

Average cost per weighted separation

This article explains the **average cost per weighted separation** indicator and presents the results for this indicator across the jurisdictions.

Specifically, this article answers the questions:

- What are weighted separations?
- What does the indicator 'average cost per weighted separation' measure?
- What do the findings over the past five years show?

Average cost per separation

In the context of hospital patient activity, the term *separation* refers to a single episode of admitted patient activity. In 2017–18, the average cost per admitted acute separation was \$4,885¹. This represents a 1.9 percent increase from 2016–17, and continues a general upward trend over the past five years (see Figure 1).

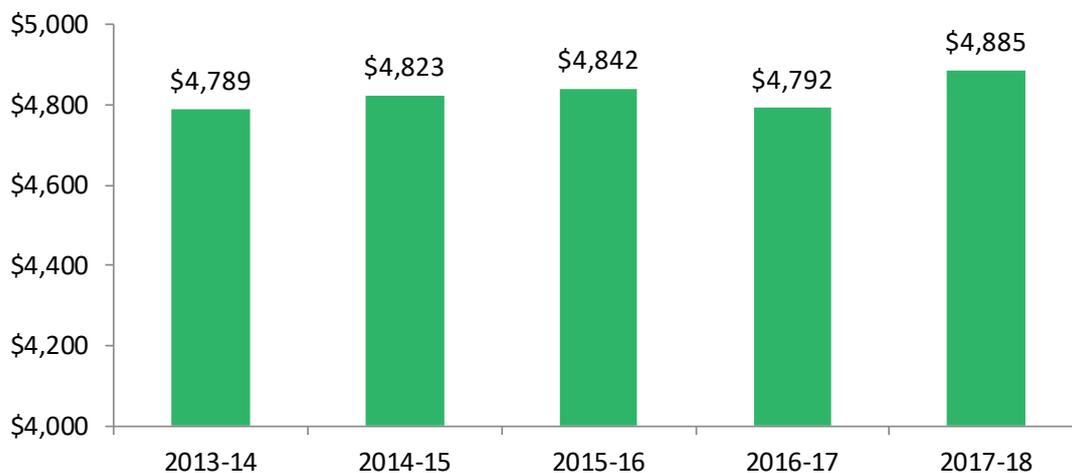
The average cost per hospital separation is influenced by many factors. At a patient level, these include the complexity of the admission (medical or surgical) and demographic factors such as the age and location of the patients treated.

Weighted separations

A *weighted separation* accounts for the complexity of a separation relative to other separations. The level of complexity is determined based on the resources required to treat the patient.

For example, in Round 22 of the National Hospital Cost Data Collection (NHCDC), a single heart transplant patient separation² corresponds to 38.74 weighted separations. This means the average cost for a hospital to undertake a heart transplant in 2017–18 was 38.74 times greater than the cost of the average of all admitted acute separations (\$189,245 compared with \$4,885). In contrast, a single colonoscopy patient separation³ corresponds to 0.45 of a weighted separation – reflecting an average cost less than half the average of all admitted acute separation (\$2,198 compared with \$4,885).

Figure 1: Average cost per acute separation, Round 18 (2013–14) to Round 22 (2017–18)



1. \$29.41 billion divided by 6.02 million separations

2. DRG: F23Z

3. DRG: G48B

Oesophagitis and gastroenteritis, penis procedures and female reproductive system malignancy⁴ each correspond to 0.99 weighted separations – indicating an average cost almost matching that of all admitted acute separations.



Why are weighted separations created only for admitted acute activity?

IHPA calculates weighted separations only for *admitted acute* separations. Admitted acute separations refer to care which is provided to patients who are formally admitted to hospital to receive active but short-term treatment with a goal to:

- Cure, treat or relieve symptoms of illness or injury
- Reduce severity of an illness or injury and protect against complications
- Perform surgery
- Perform diagnostic or therapeutic procedures
- Manage childbirth

The *Australian-Refined Diagnosis Related Groups* (AR-DRG) classification is used for classifying admitted acute separations. It is the most developed classification system and, compared to other hospital activity classifications, it generates the most robust cost data results. Under the AR-DRG classification, each admitted acute separation is classified according to one of around 800 DRGs. The groups provide a clinically meaningful way of relating the number and type of patients treated in a hospital (known as hospital case-mix) to the resources required by the hospital.

IHPA has used AR-DRG Version 10 to report on admitted acute results in this article and the Round 22 NHCDC Report.

Each DRG represents a group of patient separations which broadly require similar hospital resource use. A patient's DRG is based on principal and secondary diagnoses - using International Statistical Classification of Diseases and Related Health

Problems, Tenth Revision, Australian Modification (ICD-10-AM) codes; the procedures undertaken – using Australian Classification of Health Interventions (ACHI) codes; the age and sex of the patient, and other factors.



Average cost per weighted separation

IHPA reports on the average cost per weighted separation at the jurisdiction level.

The indicator is a case-mix adjusted average cost, where the relative complexity of the activity is taken into account. It uses the national cost weights⁵ to weight separations at the DRG level. If the average cost per weighted separation is lower than the actual average cost the activity had a higher proportion of complex DRGs.

Weighted separations enable us to consider the work profile of each jurisdiction when comparing average costs. While the average cost per acute separation in Round 22 is \$4,885 – the average cost varies from \$3,697 (Northern Territory) to \$6,032 (South Australia).

By summing the weighted separations for each jurisdiction, we can compare the volume and complexity of the jurisdictions' relative activity. Table 1 compares the average cost and average cost per weighted separation by jurisdiction. The 'average cost per weighted separation' accounts for the relative complexity of each jurisdiction's work profile. If a jurisdiction's average cost per weighted separation is lower than its average cost, the jurisdiction's hospital activity comprised a higher proportion of complex DRGs.

The Northern Territory has the biggest variance, with a low average cost (\$3,697) and a high average cost per weighted separation (\$6,231). This reflects that the complexity of separations in Northern Territory is low relative to Australia overall, due to the high proportion of admitted same-day activity being dialysis.

4. DRGs: G67A, M03B and N60B

5. See the Round 22 NHCDC Report Appendix (Table 3)

Table 1: Average cost per weighted separation, by jurisdiction, Round 22

Jurisdiction	Number of separations	Number of weighted separations	Complexity factor (1)	Average cost per separation	Average cost per weighted separation (2)
NSW	1,635,575	1,818,488	1.11	5,267	4,737
Vic	1,675,397	1,572,290	0.94	4,282	4,563
Qld	1,400,536	1,342,059	0.96	4,523	4,720
SA	379,772	405,894	1.07	6,032	5,644
WA	531,540	532,146	1.00	5,827	5,821
Tas	121,513	135,195	1.11	5,772	5,188
NT	165,704	98,297	0.59	3,697	6,231
ACT	109,135	114,802	1.05	5,319	5,057
National	6,019,172	6,019,172	1.00	4,885	4,885

(1) The jurisdiction's number of weighted separations divided by number of separations.

(2) The jurisdiction's average cost per separation divided by the complexity factor.

The complexity of the jurisdictions' work profiles is influenced by their different hospital admission policies. These policy differences affect certain non-complex same-day procedures (such as chemotherapy, haemodialysis and endoscopy) and can lead to undercounting in some jurisdictions. For example, relative to their populations, the jurisdictions which generally provide same-day chemotherapy for outpatients on a non-admitted basis (i.e. New South Wales, South Australia, Australian Capital Territory) have significantly fewer chemotherapy admissions than the other jurisdictions, relative to their populations.



Five-year trend

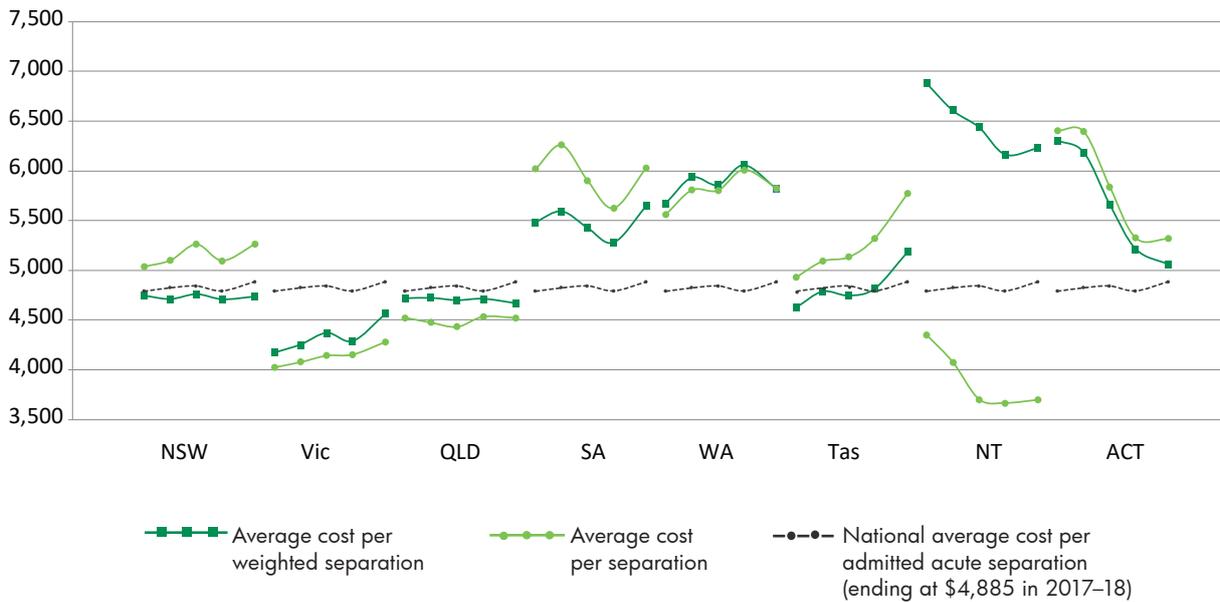
The shoreline graph (Figure 2) compares the complexity of each jurisdiction's case-mix of admitted acute patients over the past five years⁶. By taking into account each jurisdiction's case-mix, the blue square markers provide a clearer picture at the costs associated with admitted acute separations.

Collectively accounting for more than three quarters (78%) of the admitted acute separations in 2016–17, New South Wales, Victoria, and Queensland, had a greater impact on the national average cost (\$5,171) than the other jurisdictions.

Figure 2 shows that the costs associated with the smaller jurisdictions are more volatile than in the larger jurisdictions.

6. DRG version 10.0 has been applied for each year

Figure 2: Average cost per weighted separations, by jurisdiction for NHCDC Rounds 18-22 (2013-14 to 2017-18)



Key observations from each jurisdiction are provided below

New South Wales: Once the complexity of separations is accounted for, the average cost of a separation in NSW has tracked very closely to the national average cost over the past five years.

Victoria: Once the complexity of separations is accounted for, the average cost of a separation in Victoria was consistently the lowest across the five years.

Queensland: The complexity of Queensland’s separations is consistently slightly lower than the national case-mix.

South Australia: The level of complexity in South Australia’s case-mix (relative to other jurisdictions) has fluctuated considerably in recent years.

Western Australia: Despite a dip in 2017-18, the average cost per weighted separation has increased relatively steadily over the past five years from \$5,677 to \$5,821.

Tasmania: The widening gap of the average cost per separation over the average cost per weighted separation indicates that the level of complexity in Tasmania’s patient case-mix (relative to other jurisdictions) has increased.

Northern Territory: The significant difference between Northern Territory’s simple and weighted average costs is due to the large presence of low complexity activity like renal dialysis.

Australian Capital Territory: Since 2014-15, the average cost per weighted separation in the Australian Capital Territory has fallen significantly 25% (from 6,307 to \$5,057).