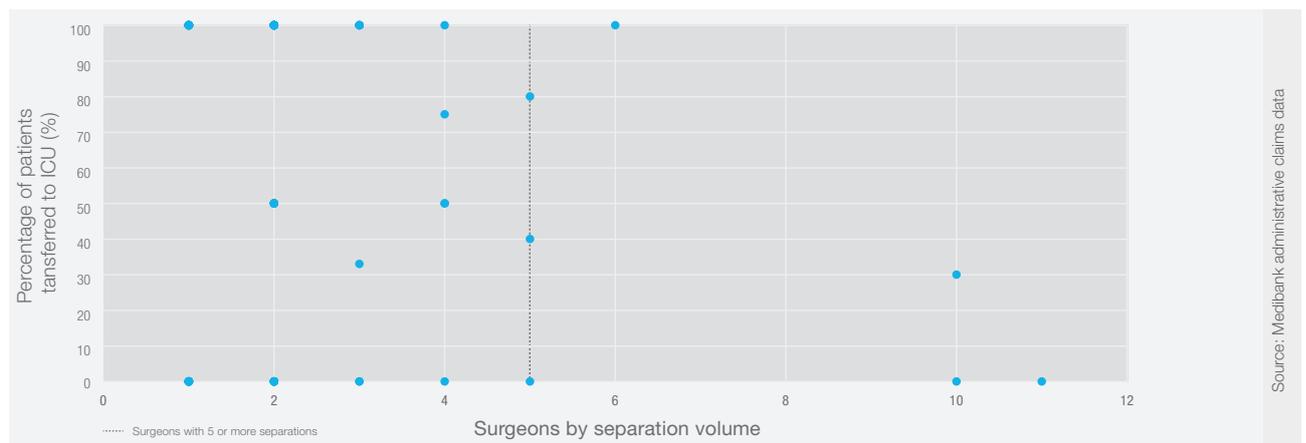
Table 10: Median length of stay (nights) by state/territory

State/territory	ACT	NSW	NT	QLD	SA	TAS	VIC	WA
Length of stay	NA*	3	NA*	3	NA*	NA*	3	4

* State/territory values not reported where less than five surgeons billed Medibank in that state or territory to protect anonymity.

What would you consider the most effective length of stay for this procedure?

Figure 12: Percentage of patients transferred to ICU



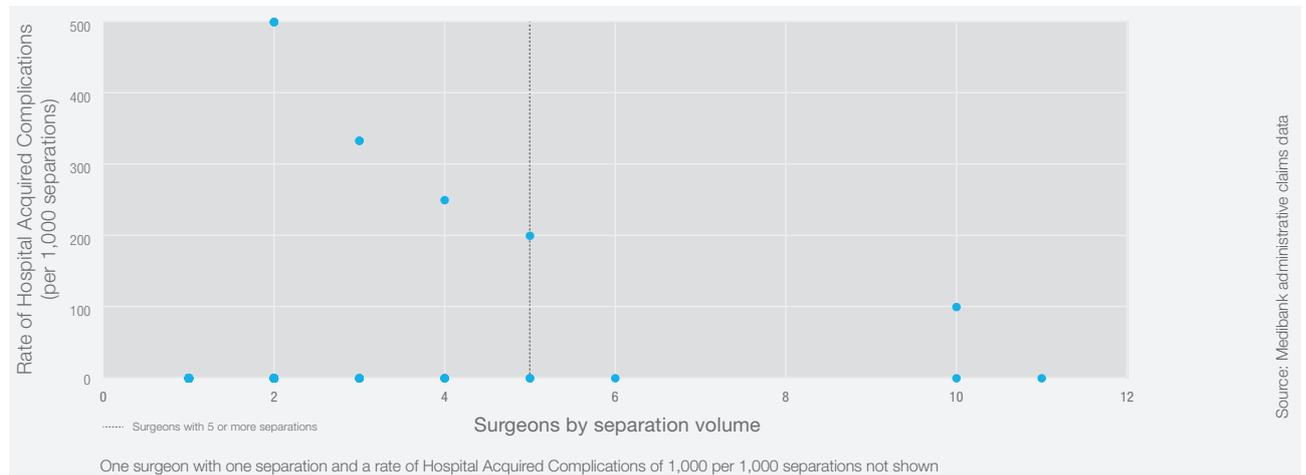
Across the total sample of 187 hospital separations, patients were transferred to an intensive care unit (ICU) during 98 hospital separations (52%). Administrative claims data does not indicate whether the transfers were planned or unplanned.

For the 7 surgeons who performed at least five procedures:

- 4 (57%) surgeons had one or more patient separations during which patients were transferred to ICU
- The percentage of a surgeon’s patients that were transferred to ICU ranged between 0% and 100% with a median of 30%.

Given that ICU transfers could indicate a difficult post-operative recovery, what would be the expected transfer rate?

Figure 13: Rate of Hospital Acquired Complications (per 1,000 separations)



One surgeon with one separation and a rate of Hospital Acquired Complications of 1,000 per 1,000 separations not shown

Hospital Acquired Complications are a Medibank subset of 82 International Classification of Diseases (ICD) codes drawn from the Australian Commission of Safety and Quality in Health Care’s list of high priority complications (see Table 18).

The rate of Hospital Acquired Complications was 48 per 1,000 hospital separations.

For the 7 surgeons who performed at least five procedures:

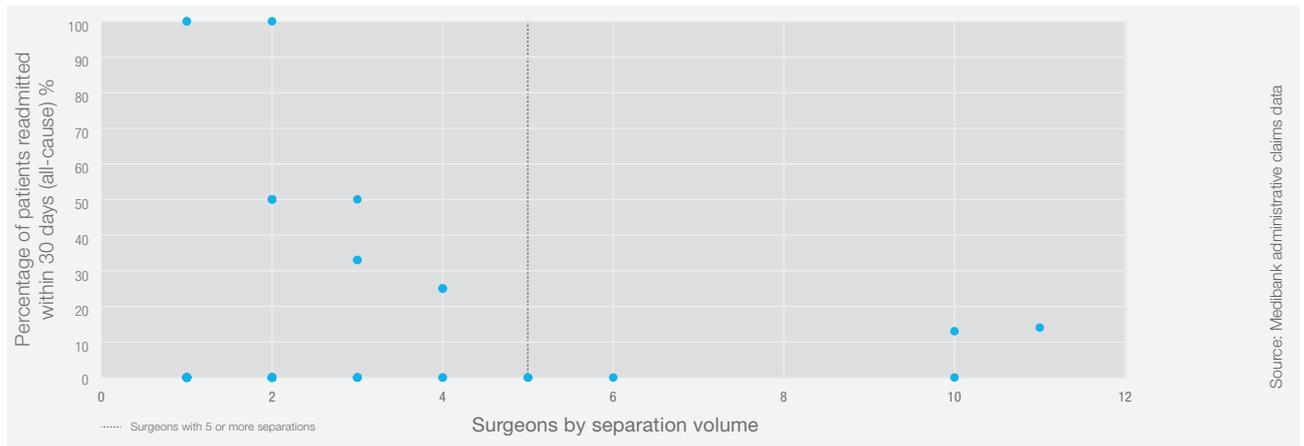
- 2 (29%) surgeons had one or more patient separations during which a Hospital Acquired Complication was identified
- The rate of Hospital Acquired Complications for a surgeon ranged between 0 per 1,000 separations to 200 per 1,000 separations with a median of 0 per 1,000 separations.

Table 11: Hospital Acquired Complications identified during the hospital separation

Description	Number recorded
Haemorrhage and haematoma complicating a procedure, not elsewhere classified	7
Accidental puncture and laceration during a procedure, not elsewhere classified	1
Infection and inflammatory reaction due to other cardiac and vascular devices, implants and grafts	1
Total	9

What complications have you had for this procedure?

Figure 14: Percentage of patients readmitted within 30 days



Source: Medibank administrative claims data

In 14 (10%) of the hospital separations patients were readmitted (for all causes*) to a hospital within 30 days. Administrative claims data does not indicate whether the readmissions were planned or unplanned. The median age of patients readmitted was 69 years, compared with a median age of 71 years for those patients not readmitted. For the 14 readmissions:

- 13 readmissions were to a private hospital (the same one or a different hospital). In 2 of these separations a Hospital Acquired Complication was identified (see Table 12)
- 1 readmission were to a public hospital (where the patient was treated as a private patient).

For the 7 surgeons who performed at least five procedures, the percentage of a surgeon's patients readmitted within 30 days ranged between 0% and 14% with a median of 0%.

Readmissions to public hospitals, where patients were treated as public patients, are not captured in these datasets.

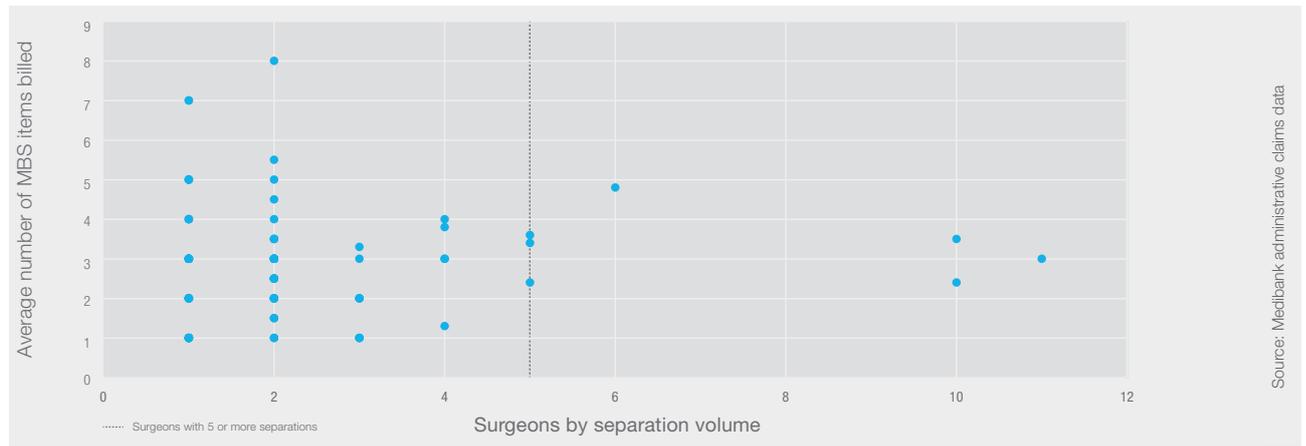
* Readmissions for rehabilitation, psychiatric treatment, dialysis and chemotherapy were excluded where identified. Separations involving a patient 80 years or older were also excluded.

Table 12: Hospital Acquired Complications identified on readmission

Category	Surgical complication	Total
Number recorded	2	2

What are the reasons for readmission for this procedure, and what is the expected rate?

Figure 15: Average number of MBS items billed



The average number of MBS items billed by the surgeon (the principal surgeon only) was 2.9 per hospital separation.

Of the 7 surgeons who performed five or more procedures, the average number of MBS items billed by a surgeon ranged between 2.4 and 4.8 with a median of 3.4.

The top five MBS items billed by the surgeon for separations where MBS item number 33500 was the principal procedure (185 separations) are shown in the table below

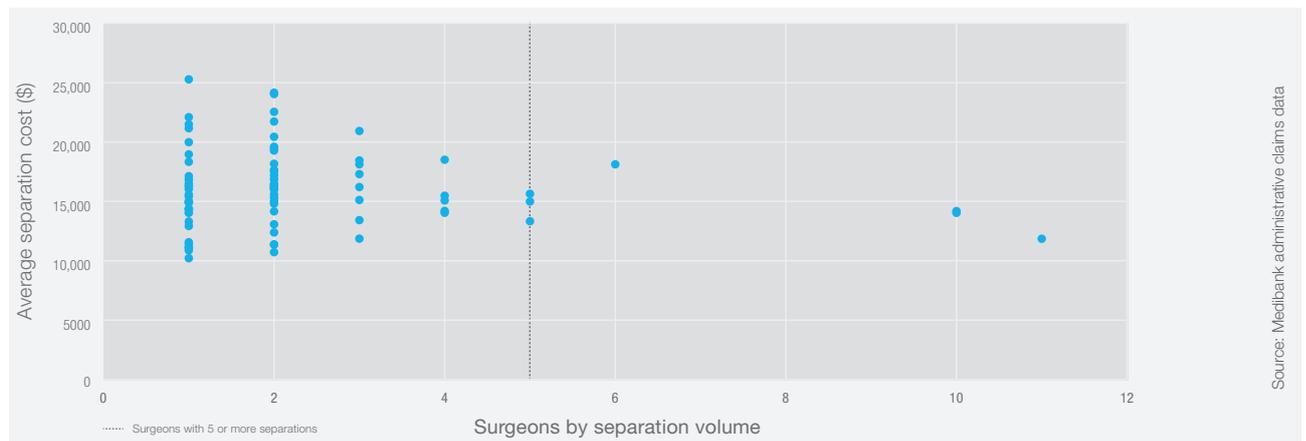
Table 13: Top five MBS items billed by the surgeon (principal MBS # 33500)

MBS item number	Description	Total frequency	Frequency per separation
33500	Artery or arteries of neck, endarterectomy of, including closure by suture	228	1.23
33548	Artery, vein or bypass graft, patch grafting to by vein or synthetic material where patch is 3cm long or greater	172*	0.93
00105	Professional attendance by a specialist in the practice of his or her specialty	144	0.78
00104	Specialist, referred consultation – surgery or hospital	43	0.23
35200	Operative arteriography or venography, 1 or more of	15	0.08

* MBS #33545 (Artery, vein or bypass graft, patch grafting to by vein or synthetic material where patch is less than 3cm long) was only billed once across all 185 separations

What are the reasons for the wide variation in the number of MBS items billed?

Figure 16: Average separation cost



The separation cost includes the total charges for the hospital separation, including payments made by Medibank, Medicare and the patient. Costs include hospital, prostheses, medical practitioners and diagnostic services. The average total cost per hospital separation was \$15,682.

For the 7 surgeons who performed at least five procedures, the average separation cost of a surgeon ranged between \$11,832 and \$18,101 with a median of \$14,165.

Table 14: Median surgeon out-of-pocket charge by state/territory

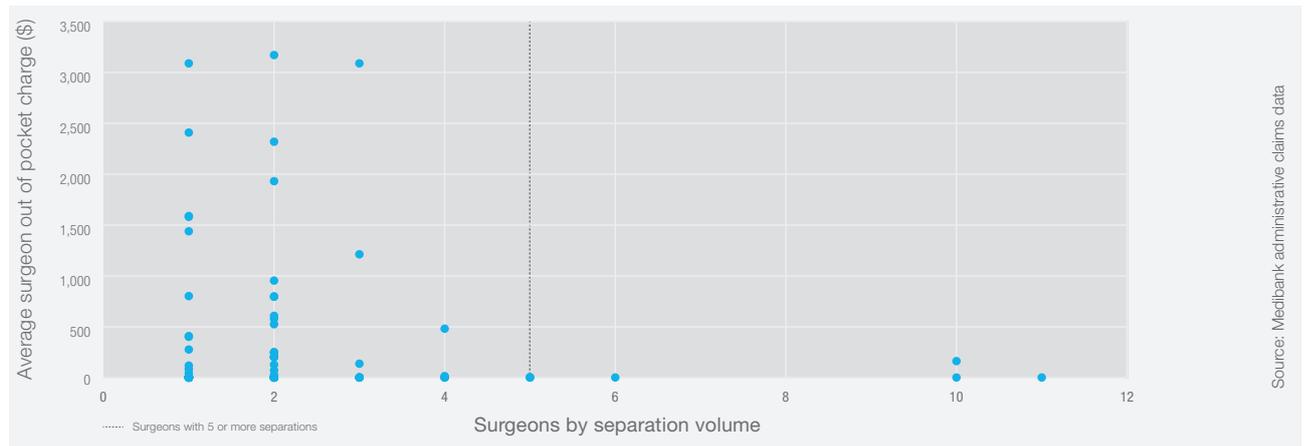
State/territory	ACT	NSW	NT	QLD	SA	TAS	VIC	WA
Average separation cost	NA*	\$17,038	NA*	\$15,088	NA*	NA*	\$15,308	\$16,284

* State/territory values not reported where less than five surgeons billed Medibank in that state or territory to protect anonymity

Are you aware of the associated costs for this procedure such as pathology, diagnostic imaging, surgical assistants, anaesthetists, hospital bed fees?

What are the reasons for variation in separation costs?

Figure 17: Average surgeon out of pocket charge



Patients were charged an out of pocket fee by the principal surgeon in 32% of separations and the average out of pocket charged was \$918.

For the 7 surgeons who performed at least five procedures, 5 (71%) did not charge any of their patients an out of pocket for the hospital admission. The average out of pocket charged by these surgeons ranged from \$0 (no out of pocket charged) to \$161 with a median of \$0.

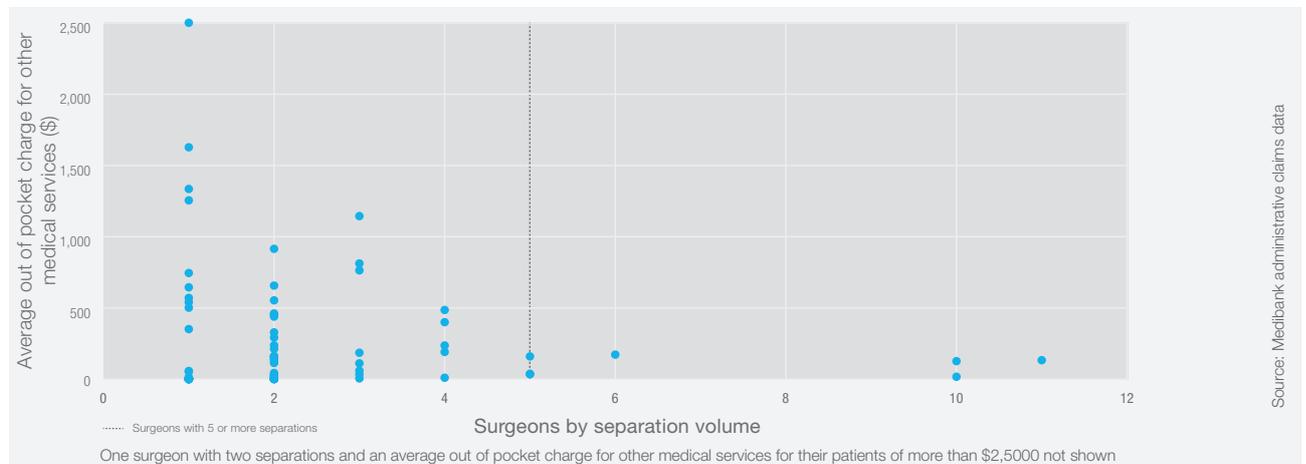
Table 15: Median surgeon out-of-pocket charge by state

	ACT	NSW	NT	QLD	SA	TAS	VIC	WA
% of separations with OOP	NA*	50%	NA*	22%	NA*	NA*	26%	36%
Average OOP	NA*	\$1,932	NA*	\$672	NA*	NA*	\$235	\$536

* State/territory values not reported where less than five surgeons billed Medibank in that state or territory to protect anonymity

Why is there such variation in the average out of pocket charge?

Figure 18: Average out of pocket charge for other medical services



Patients were charged an out of pocket fee for other medical services (including charges raised by the anaesthetist, assistant surgeon and for diagnostics) in 75% of the hospital separations and the average out of pocket charge was \$345.

For the 7 surgeons who performed at least five procedures, the average out of pocket charges received by their patients for other medical services ranged between \$16 and \$171 with a median of \$125.

Table 16: Out of pocket charges for other medical services by state/territory

	ACT	NSW	NT	QLD	SA	TAS	VIC	WA
% of separations with OOP	NA*	82%	NA*	87%	NA*	NA*	56%	84%
Average OOP	NA*	\$707	NA*	\$163	NA*	NA*	\$139	\$486

* State/territory values not reported where less than five surgeons billed Medibank in that state or territory to protect anonymity

Why is there such variation in the average out of pocket charge?

Clinical variation working party membership

Prof David Watters
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A/Prof Andrew Brooks
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Mr Graeme Campbell
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Dr Cathy Ferguson (Otolaryngologist
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Mr Simon Williams
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Definitions

Table 17: Definitions

Term	Definition
ACT	Australian Capital Territory
HCP	Hospital Casemix Protocol. HCP data includes details of diagnoses, interventions, demographics and financial data relating to members' treatment in hospital
Hospital Acquired Complication	Medibank's subset of 82 ICD10 codes drawn from the Australian Commission of Safety and Quality in Healthcare's high priority complications dataset (see Table 16).
ICD	International Classification of Diseases. The ICD is the standard diagnostic tool for epidemiology, health management and clinical purposes.
ICU	Intensive Care Unit
MBS	Medicare Benefit Schedule
Median	The middle number in a given sequence of numbers
NZ	New Zealand
NSW	New South Wales
NT	Northern Territory
QLD	Queensland
SA	South Australia
Operation	The amount payable by the patient to a medical provider (including medical practitioner and diagnostics providers) for services performed during the hospital separation
Out of pocket charge	The amount payable by the patient to a medical provider (including medical practitioners and diagnostics provider) for services performed during the hospital separation
Principal surgeon/specialist	The surgeon/specialist who billed the MBS item with the highest fee in a separation
Primary procedure	The procedure performed on the patient with the highest value MBS fee
RACS	Royal Australasian College of Surgeons
Separation	The episode of admitted patient care
VIC	Victoria
WA	Western Australia

Table 18: Categories of Hospital Acquired Complications

Category	Sub-Category		
Pressure Injury	NA (only includes type 3 and 4 pressure ulcers)		
Falls	Cranial Injury	Femoral Fracture	Other Fracture
Healthcare Associated Infection	Urinary Tract Infection	Blood Stream Infection	
	Surgical Site Infection	Prostheses Site Infection	
Surgical Complication	Post-operative Haemorrhage and Haematoma	Other surgical complications including, thrombophlebitis, transfusion reaction, accidental puncture and laceration, wound disruption	
Venous Thromboembolism	Pulmonary Embolism	Venous Thrombosis	

