Australian Government
Australian Institute of Health and Welfare

Weight loss surgery in Australia 2014–15

Australian hospital statistics

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Authoritative information and statistics to promote better health and wellbeing

Weight loss surgery in Australia 2014–15: Australian hospital statistics

Australian Institute of Health and Welfare
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Abbreviations

AATSHIS	Aboriginal and Torres Strait Islander Health Survey
ABS	Australian Bureau of Statistics
ACHI	Australian Classification of Health Interventions
ACT	Australian Capital Territory
AHS	Australian Health Survey
AIHW	Australian Institute of Health and Welfare
ALOS	average length of stay
AR-DRG	Australian Refined Diagnosis Related Group
ARDS	Acute Respiratory Distress Syndrome
ASA	American Society of Anaesthesiologists
ASGS	Australian Statistical Geography Standard
BMI	body mass index
CC	Complications and comorbidities
CHADx	Classification of Hospital-Acquired Diagnoses
COF	condition onset flag
CSCC	catastrophic or severe complications or comorbidities
DHS	Department of Human Services
DRG	Diagnosis Related Group
ICD-10-AM	International Statistical Classification of Diseases and Related Health Problems, 10th Revision, Australian Modification
IHPA	Independent Hospital Pricing Authority
IRSD	Index of Relative Socioeconomic Disadvantage
METeOR	Metadata online Registry
MDC	Major Diagnostic Category
MBS	Medicare Benefits Schedule
NCCC	National Casemix and Classification Centre
NESWTDC	National Elective Surgery Waiting Times Data Collection
NHMD	National Hospital Morbidity Database
NHMRC	National Health and Medical Research Council
NMDS	National Minimum Data Set
NSW	New South Wales
NT	Northern Territory

OECD	Organisation for Economic Co-operation and Development
Qld	Queensland
RACS	Royal Australasian College of Surgeons
SA	South Australia
SEIFA	Socio-Economic Indexes for Areas
SES	socioeconomic status
Tas	Tasmania
Vic	Victoria
WA	Western Australia
WHO	World Health Organization

Symbols

–	nil or rounded to zero
. .	not applicable
n.a.	not available
n.e.c.	not elsewhere classified
n.p.	not publishable because of small numbers, confidentiality or other concerns about the quality of the data

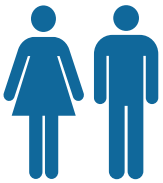
Summary

Nearly two-thirds (63%) of Australian adults are overweight or obese (ABS 2015). Weight loss surgery may be considered for the treatment of Australians with a body mass index (BMI) over 40 or those with a BMI of 35 and conditions that may improve with weight loss (NHMRC 2013).

In 2014–15, there were about 22,700 weight loss surgery separations.

Weight loss surgery separations are hospitalisations that include 1 or more weight loss surgery procedures.

- Over 79% of weight loss surgery separations involved a primary or initial procedure. The remainder were adjustments, revisions, removals and other procedures—for example, for adjustment or removal of devices.
- There were 9.7 weight loss surgery separations per 10,000 population. Western Australia had the highest rate at 17.3.
- The estimated total cost for the 2,700 weight loss surgery separations in public hospitals was almost $30.4 million.



In 2014–15:

- Around 18,000 (79%) weight loss separations were for female patients and 4,800 for male patients.
- Females aged 35–44 and males aged 45–54 had the highest number of separations.

In 2014–15:

- There were more than 124,600 weight loss surgery-related procedures billed to Medicare—those provided in public and private hospitals and in non-hospital settings.
- Total costs for the Medicare-billed procedures were about $62.8 million. About $25.7 million in benefits were paid by Medicare, and out-of-pocket costs for patients and/or health insurers were about $37.1 million.

Between 2005–06 and 2014–15:

- Weight loss surgery separations increased from 9,300 to 22,700.
- Separations increased 3.3 fold in public hospitals and 2.4 fold in private hospitals.
- The majority of procedures (around 89%) were performed in private hospitals.

1 Introduction

Weight loss surgery in Australia 2014–15 is a report on the provision of weight loss surgery in the Australian Institute of Health and Welfare (AIHW) series of reports describing the characteristics and activity of Australia's hospitals. This report includes information on the amount and type of weight loss surgery provided in Australia, who is receiving this surgery, the time waited for surgery, how much weight loss surgery costs and how it is funded. This report follows on from the 2010 report *Weight loss surgery in Australia* (AIHW 2010).

This chapter provides an introduction to key elements of the report and is structured as follows:

- What is weight loss surgery?
- Data sources
- Technical definitions used in this report
- Structure of this report.

1.1 What is weight loss surgery?

Excess body weight has been identified as a risk factor in a number of potentially life-limiting diseases, including ischaemic heart disease, stroke and some cancers, and there is also evidence of a relationship with chronic diseases such as type 2 diabetes, kidney disease and liver disease (AIHW 2015a). Biometric testing done as a part of the recent Australian Health Survey found that being overweight or obese was associated with abnormal test results relating to cardiovascular disease, liver disease and diabetes (ABS 2013a).

Weight ranges are typically described using body mass index (BMI), which is calculated for adults as an individual's body weight in kilograms divided by height in metres squared. The BMI categories are:

- underweight: BMI less than 18.5
- normal weight: BMI 18.5 to less than 25
- overweight: BMI 25 or greater
- obese: BMI 30 or greater (WHO 2000)
  - obese class 1 moderate: BMI 30–34.99
  - obese class 2 severe: BMI 35–39.99
  - obese class 3 very Severe: BMI >= 40.

While excess weight is commonly managed using dietary intervention and exercise, for those who are morbidly obese or who are obese and have other conditions related to their excess weight, weight loss surgery may be appropriate.

Weight loss surgery, also known as bariatric surgery, is surgery that aims to help obese patients lose weight and lowers the risk of medical problems associated with obesity. It aims to restrict the amount of food eaten or to alter the process of food digestion so that fewer calories are absorbed.

In 2013, the National Health and Medical Research Council (NHMRC) released their *Clinical practice guidelines for the management of overweight and obesity in adults, adolescents and children in Australia*, which recommended that:

> 'For adults with BMI >40 kg/m^2 or adults with BMI >35 kg/m^2 and comorbidities that may improve with weight loss, bariatric surgery may be considered, taking into account the individual situation' (NHMRC 2013).

The NHMRC noted that weight loss surgery is 'currently the most effective intervention for severe obesity' (NHMRC 2013).

In this report, weight loss surgery for patients admitted to hospital is defined using the *Procedures for obesity* (Block 889) of the Australian Classification of Health Interventions (ACHI), 8th edition (See Chapter 3). For Medicare-funded weight loss surgery, 12 Medicare items labelled as 'bariatric procedures' in the Medicare Benefits Schedule (MBS) were defined as weight loss surgery-related procedures (see Chapter 5).

1.2 Data sources

The AIHW used 4 main data sources to compile this report:

- the ABS National Health Survey (NHS) series, which includes information on health status, risk factors, socioeconomic circumstances, health-related actions and use of medical services
- the AIHW's National Hospital Morbidity Database (NHMD), which includes the diagnoses and other characteristics of admitted patients, and the care they received in public and private hospitals
- the AIHW's National Elective Surgery Waiting Times Data Collection (NESWTDC), which includes waiting times and other characteristics of elective surgery in public hospitals
- the Australian Government's MBS statistics, which includes information on characteristics of patients who received Medicare-funded services and the type of service received.

Further information on these data sources is available in Appendix A.

Box 1.1: Hospital definitions used in this report

Statistics on admitted patients are compiled when an admitted patient (a patient who undergoes a hospital's formal admission process) completes an episode of admitted patient care and 'separates' from the hospital. This is because most of the data on the use of hospitals by admitted patients are based on information provided at the end of the patients' episodes of care, rather than at the beginning. The length of stay and the procedures carried out are then known and the diagnostic information is more accurate.

'Separation' is the term used to refer to the episode of admitted patient care, which can be a total hospital stay (from admission to discharge, transfer or death) or a portion of a hospital stay beginning or ending in a change of type of care (for example, from acute care to rehabilitation). 'Separation' also means the process by which an admitted patient completes an episode of care by being discharged, dying, transferring to another hospital or changing type of care.

Box 1.1 (continued): Hospital definitions used in this report

Patient day (or **day of patient care**) means the occupancy of a hospital bed (or chair in the case of some same-day patients) by an admitted patient for all or part of a day. The length of stay (number of patient days) for an overnight patient is calculated by subtracting the date the patient is admitted from the date of separation and deducting days the patient was on leave (for example, went home for part of a day with the intention of return). A same-day patient is allocated a length of stay of 1 day.

A **same-day separation** occurs when a patient is admitted to and separated from the hospital on the same date.

An **overnight** separation occurs when a patient is admitted to and separated from the hospital on different dates.

Where applicable**, procedures** are reported for separations. One or more procedures can be reported for each separation, but procedures are not undertaken for all separations. A procedure is a clinical intervention that is surgical in nature, carries an anaesthetic risk, requires specialised training and/or requires special facilities or services available only in an acute care setting. Procedures therefore encompass surgical procedures and non-surgical investigative and therapeutic procedures, such as X-rays. Patient support interventions that are neither investigative nor therapeutic (such as anaesthesia) are also included. In 2014–15, procedures were recorded using the 8th edition of the Australian Classification of Health Interventions (ACHI) (NCCC 2012).

The reason that a patient receives weight loss surgery can be described in terms of the **principal diagnosis**, which is the diagnosis established after study to be chiefly responsible for occasioning the patient's episode of admitted patient care. An **additional diagnosis** is a condition or complaint that either coexists with the principal diagnosis or arises during the episode of care. An additional diagnosis is reported if the condition affects patient management. In 2014–15, diagnoses were recorded using the 8th edition of the *International statistical classification of diseases and related health problems, 10th revision, Australian modification* (ICD-10-AM) (NCCC 2012).

Australian Refined Diagnosis Related Groups (AR-DRGs) is a classification system developed to provide a clinically meaningful way of relating the number and type of patients treated in a hospital (that is, its casemix) to the resources required by the hospital. Each AR-DRG represents a class of patients with similar clinical conditions requiring similar hospital resources.

1.3 Structure of this report

The topics covered in this report are:

- an overview of overweight and obesity in Australia (Chapter 2)
- weight loss surgery for admitted patients, including activity, patient demographics, diagnoses, waiting times, length of stay and information on safety and quality of weight loss surgery for admitted patients (Chapter 3)
- costs and funding of weight loss surgery for admitted patients (Chapter 4)
- weight loss surgery-related procedures funded by Medicare (Chapter 5)
- areas for further work (Chapter 6).

Appendix A provides details of the main data sources used for this report, including data quality and factors affecting interpretation of the data.

Appendix B includes notes on the presentation of data, the population estimates used to calculate population rates and analysis methods.

Appendix C provides information on the ACHI procedure codes and the MBS items used in this report.

The glossary includes definitions for the most common technical terms used in this report. Where the definition relates to data from the NHMD, the definition contains an identification number from the Metadata online Registry (METeOR) that can be used to access the technical definition on which the glossary item is based. METeOR can be accessed at <http://meteor.aihw.gov.au/content/index.phtml/itemId/181162>.

2 Overweight and obesity in Australia

This chapter provides information on the prevalence of overweight and obesity in Australia, including:

- How many people are overweight or obese?
- Have rates of overweight and obesity changed over time?
- Where do we rank against other countries?

Except where noted, the data are sourced from the NHS (ABS 2015) and data in this section is based on measured height and weight. Details of the technical terms and classifications used in this section are provided in Chapter 1. For information on the quality of the data, see Appendix A.

2.1 How many people are overweight or obese?

Adults

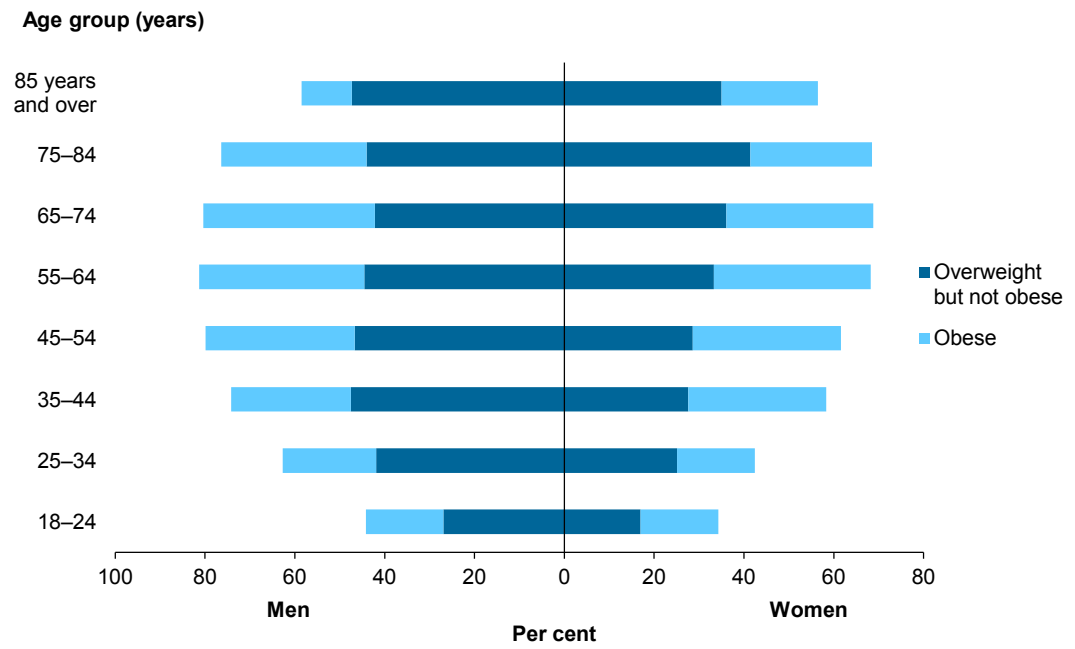
In 2014–15, nearly two-thirds (63%) of Australian adults were overweight or obese—more than two-thirds (70.8%) of males (18 years and older), and over half (56.3%) of females (18 years and older) (ABS 2015). Slightly more males (28.4%) were likely to be obese than females (27.4%), but males (42.4%) were more likely than females (28.8%) to be overweight (Table 2.2). Overweight and obesity rates are highest for males aged 55–64 (81.3%) and for females aged 65–74 (68.8%) (Figure 2.1).

State of usual residence

The prevalence of overweight and obesity varied across states and territories (Table 2.1). In 2014–15, overweight and obesity among males and females was most prevalent in Tasmania (74.1% and 60.9%, respectively). More detailed information on rates of overweight and obesity for adults by Primary Health Network areas across Australia can be found in *Healthy communities: overweight and obesity rates across Australia, 2014–15* (AIHW 2016a).

Remoteness

In 2014–15, about three-quarters of males living in *Inner regional* (75.4%) and *Outer regional and remote* (73.9%) areas were overweight or obese, compared with almost 7 in 10 males living in *Major cities* (69.1.%) (Figure 2.2). Similarly, a higher proportion of females living in *Inner regional* (63.1%) and *Outer regional and remote* (63.9%) areas were overweight or obese, compared with females living in *Major cities* (53.3%).



Note: The proportion for males aged 85 and over has a margin of error >10 percentage points, which should be considered when using this information.

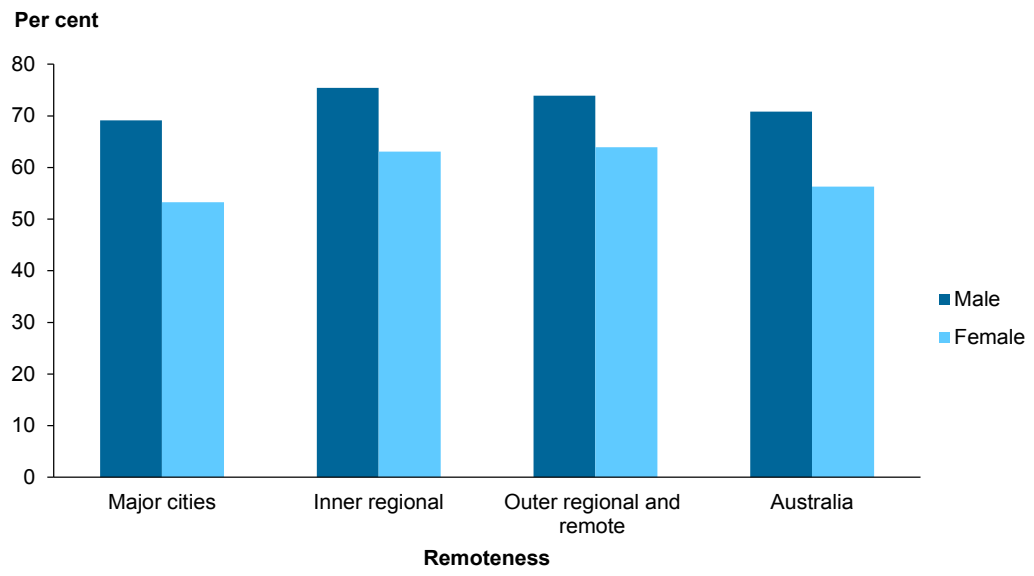
Source: AIHW analysis of ABS data (ABS 2015).

Figure 2.1: Prevalence of overweight and obesity in adults, by age and sex, 2014–15

Table 2.1: Overweight and obesity in adults, by sex, state and territory of usual residence, 2014–15 (%)

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Total
Males									
Overweight but not obese	42.7	44.9	38.4	41.6	44.1	39.3	48.9	41.1	42.4
Obese	29.1	25.9	31.9	24.4	28.7	35.2	23.2	33.1	28.4
Males overweight or obese	*71.9*	*70.4*	*70.7*	*66.5*	*72.4*	*74.1*	*71.5*	*72.9*	*70.8*
Females									
Overweight but not obese	28.2	29.5	28.6	29.9	27.6	30.8	30.3	29.8	28.8
Obese	27.2	26.8	28.4	24.2	31.5	29.5	25.7	26.3	27.4
Females overweight or obese	*55.2*	*56.5*	*56.6*	*54.6*	*58.9*	*60.9*	*55.9*	*56.3*	*56.3*
Total									
Overweight but not obese	35.2	37.1	33.4	35.9	35.6	35.2	39.1	35.3	35.5
Obese	28.2	26.4	30.2	24.6	30.0	32.3	23.9	29.0	27.9
Total overweight or obese	**63.2**	**63.3**	**63.6**	**60.3**	**65.8**	**67.5**	**63.5**	**64.3**	**63.4**

Source: AIHW analysis of ABS data (ABS 2015).

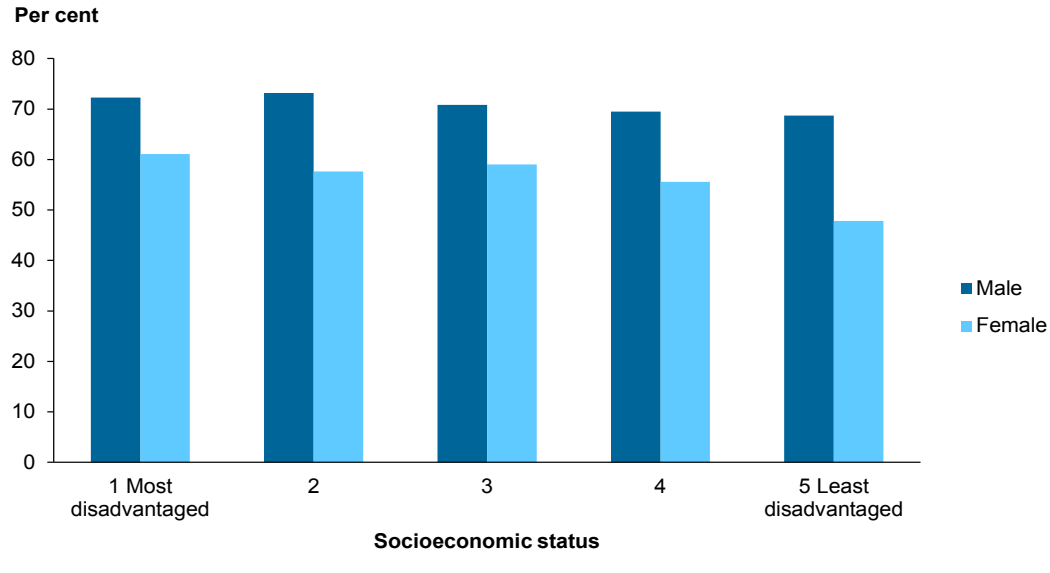


Source: AIHW analysis of ABS data (ABS 2015).

Figure 2.2: Overweight and obesity in adults, by remoteness of residence, 2014–15

Socioeconomic status

In 2014–15, females living in areas of most disadvantage (61.1%) were more likely to be overweight or obese than females living in areas of least disadvantage (47.8%) (Figure 2.3). However, this was not the case for men for whom overweight and obesity rates differed only slightly with socioeconomic status (SES). Males in the second quintile had the highest rates of overweight and obesity (73.2%), while males living in areas of least disadvantage had the lowest rates of overweight and obesity (68.7%).

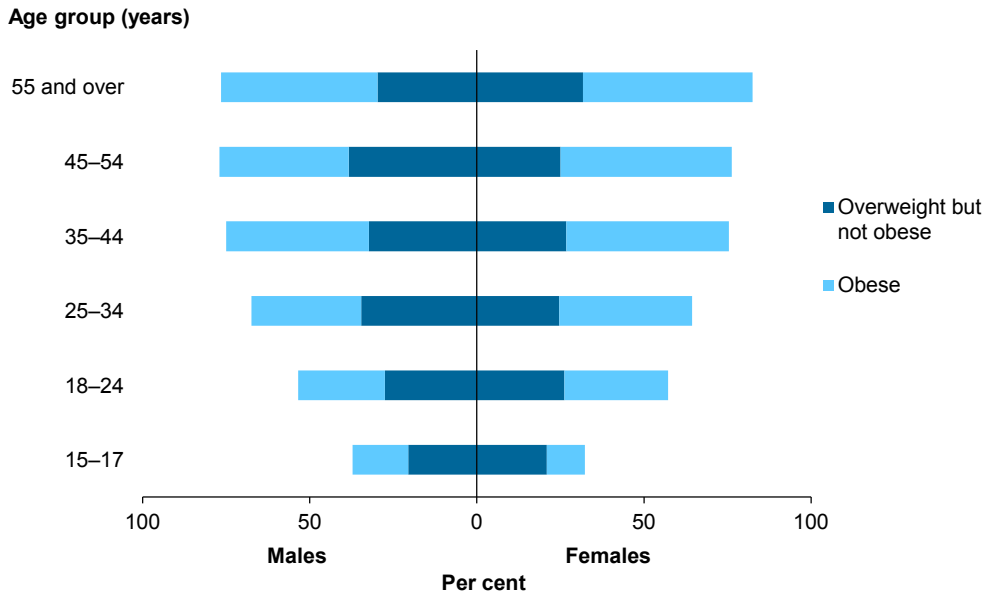


Source: AIHW analysis of ABS data (ABS 2015).

Figure 2.3: Overweight and obesity in adults, by socioeconomic status group, 2014–15

Indigenous status

The 2012–13 Australian Aboriginal and Torres Strait Islander Health Survey collected information on the BMI of Indigenous Australians (ABS 2013c). The survey found that 28.6% of Indigenous Australians aged 15 and over were overweight but not obese and a further 37.4% were obese (Figure 2.4). For Indigenous men, overweight and obesity rates were highest for those aged 45–54 (76.9%), while overweight and obesity rates were highest for Indigenous women aged 55 and over (82.6%). After adjusting for differences in age profile of the Indigenous and non-Indigenous populations, Indigenous Australians were 1.6 times as likely to be obese as other Australians (ABS 2014).

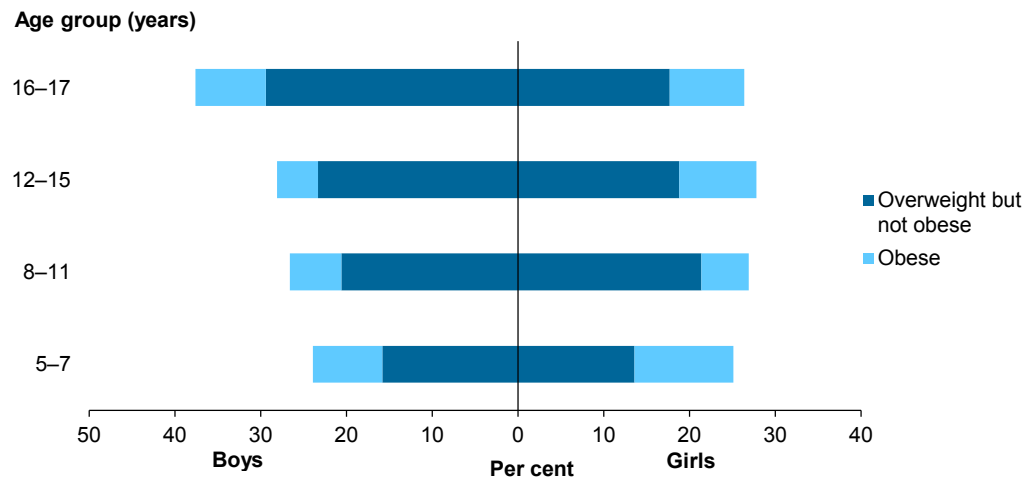


Source: AIHW analysis of ABS data (ABS 2014).

Figure 2.4: Prevalence of overweight and obesity in Aboriginal and Torres Strait Islander people, by age and sex, 2012–13

Children

In 2014–15, more than one-quarter of boys and girls aged 5–17 were overweight or obese (28.4% and 26.6%, respectively) (ABS 2015). Overweight and obesity rates differed by age. For boys, those aged 16–17 had the highest rates of overweight but not obese (29.4%) and obesity (8.2%), while for girls, those aged 5–7 (11.5%) had the highest rates of obesity and those aged 8–11 (21.4%) the highest rates of overweight but not obese (Figure 2.5).



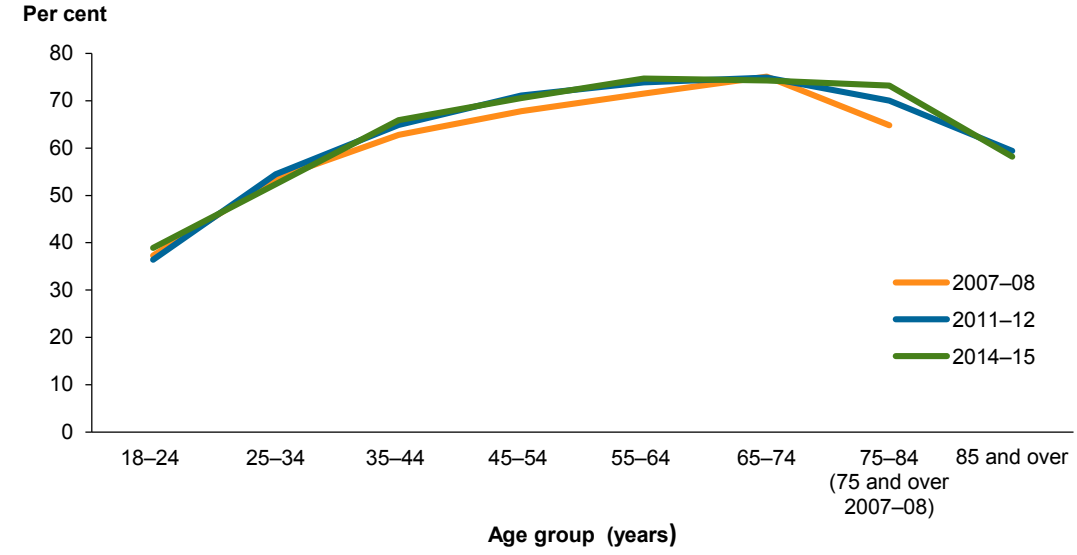
Source: AIHW analysis of ABS data (ABS 2015).

Figure 2.5: Prevalence of overweight and obesity in children, by age, 2014–15

2.2 Have rates of overweight and obesity changed over time?

After adjusting for age, the proportion of overweight or obese adults increased significantly from 56% in 1995 to 63% in 2014–15. However, this proportion has remained stable since 2007–08. For males, 'overweight but not obese' rates remained stable, while obesity rates increased by 2.9%. For women 'overweight but not obese' rates declined by 2.2%, while obesity rates increased by 3.8% (Table 2.2).

The proportions of Australian adults in the middle age groups (35–44 years, 45–54 years and 55–64 years) who were overweight or obese all increased by about 3 percentage points (3.1%, 2.8% and 3.2%, respectively) between 2007–08 and 2014–15 (Figure 2.6).



Source: AIHW analysis of ABS data (ABS 2009, 2013a, 2015).

Figure 2.6: Prevalence of overweight and obesity in adults, by age and year 2007–08, 2011–12 and 2014–15

Table 2.2: Overweight and obesity[a] in adults, by age and sex 2007–08, 2011–12 and 2014–15 (%)

	Overweight but not obese			Obese		
Age (years)	**2007–08**	**2011–12**	**2014–15**	**2007–08**	**2011–12**	**2014–15**
Male						
18–24	28.0	27.7	26.9	11.9	13.1	17.3
25–34	42.5	43.7	41.9	19.5	20.9	20.8
35–44	44.2	45.6	47.5	26.6	29.3	26.7
45–54	47.0	45.1	46.7	29.7	33.4	33.2
55–64	40.0	40.6	44.5	34.9	37.9	36.8
65–74	44.9	46.3	42.2	34.0	34.3	38.2
75–84[b]	52.8	48.9	45.7	21.5	23.6	28.7
85 and over	n.a.	44.7	47.3[c]	n.a.	16.0[d]	11.2
18 and over	*42.2*	*42.2*	*42.4*	*25.5*	*27.5*	*28.4*
Female						
18–24	20.7	14.6	17.0	14.2	17.2	17.3
25–34	26.4	23.1	25.1	18.0	20.2	17.3
35–44	32.4	27.3	27.6	22.7	27.4	30.7
45–54	32.5	33.0	28.6	26.3	30.6	33.0
55–64	34.7	33.6	33.3	33.2	35.5	34.9
65–74	42.0	33.2	36.1	29.4	36.1	32.7
75–84[a]	32.6	38.1	39.5	24.3	29.6	25.5
85 and over	n.a.	36.4	35.0	n.a.	21.9	21.5
18 and over	*31.0*	*28.2*	*28.8*	*23.6*	*27.5*	*27.4*
Total						
18–24	24.3	21.3	22.0	13.0	15.1	17.1
25–34	34.8	34.0	33.4	18.8	20.5	19.0
35–44	38.2	36.6	37.4	24.6	28.4	28.6
45–54	39.8	39.1	37.6	28.0	32.0	33.0
55–64	37.4	37.2	38.8	34.1	36.7	35.9
65–74	43.5	39.8	38.9	31.6	35.2	35.4
75–84[a]	41.8	43.2	42.6	23.0	26.8	27.1
85 and over	n.a.	40.0	38.8	n.a.	19.4	17.8
18 and over	**36.7**	**35.3**	**35.5**	**24.6**	**27.5**	**27.9**

(a) Based on measured height and weight as collected in the National Health Survey.

(b) 75 years and over for 2007–08.

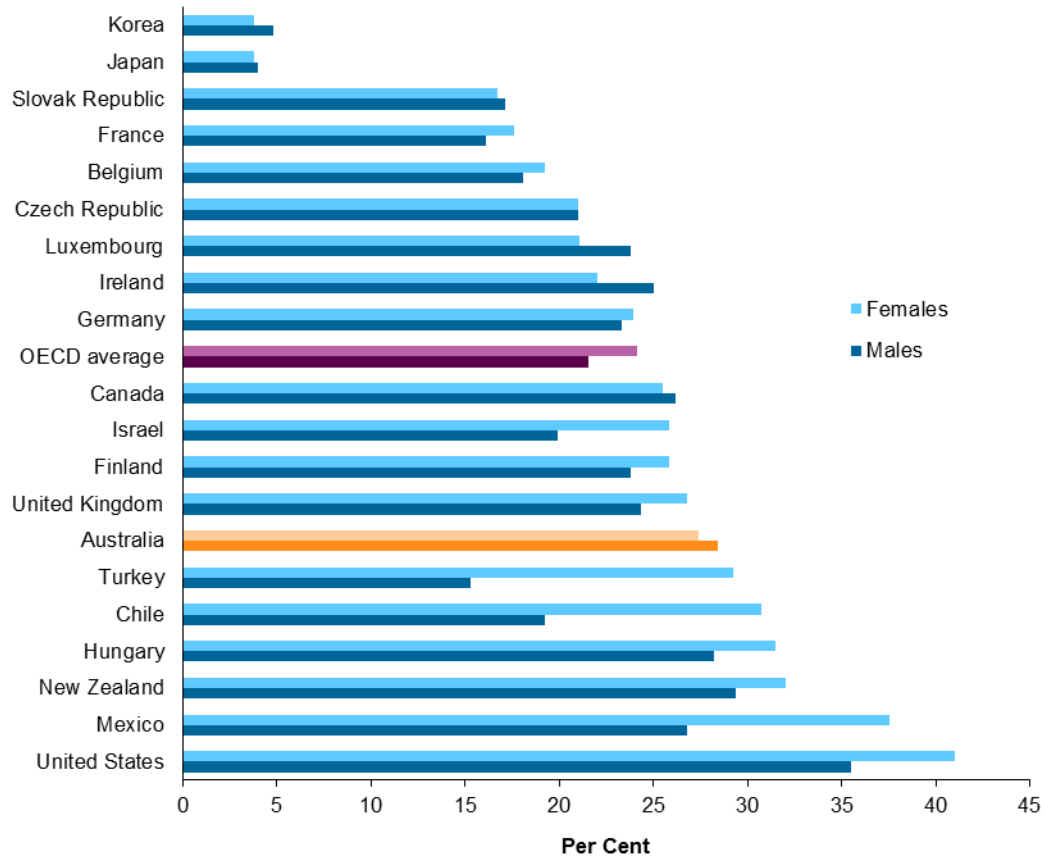
(c) Male proportion for 2014–15 has a margin of error >10 percentage points, which should be considered when using this information.

(d) The Relative Standard Error for obese males aged 85 and over is 25–50%.

Sources: AIHW analysis of ABS data (ABS 2009, 2013a, 2015).

2.3 Where do we rank against other countries?

Analysis by the Organisation of Economic Co-operation and Development (OECD 2016) showed that the prevalence of obesity among males (28.4%) and females (27.2%) aged 15 and over in Australia was higher than the OECD average (21.2% and 24.1%, respectively) (Figure 2.7). The prevalence of obesity in Australia was lower than that for men (35.5%) and women (41.0%) in the United States, but considerably higher than that for men (4.8%) and women (3.8%) in Korea.



Source: AIHW analysis of *OECD health statistics 2016* (OECD 2016).

Figure 2.7: Proportion of people aged 15+ with obesity, OECD countries reporting measured BMI, by sex, 2015

3 Weight loss surgery for admitted patients

This chapter provides information on weight loss surgery undertaken in Australian public and private hospitals. The data for this chapter are mainly sourced from the NHMD, which contains episode-level records from admitted patient care data collection systems in Australian hospitals. Terms relevant to admitted patient care are summarised in Box 1.1. Some additional data are sourced from the NESWTDC, which contains episode-level data on patients added to or removed from elective surgery waiting lists managed by public hospitals. For information on the quality of the NHMD and NESWTDC data, see Appendix A.

Information is included to answer:

- Weight loss surgery separations
- How much weight loss surgery was there in 2014–15?
- Have weight loss surgery separations changed over time?
- Who had weight loss surgery?
- Why did people have weight loss surgery?
- How urgent was the care?
- What weight loss surgery was provided?
- What do we know about the safety and quality of the care?
- How long did people wait for surgery in public hospitals?
- How long did patients stay?

Data on the cost and source of funding for these separations is presented in Chapter 4 and information on Medicare-funded weight loss procedures is presented in Chapter 5.

3.1 Weight loss surgery separations

Weight loss surgery separations are defined for this report as those hospital separations that include one or more procedures that are classified as weight loss surgery. For 2013–14 to 2014–15, weight loss surgery included all procedures included in the block *Procedures for obesity* (Block 889) of the ACHI, 8th edition. The analysis excludes *Revision procedure for obesity* (Block 889 30514-01) because the coding rules note that this code is a flag. For previous years, weight loss surgery included all procedures included in the *Procedures for morbid obesity* (Block 889) of the ACHI, 4th to 7th editions. There were changes in the procedure codes included in Block 889 between the 7th and 8th editions. See Appendix C for more detailed information.

Data on weight loss surgery separations in this report are reported using 2 main procedure characteristics. Firstly, weight loss surgery procedures have been divided into 2 groups:

- procedures that are typically primary or initial procedures for weight loss surgery
- procedures that are described as adjustments, revisions, removals and other procedures.

Secondly, these procedures have also been grouped according to the 'surgical technique' used in the procedure:

- Open (or approach not specified): open surgery is where a long incision is made for the surgeon to insert the instruments, visualising the surgery through the incision. Procedures for which the surgical technique was not specified in ACHI were also included in this grouping.
- Laparoscopic: during procedures that are laparoscopic, several small incisions are made in the abdomen, through which a slender tube with a camera attached (a laparoscope) is inserted. Using the images from the camera, surgeons perform surgery with specially developed instruments inserted into the incisions.
- Endoscopic: during procedures that are endoscopic, a flexible tube with an attached camera (endoscope) is inserted through an opening in the body, most commonly the mouth or nose. Using the images from the camera, surgeons perform surgery with special instruments, also inserted through the mouth.

Where data on hospital separations are presented using these groupings, a hierarchical approach has been used for grouping those separations with multiple procedures:

- Where a separation has a primary procedure, it has been counted as a primary weight loss surgery separation, regardless of whether the separation also has adjustments, revisions, removals and other procedures.
- Where a separation has an open (or approach not specified) procedure, it has been counted as an open (or approach not specified) weight loss surgery separation, regardless of whether it also has a laparoscopic or endoscopic procedures.

3.2 How much weight loss surgery was there in 2014–15?

In 2014–15, there were more than 22,700 weight loss surgery separations in Australia, most of which involved a primary procedure (79.4%). *Laparoscopic* procedures was the most common surgical technique for both separations including a primary procedure (95.0%) and those with adjustments, revisions, removals and other procedures (60.1%, Table 3.1). The majority (88.0%, or 20,000 separations) of weight loss surgery occurred in private hospitals.

Table 3.1: Weight loss surgery separations, by type of surgery, public and private hospitals, 2014–15

	Public hospitals	Private hospitals	Total
Primary procedures			
Open (or approach not specified)	127	492	619
Laparoscopic	1,580	15,550	17,130
Endoscopic	15	272	287
Total primary	*1,722*	*16,314*	*18,036*
Adjustments, revisions, removals and other procedures			
Open (or approach not specified)	486	1,020	1,506
Laparoscopic	488	2,325	2,813
Endoscopic	24	334	358
Total adjustments, revisions, removals and other procedures	*998*	*3,679*	*4,677*
Total separations	**2,720**	**19,993**	**22,713**

Source: NHMD.

In 2014–15, there were more than 2,700 public hospital weight loss surgery separations, with more than one-third (34.2%) in Victoria. Of the published figures, Victoria had the highest proportion of separations in public hospitals (18.9%) followed by South Australia (13.7%) (Table 3.2, Figure 3.1).

In 2014–15, more than a quarter (26.5%) of all private hospital weight loss surgery separations were in New South Wales. New South Wales, Victoria, Queensland and Western Australia combined accounted for 89.6% of the private hospital separations for weight loss surgery (Figure 3.1, Table 3.2).

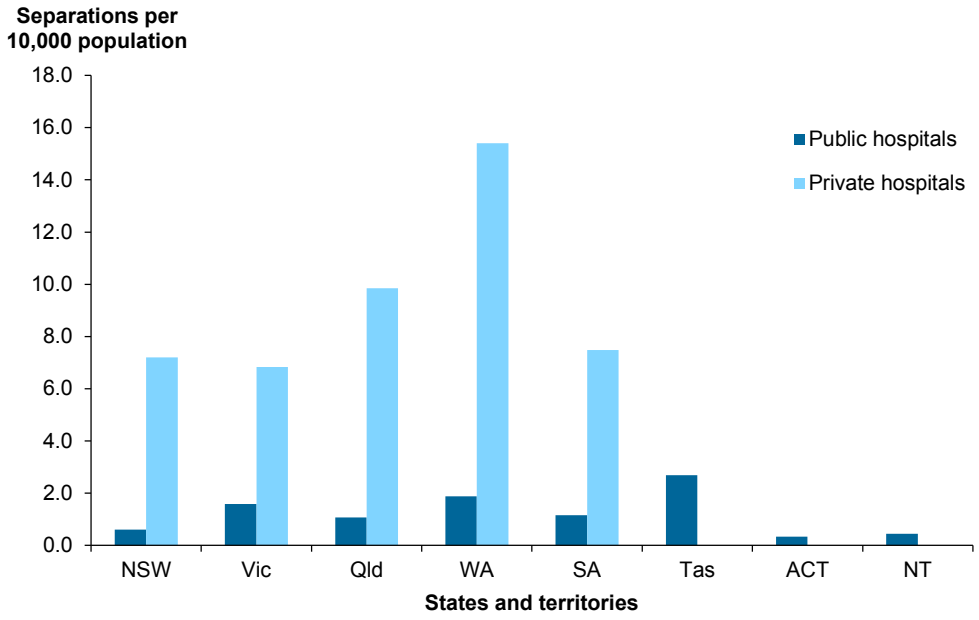
In 2014–15, there were 9.7 weight loss surgery separations per 10,000 population, although rates varied across the country. Of those jurisdictions whose private hospital data could be reported, Western Australia (17.3 separations per 10,000 population) had the highest separation rates in 2014–15, while New South Wales (7.8 per 10,000 population) had the lowest separation rate (Table 3.2).

Laparoscopic procedures (87.8%) were the most common surgical technique for all states and territories (Table 3.3).

Table 3.2: Weight loss surgery separations, public and private hospitals, states and territories, 2014–15

Hospital sector	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Total
Separations									
Public hospitals	451	931	491	487	198	137	14	11	2,720
Private hospitals	5,300	3,991	4,609	4,020	1,247	n.p.	n.p.	n.p.	19,993
Total separations	**5,751**	**4,922**	**5,100**	**4,507**	**1,445**	**n.p.**	**n.p.**	**n.p.**	**22,713**
Separations per 10,000 population									
Public hospitals	0.6	1.6	1.1	1.9	1.2	2.7	0.3	0.4	1.2
Private hospitals	7.2	6.8	9.9	15.4	7.5	n.p.	n.p.	n.p.	8.6
Total	**7.8**	**8.4**	**10.9**	**17.3**	**8.6**	**n.p.**	**n.p.**	**n.p.**	**9.7**

Source: NHMD.



Source: NHMD.

Figure 3.1: Separation rates (per 10,000 population) for weight loss surgery, by public and private hospitals, states and territories, 2014–15

Table 3.3: Weight loss surgery separations, by type of surgery, states and territories, 2014–15

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Total
Primary procedures									
Open (or approach not specified)	104	139	85	56	210	n.p.	n.p.	n.p.	619
Laparoscopic	4,621	3,422	4,237	3,355	821	n.p.	n.p.	n.p.	17,130
Endoscopic	123	92	56	11	3	n.p.	n.p.	n.p.	287
Total	*4,848*	*3,653*	*4,378*	*3,422*	*1,034*	*n.p.*	*n.p.*	*n.p.*	*18,036*
Adjustments, revisions, removals and other procedures									
Open (or approach not specified)	199	544	190	277	128	n.p.	n.p.	n.p.	1,506
Laparoscopic	580	619	456	789	262	n.p.	n.p.	n.p.	2,813
Endoscopic	124	106	76	19	21	n.p.	n.p.	n.p.	358
Total	*903*	*1,269*	*722*	*1,085*	*411*	*n.p.*	*n.p.*	*n.p.*	*4,677*
Total									
Open (or approach not specified)	**303**	**683**	**275**	**333**	**338**	**n.p.**	**n.p.**	**n.p.**	**2,125**
Laparoscopic	**5,201**	**4,041**	**4,693**	**4,144**	**1,083**	**n.p.**	**n.p.**	**n.p.**	**19,943**
Endoscopic	**247**	**198**	**132**	**30**	**24**	**n.p.**	**n.p.**	**n.p.**	**645**
All weight loss separations	**5,751**	**4,922**	**5,100**	**4,507**	**1,445**	**n.p.**	**n.p.**	**n.p.**	**22,713**

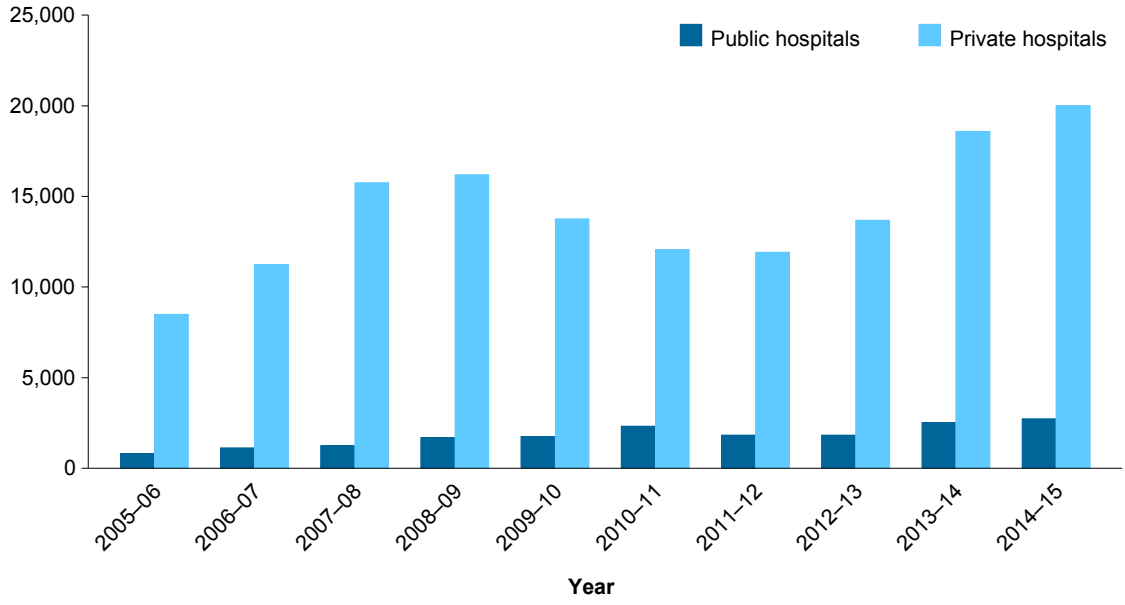
Source: NHMD.

3.3 Have weight loss surgery separations changed over time?

Between 2005–06 and 2014–15, the number of weight loss surgery separations increased from about 9,300 to around 22,700 (Figure 3.2). They increased at a slightly greater rate for public hospitals (3.3-fold over the 10 years) than private hospitals (2.4-fold). The proportion of all weight loss surgery separations in private hospitals remained stable at around 89% during this period.

Between 2005–06 and 2014–15, the proportion of weight loss surgery separations that were primary procedures increased from 76.0% to 79.4% (Table 3.4).

However, differences emerge over time when each sector is examined. Since 2005–06, the proportion of primary procedure separations (as a proportion of all public hospital separations) declined from 80.5% to 63.3% in 2014–15. In contrast, the proportion increased in private hospitals from 75.6% in 2005–06 to 81.6% in 2014–15 (Table 3.4).



Source: NHMD.

Figure 3.2: Weight loss surgery separations, public and private hospitals, 2005–06 to 2014–15

Table 3.4: Weight loss surgery separations, by type of surgery, public and private hospitals, 2005–06 to 2014–15

	2005–06	2006–07	2007–08	2008–09	2009–10	2010–11	2011–12	2012–13[(a)]	2013–14[(a)]	2014–15
Public hospitals										
Primary procedures	657	889	898	1,220	1,244	1,652	1,182	1,300	1,546	1,722
Adjustments, revisions, removals and other procedures	159	229	336	454	508	657	629	520	950	998
Total public hospitals	*816*	*1,118*	*1,234*	*1,674*	*1,752*	*2,309*	*1,811*	*1,820*	*2,496*	*2,720*
Private hospitals										
Primary procedures	6,413	8,344	12,334	14,294	12,005	10,487	10,363	12,360	15,188	16,314
Adjustments, revisions, removals and other procedures	2,069	2,902	3,414	1,880	1,743	1,573	1,544	1,319	3,401	3,679
Total private hospitals	*8,482*	*11,246*	*15,748*	*16,174*	*13,748*	*12,060*	*11,907*	*13,679*	*18,589*	*19,993*
Total separations	**9,298**	**12,364**	**16,982**	**17,848**	**15,500**	**14,369**	**13,718**	**15,499**	**21,085**	**22,713**

(a) There was a change in obesity surgery procedure codes between ACHI 7th Edition in 2012–13 and ACHI 8th Edition in 2013–14; see Appendix C for further information.

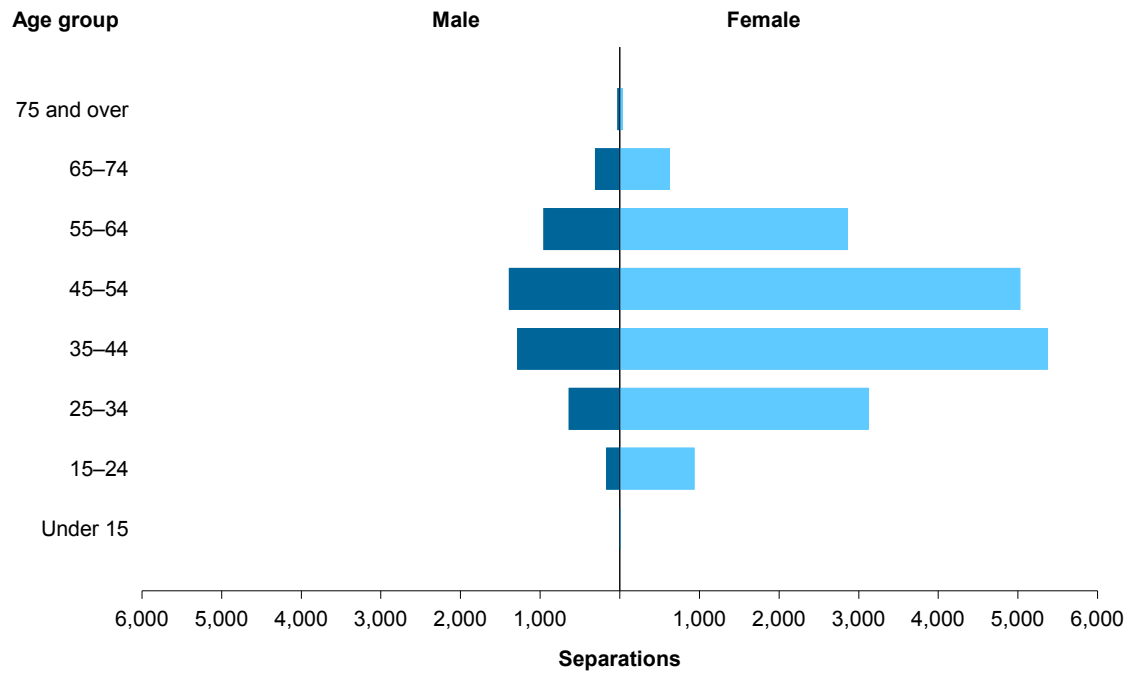
Source: NHMD.

3.4 Who had weight loss surgery?

Age and sex

In 2014–15, there were around 18,000 separations for weight loss surgery for females and 4,800 for males (Table 3.5). The age groups 35–44 years for females and 45–54 years for males had the highest number of separations for weight loss surgery (Figure 3.3).

In 201–15, a larger proportion of weight loss surgery separations for males (84.1%) involved a primary procedure than females (78.2%). About 21.8% of weight loss surgery separations for females involved adjustments, revisions, removals and other procedures (Table 3.5).



Source: NHMD.

Figure 3.3: Weight loss surgery separations, by age group and sex, 2014–15

Table 3.5: Weight loss surgery separations, by type of surgery, males and females, 2014–15

	Males	Females	Total
Primary procedures			
Open (or approach not specified)	136	483	619
Laparoscopic	3,800	13,330	17,130
Endoscopic	61	226	287
Total primary procedures	*3,997*	*14,039*	*18,036*
Adjustments, revisions, removals and other procedures			
Open (or approach not specified)	214	1,292	1,506
Laparoscopic	439	2,374	2,813
Endoscopic	101	257	358
Total adjustments, revisions, removals and other procedures	*754*	*3,923*	*4,677*
Total separations	**4,751**	**17,962**	**22,713**

Source: NHMD.

Remoteness

In 2014–15, the number of weight loss surgery separations and the separation rate varied by the remoteness area of usual residence of the patient (Table 3.6). More than two-thirds (67.5%) of weight loss surgery separations were for residents of *Major cities*, while 2.8% were for residents of *Remote* and *Very remote* areas.

The separation rate was highest for patients residing in *Remote* areas (13.2 separations per 10,000 people) and lowest for patients residing in *Major cities* areas (9.1 separations per 10,000 people). However, caution should be used in interpreting the separation rates for *Remote* and *Very remote* areas due to the small numbers of separations involved.

Table 3.6: Weight loss surgery separations per 10,000 population, by remoteness area of usual residence, public and private hospitals, 2014–15

	Remoteness area of usual residence					
	Major cities	Inner regional	Outer regional	Remote	Very remote	Total[(a)]
Separations						
Public hospitals	1,786	582	306	32	11	2,720
Private hospitals	13,543	3,948	1,880	397	199	19,993
Total separations	**15,329**	**4,530**	**2,186**	**429**	**210**	**22,713**
Separations per 10,000 population						
Public hospitals	1.1	1.4	1.5	1.0	0.5	1.2
Private hospitals	8.0	9.8	9.5	12.2	9.4	8.5
Total	**9.1**	**11.2**	**11.0**	**13.2**	**9.9**	**9.7**

(a) Total includes separations for which the remoteness area was not able to be categorised.

Source: NHMD.

Socioeconomic status

In 2014–15, the highest weight loss surgery separation rate for private hospitals was for the middle SES group (9.1 separations per 10,000) and lowest was for those in the least disadvantaged group (7.4 per 10,000). For public hospitals, the separation rate for the most disadvantaged SES group was more than 3 times as high as the least disadvantaged group (1.7 and 0.5 per 10,000, respectively) (Table 3.7).

Table 3.7: Weight loss surgery separations per 10,000 population, by socioeconomic status of area of usual residence, public and private hospitals, 2014–15

	Socioeconomic status of area of usual residence					
	1–Most disadvantaged	2	3	4	5–Least disadvantaged	Total[(a)]
Separations						
Public hospitals	766	681	590	436	243	2,720
Private hospitals	3,678	4,116	4,299	4,270	3,597	19,993
Total separations	**4,444**	**4,797**	**4,889**	**4,706**	**3,840**	**22,713**
Separations per 10,000 population						
Public hospitals	1.7	1.5	1.3	0.9	0.5	1.2
Private hospitals	8.3	8.9	9.1	8.8	7.4	8.5
Total	**10.0**	**10.4**	**10.4**	**9.7**	**7.9**	**9.7**

(a) Total includes separations for which SES group was not able to be categorised.

Source: NHMD.

Indigenous status

Separations for Aboriginal and Torres Strait islander people are likely to be under-counted. The AIHW report *Indigenous identification in hospital separations data: quality report* estimated that, in 2011–12, about 88% of Indigenous Australians were correctly identified in public hospital admissions data (AIHW 2013). The report produced correction factors to estimate the 'true' number of separations for Indigenous Australians. The national correction factor of 1.09 suggested that the 'true' number of separations should be about 9% higher than reported. It is unknown to what extent Indigenous Australians might be under-identified in private hospital admissions data. Therefore caution should be used in the interpretation of these data. See Appendix A for more information.

There were 344 Indigenous weight loss surgery separations in 2014–15, with 259 of these separations in private hospitals. In 2014–15, Indigenous Australians had a higher rate of weight loss surgery in public hospitals than other Australians (1.6 and 1.2 separations per 10,000 population, respectively). In private hospitals, other Australians had higher separation rates for weight loss surgery than Indigenous Australians (8.7 and 4.7 separations per 10,000 population, respectively) (Table 3.8).

Table 3.8: Weight loss surgery separations per 10,000 population, by Indigenous status, public and private hospitals, 2014–15

	Indigenous Australians	Other Australians[(a)]	Total
Separations			
Public hospitals	85	2,635	2,720
Private hospitals	259	19,734	19,993
Total separations	**344**	**22,369**	**22,713**
Separations per 10,000 population			
Public hospitals	1.6	1.2	1.2
Private hospitals	4.7	8.7	8.6
Total	**6.2**	**9.8**	**9.7**

(a) Includes missing Indigenous status.

Source: NHMD.

3.5 Why did people have weight loss surgery?

In 2014–15 almost all (94.5%) weight loss surgery separations that reported a 'primary procedure' for weight loss surgery had a principal diagnosis of *Obesity* (E66, Table 3.9).

The most common principal diagnosis for weight loss surgery separations that reported adjustments, revisions, removals and other procedures was *Complications of other internal prosthetic devices, implants and grafts* (48.4%). A higher proportion of weight loss surgery separations in public hospitals had this principal diagnosis (57.0%) than private hospitals (46.0%) (Table 3.9).

Additional diagnoses can provide information on comorbidities for patients having weight loss surgery. For example, *Type 2 diabetes mellitus* was recorded as an additional diagnosis for 16.7% of weight loss surgery separations with a primary procedure and 16.7% of those with adjustments, revisions, removals and other procedures (Table 3.10).

Table 3.9: The 10 most common 3-character ICD-10-AM principal diagnoses for weight loss surgery separations, by type of surgery, public and private hospitals, 2014–15

Principal diagnosis		Public hospitals	Private hospitals	Total
Primary procedures				
E66	Obesity	1,514	15,523	17,037
T85	Complications of other internal prosthetic devices, implants and grafts	73	401	474
K91	Postprocedural disorders of digestive system, not elsewhere classified	28	63	91
K21	Gastro-oesophageal reflux disease	9	55	64
K44	Diaphragmatic hernia	19	35	54
E11	Type 2 diabetes mellitus	9	42	51
K31	Other diseases of stomach and duodenum	14	30	44
Z46	Fitting and adjustment of other devices	2	36	38
K66	Other disorders of peritoneum	1	14	15
Z45	Adjustment and management of drug delivery or implanted device	2	12	14
	Other principal diagnosis	51	102	153
Total[(a)]		*1,722*	*16,314*	*18,036*
Adjustments, revisions, removals and other procedures				
T85	Complications of other internal prosthetic devices, implants and grafts	569	1,693	2,262
Z45	Adjustment and management of drug delivery or implanted device	54	584	638
E66	Obesity	31	478	509
Z46	Fitting and adjustment of other devices	21	267	288
K91	Postprocedural disorders of digestive system, not elsewhere classified	96	93	189
K21	Gastro-oesophageal reflux disease	12	92	104
R13	Dysphagia	13	51	64
E65	Localised adiposity	3	53	56
R10	Abdominal and pelvic pain	22	28	50
T81	Complications of procedures, not elsewhere classified	8	41	49
	Other principal diagnosis	169	299	468
Total		*998*	*3,679*	*4,677*
Total separations[(a)]		**2,720**	**19,993**	**22,713**

(a) Total includes one private hospital separation with no principal diagnosis.

Source: NHMD.

Table 3.10: The 10 most common 3-character ICD-10-AM additional diagnoses for weight loss surgery separations, by type of surgery, public and private hospitals, 2014–15

Additional diagnosis		Public hospitals	Private hospitals	Total
Primary procedures				
Z86	Personal history of certain other diseases	525	5,138	5,663
K66	Other disorders of peritoneum	328	3,852	4,180
K44	Diaphragmatic hernia	148	2,880	3,028
E11	Type 2 diabetes mellitus	599	2,413	3,012
Z72	Problems related to lifestyle	237	1,576	1,813
R11	Nausea and vomiting	140	906	1,046
I10	Essential (primary) hypertension	118	715	833
K29	Gastritis and duodenitis	45	590	635
Z92	Personal history of medical treatment	131	480	611
G47	Sleep disorders	130	460	590
	Other additional diagnosis	1,957	7,314	8,775
Total additional diagnosis[(a)]		*4,358*	*26,324*	*30,186*
Total separations		*1,722*	*16,314*	*18,036*
Adjustments, revisions, removals and other procedures				
K66	Other disorders of peritoneum	428	2,201	2,629
Z86	Personal history of certain other diseases	256	1,290	1,546
E11	Type 2 diabetes mellitus	223	556	779
Z72	Problems related to lifestyle	172	426	598
E66	Obesity	84	370	454
T85	Complications of other internal prosthetic devices, implants and grafts	97	238	335
R11	Nausea and vomiting	121	194	315
T81	Complications of procedures, not elsewhere classified	74	225	299
K21	Gastro-oesophageal reflux disease	75	182	257
K44	Diaphragmatic hernia	13	222	235
	Other additional diagnosis	1,982	3,023	4,565
Total additional diagnosis[(a)]		*3,525*	*8,927*	*12,012*
Total separations		*998*	*3,679*	*4,677*
Total additional diagnoses[(a)]		**7,883**	**35,251**	**42,547**
Total separations		**2,720**	**19,993**	**22,713**

(a) The 'Total additional diagnoses' is greater than the total number of separations because each separation can have more than one additional diagnosis.

Source: NHMD.

3.6 How urgent was the care?

On admission, weight loss surgery separations were categorised as either *Emergency admissions* (required within 24 hours), *Non-Emergency admissions* (elective admissions required at some stage beyond 24 hours or admissions that were neither emergency or elective, such as obstetric care and planned care such as dialysis).

In 2014–15, 2.6% of all weight loss separations (587) were emergency admissions Table 3.11). The majority (70.4%, 413 separations) of these were in public hospitals for adjustments, revisions, removals and other procedures. Fewer than 1% of weight loss surgery separations in private hospitals were emergency admissions.

Table 3.11: Weight loss surgery separations, by urgency of admission, type of surgery, public and private hospitals, 2014–15

	Public hospitals	Private hospitals	Total
Emergency admissions			
Primary procedures	43	26	69
Adjustments, revisions, removals and other procedures	413	105	518
All emergency admissions	*456*	*131*	*587*
Non-emergency admissions			
Primary procedures	1,679	16,288	17,967
Adjustments, revisions, removals and other procedures	585	3,574	4,159
All non-emergency admissions	*2,264*	*19,862*	*22,126*
Total	**2,720**	**19,993**	**22,713**

Source: NHMD.

3.7 What weight loss surgery was provided?

The introduction to this chapter set out a hierarchy of rules to specify procedure groupings where more than one weight loss procedure was reported and this hierarchy was used in the preceding tables.

However, weight loss surgery separations may have had more than one weight loss surgery procedure performed during the hospital stay.

This section presents information on all weight loss procedures reported. Counts of weight loss procedures are higher than counts of weight loss surgery separations, because more than one weight loss procedure was reported for some separations. This section also presents information on commonly reported combinations of weight loss surgery procedures.

Surgical procedures

Weight loss surgery procedures

The most common weight loss procedure in 2014–15 for both public and private hospitals was *Laparoscopic sleeve gastrectomy*, accounting for 52.5% (12,300 procedures) of the total procedures for weight loss surgery. This procedure accounted for more than two-thirds (67.6%) of all primary procedures for weight loss surgery (Table 3.12). The most common adjustments, revisions, removals and other procedure was

Laparoscopic removal of gastric band, which represented more than half (57.9%, or 3,000 procedures) of all these procedures for weight loss surgery separations. These 2 procedures together accounted for 65.4% (almost 15,400 procedures) of all weight loss separations in 2014–15.

Multiple procedure combinations

While most patients having weight loss surgery had only one weight loss procedure, during 2014–15, 2.9% of weight loss surgery separations included more than one weight loss-related procedure (Table 3.13). Of those separations with more than one weight loss-related procedure, the most common combination was *Laparoscopic adjustable gastric banding* and *Revision of gastric band reservoir* 21.9% (147 separations) (Table 3.13).

What additional procedures did people have?

The procedures reported for admitted patients can include surgical procedures (such as those weight loss procedures described earlier) and other additional procedures such as non-operating room procedures (for example, dialysis), procedures of a patient support nature (for example, general anaesthesia) and other interventions (for example, physiotherapy and other allied health interventions). The information presented here on these additional procedures reported for weight loss surgery separations includes the type of anaesthesia used during a surgical procedure and allied health interventions during the separations.

Anaesthesia

In 2014–15, the majority of separations for weight loss surgery reported the procedure block *Cerebral anaesthesia* (general anaesthesia). The procedure block *Conduction anaesthesia*, which includes local and regional anaesthesia, occurred less frequently. It should be noted that some patients had other procedures while in hospital for their weight loss surgery, and not all records of anaesthesia in Table 3.14 may relate directly to weight loss surgery. There were 283 separations in 2014–15 for weight loss surgery with no recorded anaesthetic.

The American Society of Anaesthesiologists (ASA) has developed a widely used physical status classification system for assessing the health status of patients before surgery (including weight loss surgery). The ASA score is incorporated into the ACHI coding of procedures for a range of anaesthetic procedures.

For weight loss surgery separations involving cerebral anaesthesia in 2014–15, 43.6% (10,000 separations) were assessed as *Patient with severe systemic disease that limits activity* (Table 3.14). However, an ASA score was not documented for almost 20% of weight loss surgery separations.

Allied health interventions

In 2014–15, more than half (53.9%) of weight loss surgery separations included an allied health intervention (Table 3.15). There were around 12,200 allied health interventions for weight loss surgery separations. The most common interventions were physiotherapy (around 6,200), dietetics (around 4,100) and pharmacy (around 1,100); these 3 interventions represented 92.9% of the allied health interventions.

Table 3.12: Number of weight loss surgery procedures, by type of surgery, public and private hospitals, 2014–15

		Public hospitals	Private hospitals	Total
Primary procedures				
Open (or approach not specified)	Adjustable gastric banding	19	52	71
	Non-adjustable gastric banding	1	7	8
	Gastroplasty	10	13	23
	Sleeve gastrectomy	24	115	139
	Gastric bypass	62	306	368
	Biliopancreatic diversion	9	9	18
	Duodenal-jejunal bypass	2	0	2
	Ileal interposition	1	0	1
	Total	*128*	*502*	*630*
Laparoscopic	Laparoscopic adjustable gastric banding	432	3,071	3,503
	Laparoscopic non-adjustable gastric banding	2	16	18
	Laparoscopic gastroplasty	17	113	130
	Laparoscopic sleeve gastrectomy	976	11,373	12,349
	Laparoscopic biliopancreatic diversion	1	17	18
	Laparoscopic gastric bypass	160	1,135	1,295
	Total	*1,588*	*15,725*	*17,313*
Endoscopic	Endoscopic gastroplasty	3	2	5
	Insertion of gastric balloon	12	301	313
	Total	*15*	*303*	*318*
Total primary procedures		*1,731*	*16,530*	*18,261*
Adjustments, revisions, removals and other procedures				
Open (or approach not specified)	Adjustment of gastric band reservoir	215	179	394
	Revision of gastric band reservoir	202	760	962
	Removal of gastric band reservoir	26	53	79
	Removal of gastric band	87	237	324
	Other procedures for obesity	2	8	10
	Total	*532*	*1,237*	*1,769*
Laparoscopic	Laparoscopic removal of gastric band	512	2,534	3,046
	Other laparoscopic procedures for obesity	8	39	47
	Total	*520*	*2,573*	*3,093*
Endoscopic	Endoscopic removal of gastric band	20	72	92
	Removal of gastric balloon	6	154	160
	Other endoscopic procedures for obesity	0	147	147
	Total	*26*	*373*	*399*
Total adjustments, revisions, removals and other procedures		*1,078*	*4,183*	*5,261*
Total procedures		**2,809**	**20,713**	**23,522**

Source: NHMD.

Table 3.13: Weight loss surgery separations, selected single and multiple procedures, 2014–15

	Public hospitals	Private hospitals	Total
Separations with one weight loss procedure			
Laparoscopic sleeve gastrectomy	968	11,258	12,226
Laparoscopic adjustable gastric banding	392	2,810	3,202
Laparoscopic removal of gastric band	482	2,290	2,772
Laparoscopic gastric bypass	140	955	1,095
Revision of gastric band reservoir	157	602	759
Other	495	1,494	1,989
Total with one procedure	*2,634*	*19,409*	*22,043*
Separations with more than one weight loss related procedure			
Laparoscopic adjustable gastric banding and Revision of gastric band reservoir	32	115	147
Laparoscopic gastric bypass and Laparoscopic removal of gastric band	16	127	143
Laparoscopic adjustable gastric banding and Laparoscopic gastroplasty	1	79	80
Laparoscopic sleeve gastrectomy and Laparoscopic removal of gastric band	1	64	65
Laparoscopic gastric bypass and Removal of gastric band	2	23	25
Other	34	176	210
Total with more than one procedure	*86*	*584*	*670*
Total separations	**2,720**	**19,993**	**22,713**

Source: NHMD.

Table 3.14: Weight loss surgery separations with anaesthetic procedure (ACHI blocks 1909 and 1910), ASA physical status classification, public and private hospitals, 2014–15

	Public hospitals		Private hospitals		Total	
Anaesthesia	**Separations**	**(%)[(a)]**	**Separations**	**(%)[(a)]**	**Separations**	**(%)[(a)]**
Conduction anaesthesia						
Total conduction anaesthesia	3	0.1	5	0.0	8	0.0
Cerebral anaesthesia						
A normal healthy patient	86	3.2	1,160	5.8	1,246	5.5
A patient with mild systemic disease	914	33.6	5,491	27.5	6,405	28.2
Patient with severe systemic disease that limits activity	970	35.7	8,924	44.6	9,894	43.6
Patient with a severe systemic disease that is a constant threat to life	64	2.4	306	1.5	370	1.6
No documentation of ASA score	494	18.2	4,021	20.1	4,515	19.9
Total cerebral anaesthesia	*2,528*	*92.9*	*19,902*	*99.5*	*22,430*	*98.8*
Total anaesthesia	**2,531**	**93.1**	**19,907**	**99.6**	**22,438**	**98.8**
No anaesthesia recorded	192	7.1	91	0.5	283	1.2
Total separations	**2,720**	**100.0**	**19,993**	**100.0**	**22,713**	**100.0**

(a) Percentage of all weight loss surgery separations.

Source: NHMD.

Table 3.15: Allied health interventions (ACHI block 1916) reported for weight loss surgery separations, public and private hospitals, 2014–15

	Public hospitals		Private hospitals		Total	
Allied health intervention	**Separations**	**(%)[(a)]**	**Separations**	**(%)[(a)]**	**Separations**	**(%)[(a)]**
Allied health intervention						
Allied health intervention, physiotherapy	555	20.4	5,645	28.2	6,200	27.3
Allied health intervention, dietetics	599	22.0	3,456	17.3	4,055	17.9
Allied health intervention, pharmacy	792	29.1	318	1.6	1,110	4.9
Allied health intervention, pastoral care	14	0.5	508	2.5	522	2.3
Allied health intervention, social work	86	3.2	25	0.1	111	0.5
Allied health intervention, diabetes education	48	1.8	46	0.2	94	0.4
Allied health intervention, occupational therapy	*60*	*2.2*	*22*	*0.1*	*82*	*0.4*
Allied health intervention, speech pathology	17	0.6	6	0.0	23	0.1
Allied health intervention, psychology	8	0.3	10	0.1	18	0.1
Allied health intervention, other	3	0.1	7	0.0	10	0.0
Allied health intervention, prosthetics and orthotics	9	0.3	1	0.0	10	0.0
Allied health intervention, podiatry	1	0.0	1	0.0	2	0.0
Total allied health interventions	**2,192**	**80.6**	**10,045**	**50.2**	**12,237**	**53.9**
No allied health intervention	**528**	**19.4**	**9,948**	**49.8**	**10,476**	**46.1**
Total separations	**2,720**	**100.0**	**19,993**	**100.0**	**22,713**	**100.0**

(a) Percentage of all weight loss surgery separations.

Source: NHMD.

3.8 What do we know about the safety and quality of the care?

This section presents a range of information relevant to the safety and quality of care for patients admitted for a procedure for weight loss surgery in 2014–15, including:

- adverse events—counts of weight loss surgery separations where selected diagnoses, external causes and places of occurrence indicate an adverse event was reported
- hospital-acquired conditions—conditions reported as arising during the hospital stay, presented using the Classification of hospital-acquired diagnoses (CHADx).

The information presented for adverse events and hospital-acquired conditions is not mutually exclusive. These measures overlap with each other and should not be added together.

It should be noted that the data in the NHMD are collected primarily for the purposes of recording care provided to admitted patients and that their use for purposes such as reporting adverse events has not been validated for completeness or accuracy in Australia. The results should therefore be treated with caution.

Adverse events reported for weight loss surgery separations

Adverse events are defined as incidents in which harm resulted to a person having health care. They include infections, falls resulting in injuries and problems with medication and medical devices. Some of these adverse events may be preventable.

The information presented in this section can be interpreted as representing selected adverse events in health care that have resulted in, or have affected, hospital admissions, rather than all adverse events associated with the weight loss surgery separations.

Hospital separations data include information on diagnoses, external causes of injury and poisoning, and their places of occurrence that can indicate that an adverse event was treated and/or occurred during the hospitalisation. However, other diagnosis codes may also suggest that an adverse event has occurred, and some adverse events are not identifiable using these codes.

In this report, adverse events are examined for weight loss surgery as events that occurred either during a weight loss surgical separation or were the main reason for the separation. Adverse events that were recorded as an additional diagnosis (see Box 1.1) are presented in Table 3.16. Adverse events that were recorded as the principal diagnosis (Box 1.1)—the diagnosis chiefly responsible for the weight loss separation—are presented in Table 3.17. The total of separations in tables 3.16 and 3.17 can be combined to represent the total number of weight loss surgery separations with an adverse event (4,600, or 20.4% of all weight loss separations).

For some separations where the principal diagnosis was an adverse event, an additional code for an adverse event was recorded—these separations are excluded from Table 3.16.

Adverse events recorded as an additional diagnosis

In 2014–15, there were about 1,600 weight loss surgery separations (or 6.8% of all weight loss surgery separations) with ICD-10-AM codes indicating 1 or more adverse events as

an additional diagnosis (Table 3.16). Adverse events were recorded for about 10.8% of weight loss surgery separations in public hospitals and 6.3% for private hospitals. The data for public hospitals may not be comparable with the data for private hospitals because their casemixes and recording practices may differ.

A separation may be recorded against more than 1 category in Table 3.16 because some adverse events are reported as diagnoses and others as external causes or places of occurrence (of the injury or poisoning). Some of the adverse events included in this table may represent events that occurred before admission. Condition onset flag (COF) information (see 'What hospital-acquired conditions arose during the stay?' can be used to provide other information about adverse events occurring, and treated within, a single episode of care.

There was a slight difference between the rate of adverse events occurring as an additional diagnosis in weight loss surgery separation for primary procedures (6.9% of weight loss surgery separations) compared with adjustments, revisions and removals and other procedures (6.7%) (Table 3.16).

Adverse events as a principal diagnosis

When the principal diagnosis indicates an adverse event, that adverse event was chiefly responsible for occasioning the episode of admitted patient care.

Table 3.17 presents separations for adverse events reported as the principal diagnosis. Overall, there were almost 3,100 weight loss surgery separations with an ICD-10-AM code indicating an adverse event as a principal diagnosis (Table 3.17)—13.6% of the total weight loss surgery separations.

About 53.6% of weight loss surgery separations with adjustments, revisions, removals and other procedures had a principal diagnosis that indicated an adverse event, compared with 3.2% of weight loss surgery separations with a primary procedure.

In 2014–15, the most common principal diagnosis indicating an adverse event was *Complications of internal prosthetic devices.* It was reported for about 2,300 (or 73.6% of all principal diagnoses with an adverse event) separations—10.0% of the total weight loss separations. *Complications of internal prosthetic devices* were reported more frequently for weight loss surgery separations that were adjustments, revisions, removals and other procedures (48.4% of the total) compared to primary procedures (2.6%, 484 separations) (Table 3.17).

Table 3.16: Weight loss surgery separations[a] with an adverse event[b] as an additional diagnosis per 100 separations, by type of procedure, public and private hospitals, 2014–15

	Public hospitals		Private hospitals		Total	
	Separations	Rate (per 100)	Separations	Rate (per 100)	Separations	Rate (per 100)
Primary procedures						
External cause of injury or poisoning						
Adverse effects of drugs, medicaments and biological substances	34	2.0	110	0.7	144	0.8
Misadventures to patients during surgical and medical care	41	2.4	197	1.2	238	1.3
Procedures causing abnormal reactions/complications	143	8.3	759	4.7	902	5.0
Other external causes of adverse events	4	0.2	7	0.0	11	0.1
Place of occurrence: Health service area	206	12.0	1,021	6.3	1,227	6.8
Diagnoses						
Selected post-procedural disorders	75	4.4	364	2.2	439	2.4
Haemorrhage and haematoma complicating a procedure	24	1.4	162	1.0	186	1.0
Infection following a procedure	9	0.5	24	0.1	33	0.2
Complications of internal prosthetic devices	33	1.9	156	1.0	189	1.0
Other diagnoses of complications of medical and surgical care	66	3.8	374	2.3	440	2.4
Total primary procedure separations with an adverse event	*209*	*12.1*	*1,032*	*6.3*	*1,241*	*6.9*
Adjustments, revisions, removals and other procedures						
External cause of injury or poisoning						
Adverse effects of drugs, medicaments and biological substances	8	0.8	9	0.2	17	0.4
Misadventures to patients during surgical and medical care	9	0.9	42	1.1	51	1.1
Procedures causing abnormal reactions/complications	66	6.6	181	4.9	247	5.3
Other external causes of adverse events	1	<0.1	1	<0.1	2	<0.1
Place of occurrence: Health service area	86	8.6	227	6.2	313	6.7

(continued)

Table 3.16 (continued): Weight loss surgery separations[a] with an adverse event[b] as an additional diagnosis per 100 separations, by type of surgery, public and private hospitals, 2014–15

	Public hospitals		Private hospitals		Total	
	Separations	Rate (per 100)	Separations	Rate (per 100)	Separations	Rate (per 100)
Diagnoses						
Selected post-procedural disorders	19	1.9	42	1.1	61	1.3
Haemorrhage and haematoma complicating a procedure	2	0.2	5	<0.1	7	<0.1
Infection following a procedure	3	0.3	5	0.1	8	0.2
Complications of internal prosthetic devices	44	4.4	132	3.6	176	3.8
Other diagnoses of complications of medical and surgical care	12	1.2	54	1.5	66	1.4
Total adjustments, revisions, removals and other procedures with an adverse event	86	8.6	228	6.2	314	6.7
Total weight loss surgery separations with an adverse event	**295**	**10.8**	**1,260**	**6.3**	**1,555**	**6.8**

(a) Excludes those separations with a principal diagnosis of an adverse event.

(b) Separations that included ICD-10-AM diagnosis and/or external cause codes that indicated an adverse event was treated and/or occurred during the hospitalisation.

Source: NHMD.

Table 3.17: Principal diagnoses reported for weight loss surgery separations with an adverse event as the principal diagnosis per 100 separations, public and private hospitals, 2014–15

	Public hospitals		Private hospitals		Total	
Principal diagnosis	Separations	Rate (per 100)	Separations	Rate (per 100)	Separations	Rate (per 100)
Primary procedures						
Selected post-procedural disorders	29	1.7	63	0.4	92	0.5
Haemorrhage and haematoma complicating a procedure	0	. .	0	. .	0	. .
Infection following a procedure	0	. .	0	. .	0	. .
Complications of internal prosthetic devices	73	4.2	401	2.5	474	2.6
Other diagnoses of complications of medical and surgical care	1	0.1	6	0.0	7	0.0
Separations with a primary procedure and an adverse event as a principal diagnosis	*103*	*6.0*	*470*	*2.9*	*573*	*3.2*
Adjustments, revisions, removals and other procedures						
Selected post-procedural disorders	96	9.6	94	2.6	190	4.1
Haemorrhage and haematoma complicating a procedure	0	. .	1	<0.1	1	<0.1
Infection following a procedure	2	0.2	4	0.1	6	0.1
Complications of internal prosthetic devices	570	57.1	1,695	46.1	2,265	48.4
Other diagnoses of complications of medical and surgical care	7	0.7	36	1.0	43	0.9
Separations with adjustments, revisions, removals and other procedures	*675*	*67.6*	*1,830*	*49.7*	*2,505*	*53.6*
Total separations with an adverse event as a principal diagnosis	**778**	**28.6**	**2,300**	**11.5**	**3,078**	**13.6**

Source: NHMD.

What hospital-acquired conditions arose during the stay?

This section presents information on the hospital-acquired conditions that were not present on admission (that is, they arose during the hospital stay), using the CHADx. This includes post-procedural complications, adverse drug events, accidental injuries, specific infections and metabolic disorders. For the most part, the occurrence of a hospital-acquired condition is identified using the condition onset flag along with diagnosis information.

The COF is required to be reported for each diagnosis and external cause of injury or poisoning in the NHMD. The flag is assigned for a condition that arises during the episode of admitted patient care and would not have been present or suspected on admission. These can include:

- a condition resulting from a misadventure during surgical or medical care in the current episode of admitted patient care

- an abnormal reaction to, or later complication of, surgical or medical care arising during the current episode of admitted patient care
- a condition newly arising during the episode of admitted patient care (for example, pneumonia, rash, confusion or cyst).

The flag is not assigned for conditions previously existing or suspected on admission, such as the presenting problem, a comorbidity, chronic disease or disease status.

For 2014–15, the COF data were provided for about 98% of separations in public hospitals and 77% of separations in private hospitals. For more information, see *Admitted patient care 2014–15: Australian hospital statistics* (AIHW 2016b).

The information presented in this section does not include weight loss surgery separations for which the COF data were not provided and hence there would be under-enumeration of the conditions that arose during the hospital stay.

In 2014–15, about 19.0% of weight loss surgery separations with a primary procedure had a hospital-acquired condition, and 14.8% of weight loss surgery separations with adjustments, revisions, removals and other procedures. The most common hospital-acquired condition was *Nausea and vomiting* (3.4 per 100 weight loss surgery separations) for primary procedures and *Accidental puncture and laceration during a procedure, not elsewhere classified* for adjustments, revisions, removals and other procedures (1.6 per 100 weight loss surgery separations) (Table 3.18).

Table 3.18: Counts of hospital-acquired diagnoses[(a)] for the 10 most common CHADx classes for separations for weight loss surgery, per 100 separations public and private hospitals, 2014–15

	Public hospitals		Private hospitals		Total	
	Separations	Rate (per 100)	Separations	Rate (per 100)	Separations	Rate (per 100)
Primary procedure separations						
Nausea and vomiting	101	5.9	504	3.1	605	3.4
Cardiac arrhythmias, conduction disturbances and abnormal heart beat	36	2.1	137	0.8	173	1.0
Hypotension	52	3.0	103	0.6	155	0.9
Other haemorrhage and haematoma complicating a procedure (not elsewhere classified)	23	1.3	127	0.8	150	0.8
Chest pain	43	2.5	105	0.6	148	0.8
Accidental puncture/laceration during procedure	32	1.9	102	0.6	134	0.7
Electrolyte disorders without dehydration	36	2.1	87	0.5	123	0.7
Post-procedural disorders: digestive system	28	1.6	83	0.5	111	0.6
ARDS, respiratory failure and pulmonary collapse (includes atelectasis)	27	1.6	82	0.5	109	0.6
Other complications of surgical and medical care n.e.c. (including shock)	11	0.6	94	0.6	105	0.6
Other CHADx conditions	*412*	*23.9*	*1,193*	*7.3*	*1,605*	*8.9*
Total CHADx conditions	**801**	**46.5**	**2,617**	**16.0**	**3,418**	**19.0**
Adjustments, revisions, removals and other separations						
Accidental puncture/laceration during procedure	19	1.9	54	1.5	73	1.6
Hypotension	31	3.1	21	0.6	52	1.1
Nausea and vomiting	9	0.9	40	1.1	49	1.0
Cardiac arrhythmias, conduction disturbances and abnormal heart beat	16	1.6	24	0.7	40	0.9
Electrolyte disorders without dehydration	22	2.2	9	0.2	31	0.7
ARDS, respiratory failure and pulmonary collapse (includes atelectasis)	11	1.1	7	0.2	18	0.4
Fever (not classified to condition)	7	0.7	10	0.3	17	0.4

(continued)

Table 3.18 (continued): Counts of hospital-acquired diagnoses[(a)] for the 10 most common CHADx classes for separations for weight loss surgery, per 100 separations public and private hospitals, 2014–15

	Public hospitals		Private hospitals		Total	
	Separations	Rate (per 100)	Separations	Rate (per 100)	Separations	Rate (per 100)
Adjustments, revisions, removals and other separations						
Dehydration / volume depletion	14	1.4	2	0.1	16	0.3
Disorders of mineral metabolism	12	1.2	4	0.1	16	0.3
Post-procedural disorders: circulatory system	6	0.6	8	0.2	14	0.3
Other CHADx conditions	*153*	*15.3*	*213*	*5.8*	*366*	*7.8*
Total CHADx conditions	**300**	**30.1**	**392**	**10.7**	**692**	**14.8**

ARDS—Acute Respiratory Distress Syndrome.

(a) Data excludes records for which condition onset flag was not reported.

Source: NHMD.

3.9 How long did people wait for surgery in public hospitals?

This section presents data on the 2,050 people who were admitted from a public hospital elective surgery waiting list and received weight loss surgery in 2014–15. This was 75.4% of the total weight loss surgery separations in public hospitals in 2014–15. Data from the NESWTDC does not have 100% coverage of all public hospitals, and possibly some patients who had surgery were not on the waiting list (e.g. emergency surgery), so Table 3.19 has lower numbers of weight loss separations in public hospitals than other tables in this chapter.

Waiting times for elective surgery are an indicator of the provision of timely care. The waiting times data presented are for patients who completed their wait and who received weight loss surgery during their admitted episode of care.

The median waiting time for all elective weight loss procedures was 73 days. Of those jurisdictions whose data could be reported, the range of median waiting times varied from 13 days in Queensland to 1,803 days in Tasmania (Table 3.19). For *Primary procedures* (almost 1,500 separations), the median waiting time was 81 days nationally. Of the published data this ranged from 11 days in Queensland to 241 days in Victoria.

Table 3.19: Waiting time statistics for weight loss surgery procedures, states and territories, 2014–15

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Total
Primary procedure									
Number of admissions	283	383	353	255	99	84	n.p.	n.p.	1,459
Days waited at 50th percentile	40	241	11	102	n.p.	n.p.	n.p.	n.p.	81
Days waited at 90th percentile	122	924	80	362	n.p.	n.p.	n.p.	n.p.	772
Per cent waited more than 365 days	0.7	27.9	0.3	9.4	n.p.	n.p.	n.p.	n.p.	14.9
Adjustments, revisions, removals and other procedures									
Number of admissions	68	265	88	91	50	22	n.p.	n.p.	591
Days waited at 50th percentile	n.p.	82	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	59
Days waited at 90th percentile	n.p.	349	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	331
Per cent waited more than 365 days	n.p.	7.5	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	5.2
Totals									
Number of admissions	**351**	**648**	**441**	**346**	**149**	**106**	**n.p.**	**n.p.**	**2,050**
Days waited at 50th percentile	**41**	**194**	**13**	**96**	**104**	**1,803**	**n.p.**	**n.p.**	**73**
Days waited at 90th percentile	**140**	**887**	**91**	**355**	**335**	**2,867**	**n.p.**	**n.p.**	**487**
Per cent waited more than 365 days	**1.1**	**19.6**	**0.2**	**7.8**	**4.7**	**78.3**	**n.p.**	**n.p.**	**12.1**

Source: NESWTDC.

3.10 How long did patients stay?

Same-day separations

A same-day separation is one in which a patient is admitted and separated on the same date.

The majority of weight loss surgery separations involved a stay of at least 1 night (92.2%). In 2014–15, 7.8% weight loss surgery separations were same-day separations— 8.7% for public hospitals and 7.7% for private hospitals (Table 3.20).

About 3% of weight loss surgery separations involving a primary procedure were same-day separations. For weight loss surgery separations involving adjustments, revisions, removals and other procedures, about a quarter (26.0%) were same-day separations.

Weight loss surgery separations with an *Endoscopic* procedure had a higher proportion of same-day separations than those with a *Laparoscopic* and *Open (or approach not specified)* procedure (77.7%, 3.1% and 30.9%, respectively) (Table 3.20). The same-day proportion was also higher for adjustments, revisions, removals and other procedures (26.0%) than primary procedures (3.1%).

Table 3.20: Weight loss surgery separations, by same-day and overnight status and type of surgery, public and private hospitals, 2014–15

	Public hospitals		Private hospitals		Total		
	Same-day separations	Overnight separations	Same-day separations	Overnight separations	Same-day separations	Overnight separations	All separations
Primary procedures							
Open (or approach not specified)	1	126	8	484	9	610	619
Laparoscopic	8	1,572	305	15,245	313	16,817	17130
Endoscopic	0	15	245	27	245	42	287
Total primary procedures	*9*	*1,713*	*558*	*15,756*	*567*	*17,469*	*18,036*
Adjustments, revisions, removals and other procedures							
Open (or approach not specified)	167	319	480	540	647	859	1,506
Laparoscopic	55	433	256	2,069	311	2,502	2,813
Endoscopic	6	18	250	84	256	102	358
Total adjustments, revisions, removals and other procedures	*228*	*770*	*986*	*2,693*	*1,214*	*3,463*	*4,677*
Total							
Open (or approach not specified)	**168**	**445**	**488**	**1,024**	**656**	**1,469**	**2,125**
Laparoscopic	**63**	**2,005**	**561**	**17,314**	**624**	**19,319**	**19,943**
Endoscopic	**6**	**33**	**495**	**111**	**501**	**144**	**645**
All weight loss separations	**237**	**2,483**	**1,544**	**18,449**	**1,781**	**20,932**	**22,713**

Source: NHMD.

Average length of stay

The average length of stay is calculated as the total number of patient days reported for the separations, divided by the number of separations. This section presents 2 measures for average length of stay: the average length of stay for all separations and the average length of stay excluding same-day separations.

In 2014–15, there were almost 58,500 patient days for separations for weight loss surgery. The overall average length of stay for weight loss surgery was 2.6 days, and 2.7 days excluding same-day separations (Table 3.21). The average length of stay excluding same-day separations was longer in public hospitals than in private hospitals (3.5 days and 2.6 days, respectively) (Table 3.21).

Table 3.21: Average length of stay (ALOS) for weight loss surgery separations, public hospitals, 2014–15

	Separations	Same-day separations	Patient days	ALOS	ALOS (excluding same-day)
Primary procedure					
Public hospitals	1,722	9	5,735	3.3	3.3
Private hospitals	16,314	558	43,427	2.7	2.7
Total	*18,036*	*567*	*49,162*	*2.7*	*2.8*
Adjustments, revisions, removals and other procedures					
Public hospitals	998	228	3,167	3.2	3.8
Private hospitals	3,679	986	6,124	1.7	1.9
Total	*4,677*	*1,214*	*9,291*	*2.0*	*2.3*
All weight loss surgery separations					
Public hospitals	2,720	237	8,902	3.3	3.5
Private hospitals	19,993	1,544	49,551	2.5	2.6
Total	**22,713**	**1,781**	**58,453**	**2.6**	**2.7**

Source: NHMD.

Weight loss separations for primary procedures with an *Open (or approach not specified)* approach had a longer average length of stay (7.0 days) than either *Laparoscopic* procedures (2.6 days) or Endoscopic (1.2 days) (Table 3.22). Weight loss separations for primary procedures that were *Open (or approach not specified)* had a longer average length of stay (7.0 days) than the same approach for adjustments, revisions and removals procedures (2.6 days).

Weight loss surgery separations with a primary procedure had an average length of stay of 2.7 days with public hospitals having longer average length of stay than private hospitals (3.3 and 2.7 days, respectively).

Weight loss surgery separations with adjustments, revisions and removals procedures had an average length of stay of 2.0 days, with public hospitals having longer average length of stay than private hospitals (3.2 and 1.7 days, respectively).

Separations with a primary procedure *Laparoscopic sleeve gastrectomy* accounted for over half (58.8%, 34,400 patient days) of all patient days related to weight loss surgery in 2014–15. *Laparoscopic removal of gastric band* was the adjustments, revisions and removals

procedure that accounted for the largest number of patient days (almost 4,800 patient days), representing 8.2% of all patient days for weight loss surgery (Table 3.22).

Table 3.22: Average length of stay (ALOS) for weight loss surgery separations, by type of surgery, public and private hospitals, 2014–15

		Public hospitals		Private hospitals		Total	
		Patient days	ALOS	Patient days	ALOS	Patient days	ALOS
Primary procedures							
Open (or approach not specified)	Gastric bypass	929	15.2	2,106	7.0	3,035	8.4
	Sleeve gastrectomy	126	5.3	366	3.3	492	3.6
	Adjustable gastric banding	140	7.4	94	1.9	234	3.4
	Gastroplasty	74	7.4	90	6.9	164	7.1
	Biliopancreatic diversion	201	22.3	88	9.8	289	16.1
	Non-adjustable gastric banding	1	1.0	15	2.1	16	2.0
	Duodenal-jejunal bypass	81	40.5	0	0.0	81	40.5
	Ileal interposition	5	5.0	0	0.0	5	5.0
	Total	*1,557*	*12.3*	*2,759*	*5.6*	*4,316*	*7.0*
Laparoscopic	Laparoscopic sleeve gastrectomy	2,561	2.6	31,809	2.8	34,370	2.8
	Laparoscopic adjustable gastric banding	658	1.5	3,679	1.2	4,337	1.3
	Laparoscopic gastric bypass	829	5.2	4,584	4.1	5,413	4.2
	Laparoscopic gastroplasty	57	3.6	231	2.7	288	2.8
	Laparoscopic non-adjustable gastric banding	2	1.0	27	1.8	29	1.7
	Laparoscopic biliopancreatic diversion	10	10.0	51	3.6	61	4.1
	Total	*4,117*	*2.6*	*40,381*	*2.6*	*44,498*	*2.6*
Endoscopic	Insertion of gastric balloon	52	4.3	284	1.1	336	1.2
	Endoscopic gastroplasty	9	3.0	3	1.5	12	2.4
	Total	*61*	*4.1*	*287*	*1.1*	*348*	*1.2*
Total primary procedures		*5,735*	*3.3*	*43,427*	*2.7*	*49,162*	*2.7*
Adjustments, revisions and removals procedures							
Open (or approach not specified)	Revision of gastric band reservoir	333	2.1	894	1.5	1,227	1.6
	Adjustment of gastric band reservoir	844	3.9	631	3.7	1,475	3.8
	Removal of gastric band	493	5.9	480	2.5	973	3.6
	Removal of gastric band reservoir	94	3.9	147	3.3	241	3.5
	Total	*1,764*	*3.6*	*2,152*	*2.1*	*3,916*	*2.6*

(continued)

Table 3.22 (continued): Average length of stay for weight loss surgery separations, by type of surgery, public and private hospitals, 2014–15

		Public hospitals		Private hospitals		Total	
		Patient days	ALOS	Patient days	ALOS	Patient days	ALOS
Adjustments, revisions and removals procedures (continued)							
Laparoscopic	Laparoscopic removal of gastric band	1,309	2.7	3,498	1.5	4,807	1.7
	Total	*1,309*	*2.7*	*3,498*	*1.5*	*4,807*	*1.7*
Endoscopic	Removal of gastric balloon	6	1.0	134	1.0	140	1.0
	Endoscopic removal of gastric band	*57*	*3.2*	*121*	*1.8*	*178*	*2.1*
	Total	*63*	*2.6*	*255*	*1.3*	*318*	*1.4*
Total adjustments, revisions and removals procedures		*3,136*	*3.2*	*5,905*	*1.7*	*9,041*	*2.0*
Other procedures							
Open (or approach not specified)	Other procedures for obesity	4	2.0	23	3.3	27	3.0
Laparoscopic	Other laparoscopic procedures for obesity	27	4.5	53	1.6	80	2.0
Endoscopic	Other endoscopic procedures for obesity	0	0.0	143	1.0	143	1.0
Total other procedures		*31*	*3.9*	*219*	*1.2*	*250*	*1.3*
Total							
Primary procedures		**5,735**	**3.3**	**43,427**	**2.7**	**49,162**	**2.7**
Adjustments, revisions, removals and other procedures		**3,136**	**3.2**	**5,905**	**1.7**	**9,041**	**2.0**
Other procedures		**31**	**3.9**	**219**	**1.2**	**250**	**1.3**
Total all weight loss surgery separations		**8,902**	**3.3**	**49,551**	**2.5**	**58,453**	**2.6**

Source: NHMD.

4 Estimated cost of weight loss surgery for patients admitted to public hospitals

This chapter presents information on the estimated cost of expenditure on weight loss surgery for patients admitted to public hospitals in Australia, including:

- What was the estimated cost of the care?
- Who paid for the care?

Information on these weight loss surgery separations is presented in Chapter 3.

4.1 What was the estimated cost of the care?

Cost estimates are prepared by the Independent Hospital Pricing Authority (IHPA) using the National Hospital Cost Data Collection (NHCDC) (IHPA 2015). The cost weight for an AR-DRG is the average cost for that AR-DRG divided by the average cost across all AR-DRGs. Separate cost weights are usually estimated for the public and private sectors because of differences in the range of costs recorded in public and private hospitals.

The public hospital cost weights (based on AR-DRG version 6.0x) relate to the 2012–13 reporting period—this is consistent with the public hospital cost weights presented in the AIHW's *Admitted patient care 2014–15* (AIHW 2016b). For 2012–13, the national average cost for a public hospital separation was estimated as $5,052. The average cost for a private hospital separation was not reported by IHPA for 2012–13; the most recent average cost estimate is based on data from 2008–09 and has not been used in this report to estimate total private costs.

The most common AR-DRG for weight loss surgery in 2014–15 was *Major procedures for obesity without complications or comorbidities* (887 separations), representing 32.6% of public hospital weight loss surgery separations (Table 4.1). The top 10 most common AR-DRGs represented 91.7% of all public hospital weight loss surgery separations.

The average cost for each of the top 10 DRGs in public hospitals ranged from $34,407 for *Stomach, oesophageal and duodenal procedures with malignancy or with catastrophic complications and comorbidities* to $2,181 for *Other digestive system diagnoses without catastrophic or severe complications and comorbidities* (IHPA 2015).

In 2014–15, the 10 most common AR-DRGs for weight loss surgery in public hospitals cost an estimated $27.0 million (Table 4.1), which is roughly 88.6% of the estimated total cost of weight loss surgery in public hospitals ($30.4 million) (Table 4.1).

Table 4.1: Total estimated costs for 10 most common AR-DRGs for weight loss surgery separations, public hospitals, 2014–15

AR-DRG		Separations	Estimated average cost ($)[a][b]	Estimated total cost ($)[a]
K04B	Major procedures for obesity without CC	887	8,082	7,168,734
K04A	Major procedures for obesity with CC	649	17,036	11,056,364
X06B	Other procedures for other injuries without CSCC	420	4,750	1,995,000
X06A	Other procedures for other injuries with CSCC	158	13,969	2,207,102
G03C	Stomach, oesophageal and duodenal procedures without malignancy without CC	98	9,425	923,650
G03B	Stomach, oesophageal and duodenal procedures without malignancy with severe or moderate CC	78	16,206	1,264,068
Z01B	OR procedures with diagnoses of other contacts with health services without CSCC	69	3,084	212,796
X63B	Sequelae of treatment without CSCC	59	2,747	162,073
G03A	Stomach, oesophageal and duodenal procedures with malignancy or with catastrophic CC	56	34,407	1,926,792
G70B	Other digestive system diagnoses without CSCC	21	2,181	45,801
Total for 10 most common AR-DRGs		*2,495*		*26,962,380*
	Other AR-DRGs	225		3,457,298
Total		**2,720**		**30,419,678**

CC—complications and comorbidities; CSCC— catastrophic or severe complications or comorbidities.

(a) Expenditure estimate is calculated using the 2012–13 Round 17 AR-DRG version 6.0x public hospital cost weights, with average public cost for an AR-DRG with a cost weight of 1.00 of $5,052.

(b) Estimated average cost has been rounded to the nearest dollar.

Source: IHPA 2015 and NHMD.

4.2 Who paid for the care?

In 2014–15, 78.8% of weight loss surgery separations had a principal funding source of *Private health insurance* (Table 4.2). Separations that were *Self-funded* represented 11.6% of all weight loss surgery separations, and were almost all in private hospitals.

For public hospitals, publicly funded patients represented 70.5% of separations for weight loss surgery and 20.3% of weight loss surgery separations were *Self-funded* (Figure 4.1, Table 4.2). For private hospitals, almost all separations for weight loss surgery were either funded by *Private health insurance* (88.3%) or *Self-funded* (10.4%) (Figure 4.2, Table 4.2).

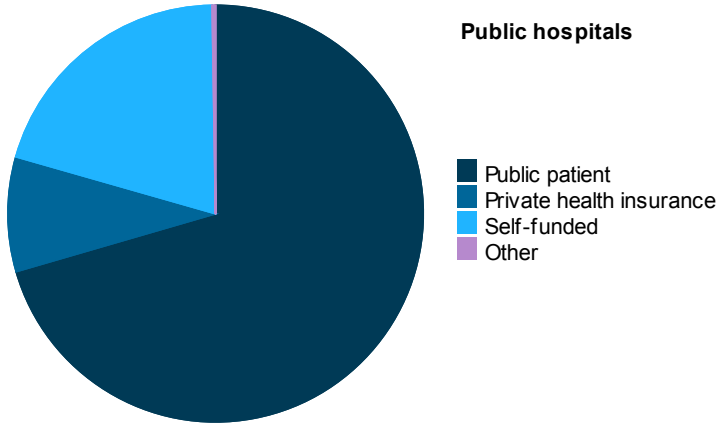
Table 4.2: Separations for weight loss surgery[(a)] by source of funds, public and private hospitals, states and territories, 2014–15

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Total
Public hospitals									
Public patient	186	770	162	465	184	128	13	10	1,918
Private health insurance	63	104	31	21	14	7	1	1	242
Self-funded	201	55	297	0	0	0	0	0	553
Other[(b)]	1	2	1	1	0	2	0	0	7
Total public hospitals	*451*	*931*	*491*	*487*	*198*	*137*	*14*	*11*	*2,720*
Private hospitals									
Public patient	1	0	1	0	0	n.p.	n.p.	n.p.	2
Private health insurance	4,408	3,458	4,007	3,892	1,205	n.p.	n.p.	n.p.	17,649
Self-funded	861	487	530	108	29	n.p.	n.p.	n.p.	2,088
Other[(b)]	30	46	71	20	13	n.p.	n.p.	n.p.	254
Total private hospitals	*5,300*	*3,991*	*4,609*	*4,020*	*1,247*	*n.p.*	*n.p.*	*n.p.*	*19,993*
All hospitals									
Public patient	187	770	163	465	184	n.p.	n.p.	n.p.	1,920
Private health insurance	4,471	3,562	4,038	3,913	1,219	n.p.	n.p.	n.p.	17,891
Self-funded	1,062	542	827	108	29	n.p.	n.p.	n.p.	2,641
Other[(b)]	31	48	72	21	13	n.p.	n.p.	n.p.	261
Total	**5,751**	**4,922**	**5,100**	**4,507**	**1,445**	**n.p.**	**n.p.**	**n.p.**	**22,713**

(a) 'Public patients' includes separations with a funding source of *Health service budget (not covered elsewhere)*, *Health service budget (due to eligibility for reciprocal health-care agreement)*, *Health service budget (no charge raised due to hospital decision* (with a *Public* patient election status) and *Other hospital or public authority (*with a *Public* patient election status*)*.

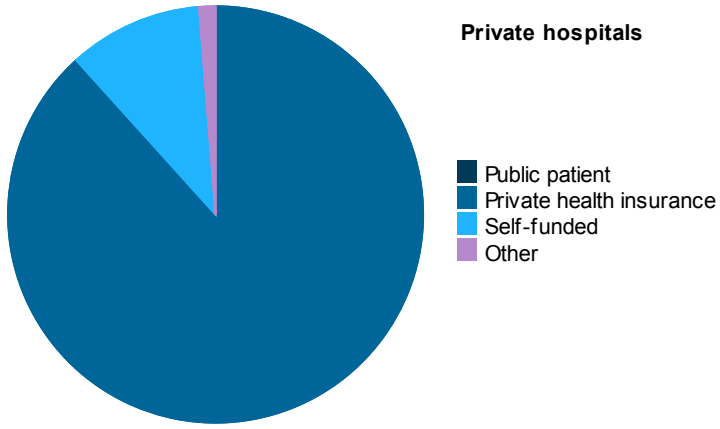
(b) 'Other' includes separations with a funding source of *Other compensation*, *Department of Defence*, *Department of Veterans' Affairs*, *Correctional facilities*, *Other hospital or public authority (without a public patient election status)*, *Other*, *No charge raised (in private hospitals)*, *Workers compensation*, *Motor vehicle third party personal claim* and *Not reported*.

Source: NHMD.



Source: NHMD.

Figure 4.1: Separations for weight loss surgery by source of funds, public hospitals, 2014–15



Source: NHMD.

Figure 4.2: Separations for weight loss surgery by source of funds, private hospitals, 2014–15

5 Weight loss surgery-related procedures funded by Medicare

This chapter provides information on the number of services (referred to as procedures in this chapter) and benefits paid for weight loss surgery-related procedures through the MBS (see Box 5.1). It includes sections on:

- Medicare weight loss surgery-related procedures
- What weight loss surgery was funded by Medicare in 2014–15?
- Who used weight loss surgery funded by Medicare?
- How much did this care cost?

This chapter uses data from AIHW's MBS database, which has been compiled from data supplied by the Department of Health for services processed between 1 April 2010 and June 2015. These data are generated as an administrative by-product of the processing of MBS claims and payments. Information is collected about patients, providers, the type of service provided (MBS item number), the amount of benefit paid for that service (based on the scheduled fee) and the total amount charged for the service provided.

5.1 Medicare weight loss surgery-related procedures

The MBS includes a list of Medicare services subsidised by the Australian Government, with items being added and removed over time. MBS schedule fees are set by the Australian Government. Medicare covers 100% of the schedule fee for GP attendances outside of hospital, 85% of the schedule fee for other services outside of hospital and 75% of the schedule fee for services to private patients in a public or private hospital. Medical practitioners may charge more than the schedule fee, in which case the patient is required to pay the difference. If the medical practitioner bills Medicare directly (bulk billing), the patient is not required to pay anything.

In 2014–15, there were 8 MBS items (or procedures) categorised as 'bariatric procedures' and 1 as an anaesthetic procedure for bariatric surgery. Before 2014–15, there was a different set of bariatric procedures in the MBS, 3 of which had been undertaken in previous years but were billed to Medicare during 2014–15. These 12 procedures are referred to in this chapter as weight loss surgery-related procedures (see Appendix E).

It should be noted that weight loss surgery-related procedures identified in the MBS for 2014–15 are for procedures that take 45 minutes or less. Weight loss surgery-related procedures that take longer than 45 minutes may be covered by other Medicare item numbers not reported here.

Box 5.1: Differences between weight loss procedures data according to source of information

The NHMD data presented in Chapter 3 and the Medicare data presented in this chapter differ in regard to the scope of weight loss surgeries and other procedures included elsewhere in this report. The NHMD data include weight loss surgeries that occur during an admission to a public or private hospital, whereas the Medicare data includes Medicare-funded procedures undertaken during hospital admissions (essentially private health insurance and self-funded separations in public or private hospitals), but also includes those undertaken in the surgeon's private consulting rooms.

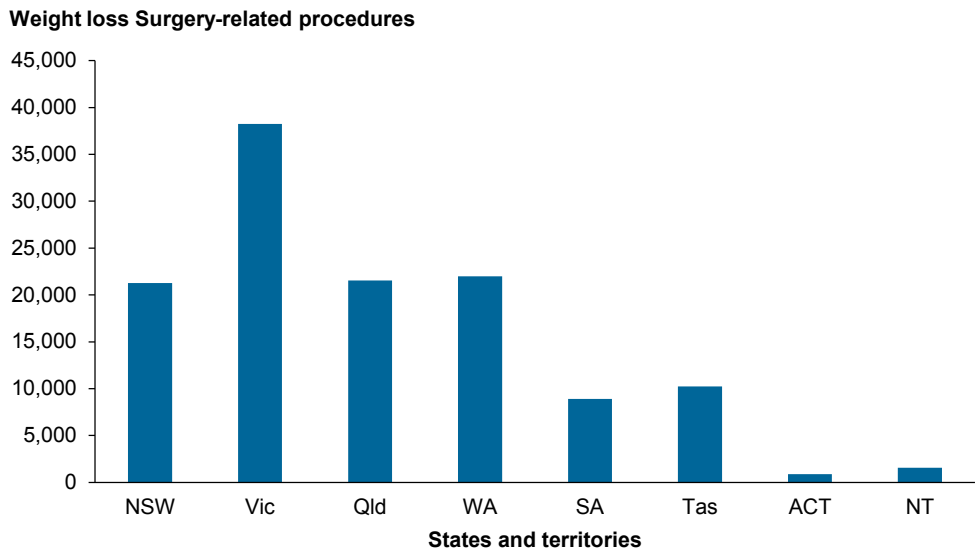
There are also differences between the Medicare and the NHMD data relating to the inclusion of weight loss surgeries in the 2014–15 data sets. The NHMD data includes those surgeries where the patient separated from hospital during 2014–15. However, the Medicare data includes procedures where the claim was processed during 2014–15, which includes some procedures carried out in earlier years.

Due to the numerous changes made to the Medicare items over time, data on weight loss surgery over time have not been presented. For further information on the quality of the data, see Appendix A.

5.2 What weight loss surgery was funded by Medicare in 2014–15?

State and territory

In 2014–15, there were more than 124,600 weight loss surgery-related procedures billed to Medicare (see Box 5.1 regarding the comparability of this figure to weight loss surgery-related separations reported in Chapter 4). Patients from Victoria (38,200) had the greatest number of weight loss surgery-related procedures billed to Medicare, followed by Western Australia (22,000), Queensland (21,600) and New South Wales (21,300) (Figure 5.1 and Table 5.2).



Source: DHS 2016.

Figure 5.1: Weight loss surgery-related procedures billed to Medicare, by state and territory, 2014–15

What procedures were undertaken?

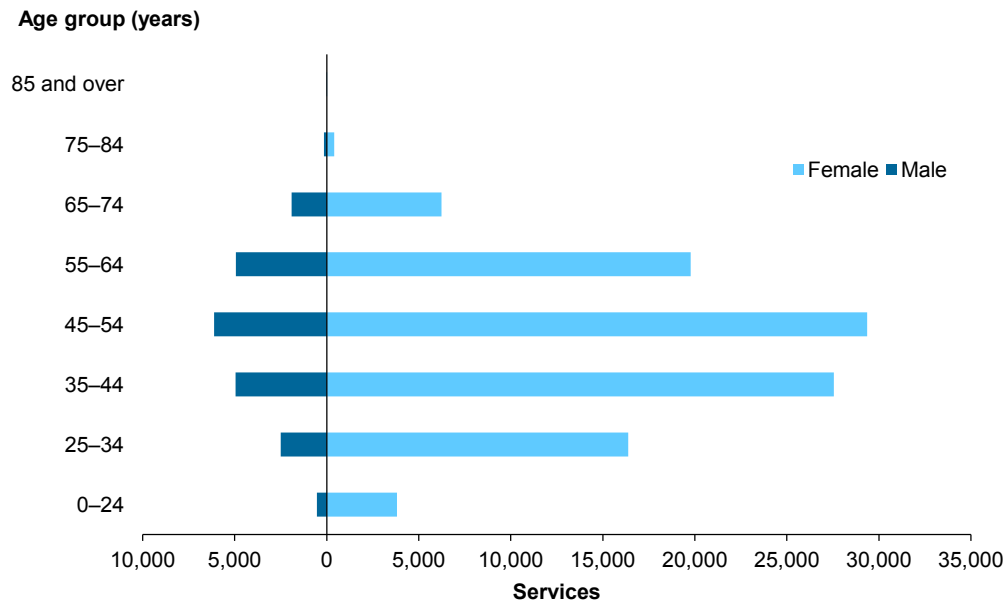
Adjustments, revisions and removals procedures accounted for more than three-quarters (74.6%) of weight loss surgery-related procedures billed to Medicare (Table 5.1). *Adjustment of gastric band as an independent procedure including any associated consultation* accounted for 95.2% of adjustments, revisions and removals procedures.

Initiation of anaesthesia for procedures for morbid obesity accounted for 13.1% of weight loss surgery-related procedures billed to Medicare, and surgical procedures assumed to be 'primary' accounted for 12.3% of weight loss surgery-related procedures billed to Medicare. *Sleeve gastrectomy* accounted for the largest proportion (71.8%) of the procedures that are assumed to be 'primary' billed to Medicare.

5.3 Who used weight loss surgery funded by Medicare?

Age and sex

In 2014–15, there were 103,500 weight loss surgery-related procedures billed to Medicare for women and 21,100 for men (83.1% and 16.9% of the total, respectively). For both men and women, those aged 45–54 had the highest number of weight loss surgery-related procedures billed to Medicare (6,100 and 29,400, respectively) (Figure 5.2).



Source: DHS 2016.

Figure 5.2: Weight loss surgery-related claims billed to Medicare, by age and sex, 2014–15

5.4 How much did this care cost?

Total costs for the Medicare-billed procedures were about $62.8 million in 2014–15. About $25.7 million in benefits were paid by Medicare, and out-of-pocket costs for patients and/or health insurers were about $37.1 million.

Benefits paid through the MBS varied by state and territory, with the highest amount of benefits paid to residents in Victoria ($6.3 million), followed by New South Wales ($6.0 million), Queensland ($5.2 million) and Western Australia ($4.9 million). The highest benefits paid were for *Adjustment of gastric band as an independent procedure including any associated consultation* ($7.5 million), *Sleeve gastrectomy* ($6.7 million) *Initiation of anaesthesia for procedures for morbid obesity* ($4.7 million) and *Reversal of bariatric procedure* ($4.1 million) (Table 5.2).

Of the out-of-pocket costs, $17.8 million were for *Sleeve gastrectomy, $*3.7 million for *Reversal of a bariatric procedure* and $3.1 million for *Adjustable gastric band* (Table 5.3). Out-of-pocket costs may be incurred by the patient directly, via private health insurers or both.

Benefits paid reported here exclude assistance at operations and some anaesthesia, which may have occurred for all items except *Adjustment of gastric band as an independent procedure including any associated consultation (*item number 31587), hence these figures represent an under-estimate of the total benefits paid under Medicare for weight loss surgery.

These estimates exclude pre-operative services, procedures associated with the initial patient visits to the general practitioner, surgical referral, visits to the surgeon, and associated Medicare funded pathology or diagnostic imaging.

Table 5.1: Number of weight loss surgery-related claims billed to Medicare, by item number and state and territory, 2014–15

MBS item number	MBS item name	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Total
Primary procedures										
31569	Adjustable gastric band	436	1,117	363	509	158	293	6	72	**2,954**
31572	Gastric bypass by Roux-en-Y	272	323	363	108	176	9	4	18	**1,273**
31575	Sleeve gastrectomy	3,798	1,337	2,929	2,309	501	16	136	28	**11,054**
31578	Gastroplasty	3	11	5	38	0	0	0	1	**58**
31581	Gastric bypass by biliopancreatic diversion	2	4	4	0	10	0	0	0	**20**
30511[(a)]	Gastric reduction or laparoscopic adjustable gastric banding	3	6	11	7	0	2	0	0	**29**
Total primary procedures		*4,514*	*2,798*	*3,675*	*2,971*	*845*	*320*	*146*	*119*	***15,388***
Adjustments, revisions and removals procedures										
31584	Reversal of a bariatric procedure	777	867	698	766	324	114	17	33	**3,596**
31590	Adjustment of gastric band reservoir, repair, revision or replacement of	102	293	72	93	63	84	2	16	**725**
31587	Adjustment of gastric band as an independent procedure including any associated consultation	11,171	31,357	13,276	14,765	6,706	9,417	559	1,249	**88,500**
14215[(a)]	Revision of gastric band	21	17	23	79	–1[(b)]	18	4	6	**167**
31441[(a)]	Repair, revision of replacement of long-term implant reservoir	0	1	0	1	0	1	0	0	**3**
Total adjustments, revisions and removals procedures		*12,071*	*32,535*	*14,069*	*15,704*	*7,092*	*9,634*	*582*	*1,304*	***92,991***
Other MBS procedures										
20791	Initiation of anaesthesia for procedures for morbid obesity	4,687	2,905	3,812	3,312	980	297	147	128	**16,268**
Total		**21,272**	**38,238**	**21,556**	**21,987**	**8,917**	**10,251**	**875**	**1,551**	**124,647**

(a) Medicare items 14215, 30511 and 31441 were not valid for procedures performed in 2014–15, and therefore these counts of procedures are likely to reflect claims for procedures performed during a previous reporting period.

(b) Negative MBS services and benefits represent cancellations and negative adjustments (for example, the reversal of a claim processed in a previous year).

Source: AIHW Medicare Benefits Schedule (MBS) claims database.

Table 5.2: Total benefit paid ($) under the MBS for weight loss related-surgery, by item number and state and territory, 2014–15

MBS item number	MBS item name	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Total
Primary procedures										
31569	Adjustable gastric band	240,412	649,792	208,874	300,927	89,208	175,304	2,967	45,397	**1,712,880**
31572	Gastric bypass by Roux-en-Y	186,892	214,277	228,198	80,414	136,018	6,292	2,763	13,786	**868,640**
31575	Sleeve gastrectomy	2,302,113	835,404	1,726,425	1,400,465	313,222	9,701	84,283	17,265	**6,688,878**
31578	Gastroplasty	1,115	5,495	2,549	11,985	0	0	0	159	**21,303**
31581	Gastric bypass by biliopancreatic diversion	1,580	2,352	2,744	0	7,841	0	0	0	**14,517**
30511[(a)]	Gastric reduction or laparoscopic adjustable gastric banding	1,394	2,673	6,644	4,201	0	1,228	0	0	**16,140**
Total primary procedures		*2,733,506*	*1,709,993*	*2,175,434*	*1,797,992*	*546,289*	*192,525*	*90,013*	*76,607*	***9,322,358***
Adjustments, revisions and removals procedures										
31584	Reversal of a bariatric procedure	889,416	990,795	781,634	882,187	374,007	130,895	18,943	38,093	**4,105,971**
31590	Adjustment of gastric band reservoir, repair, revision or replacement of	17,355	51,864	11,932	15,230	11,670	13,978	378	3,297	**125,705**
31587	Adjustment of gastric band as an independent procedure including any associated consultation	935,655	2,646,204	1,111,665	1,258,404	558,540	788,274	47,249	104,665	**7,450,655**
14215[(a)]	Revision of gastric band	1,821	1,402	1,946	5,652	–90[(b)]	1,453	327	541	**13,053**
31441[(a)]	Repair, revision of replacement of long-term implant reservoir	0	87	0	185	0	189	0	0	**461**
Total adjustments, revisions and removals procedures		*1,844,247*	*3,690,352*	*1,907,177*	*2,161,658*	*944,127*	*934,789*	*66,897*	*146,596*	***11,695,845***
Other MBS procedures										
20791	Initiation of anaesthesia for procedures for morbid obesity	1,396,403	868,499	1,076,554	923,867	285,231	80,517	45,411	35,402	**4,711,885**
Total		**5,974,155**	**6,268,845**	**5,159,165**	**4,883,517**	**1,775,648**	**1,207,830**	**202,321**	**258,607**	**25,730,088**

(a) Medicare items 14215, 30511 and 31441 were not valid for procedures performed in 2014–15, and therefore these counts of procedures are likely to reflect claims for procedures performed during a previous reporting period.

(b) Negative MBS services and benefits represent cancellations and negative adjustments (for example, the reversal of a claim processed in a previous year).

Source: AIHW Medicare Benefits Schedule (MBS) claims database.

Table 5.3: Total out-of-pocket costs ($) for weight loss related-surgery, by MBS item number and state and territory, 2014–15

MBS item number	MBS item name	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Total
Primary procedures										
31569	Adjustable gastric band	673,160	1,046,070	601,028	266,340	90,889	361,209	12,148	47,880	**3,098,723**
31572	Gastric bypass by Roux-en-Y	309,749	294,488	591,061	73,977	175,455	11,592	5,848	19,476	**1,481,646**
31575	Sleeve gastrectomy	6,273,840	1,341,560	6,289,052	2,873,521	362,537	18,427	565,376	41,537	**17,765,849**
31578	Gastroplasty	4,390	9,789	1,701	7,839	0	0	0	53	**23,772**
31581	Gastric bypass by biliopancreatic diversion	5,240	8,852	9,904	0	11,188	0	0	0	**35,184**
30511[(a)]	Gastric reduction or laparoscopic adjustable gastric banding	15,052	5,820	32,979	19,017	0	3,557	0	0	**76,426**
Total primary procedures		*7,281,432*	*2,706,578*	*7,525,725*	*3,240,693*	*640,069*	*394,785*	*583,372*	*108,947*	***22,481,600***
Adjustments, revisions and removals procedures										
31584	Reversal of a bariatric procedure	850,897	898,326	796,288	661,771	379,893	113,049	20,509	34,255	**3,754,988**
31590	Adjustment of gastric band reservoir, repair, revision or replacement of	19,009	45,390	10,182	9,339	10,075	14,766	374	860	**109,994**
31587	Adjustment of gastric band as an independent procedure including any associated consultation	90,733	327,517	108,411	503,611	44,401	111,339	7,788	38,095	**1,231,894**
14215[(a)]	Revision of gastric band	1,081	246	53	1,172	–58[(b)]	108	27	141	**2,769**
31441[(a)]	Repair, revision of replacement of long-term implant reservoir	0	66	0	169	0	49	0	0	**284**
Total adjustments, revisions and removals procedures		*961,720*	*1,271,546*	*914,933*	*1,176,061*	*434,310*	*239,311*	*28,698*	*73,350*	***5,099,930***
Other MBS procedures										
20791	Initiation of anaesthesia for procedures for morbid obesity	3,065,226	1,515,167	2,516,395	1,563,852	497,594	157,594	135,661	74,213	**9,525,703**
Total		**11,308,377**	**5,493,290**	**10,957,053**	**5,980,606**	**1,571,974**	**791,690**	**747,731**	**256,510**	**37,107,232**

(a) Medicare items 14215, 30511 and 31441 were not valid for procedures performed in 2014–15, and therefore these counts of procedures are likely to reflect claims for procedures performed during a previous reporting period.

(b) Negative MBS services and benefits represent cancellations and negative adjustments (for example, the reversal of a claim processed in a previous year).

Note: Out-of-pocket costs are calculated by subtracting the benefit paid by the Australian Government from the fee charged by the provider for each service. Out-of-pocket costs include patient contributions and/or private health insurance 'gap cover'.

Source: AIHW Medicare Benefits Schedule (MBS) claims database.

6 Areas for further work

This report presents available data on weight loss surgery including data on the hospital care for admitted patients and Medicare-funded surgery. However, there are some key gaps in the available data, including gaps in information on:

- publicly funded non-admitted patient care
- outcomes from weight loss surgery
- patient journeys
- Medicare items
- Indigenous identification.

More information on these gaps is presented below.

6.1 Publicly funded non-admitted patient care

The information presented in this report includes:

- NHMD data on the care provided to public and private patients admitted to hospital
- data on Medicare-funded procedures and related items for private patients admitted to hospital and those who are not admitted to hospital (for example, seen in surgeon's consulting rooms).

This means that there are no national data reported on weight loss surgery-related non-admitted patient care provided to public patients (Table 6.1). The Tier 2 non-admitted services definition (IHPA 2014) used for reporting national patient-level data for public non-admitted patient care does not currently include a specific clinic type for bariatric surgery, therefore it is not possible to report the numbers of non-admitted patient service events for weight loss surgery-related procedures in public hospitals at this time.

Table 6.1: Type of weight loss surgery-related care included in NHMD and Medicare data used in this report

	Type of care	
Patient types	**Admitted care**	**Non-admitted care**
Public patients	Included in NHMD data	Not included in NHMD data
	Not included in Medicare data	Not included in Medicare data
Private patients	Included in NHMD data	Not included in NHMD data
	Included in Medicare data	Only Medicare items described as bariatric and associated anaesthesia

6.2 Outcomes from weight loss surgery

The *Clinical practice guidelines for the management of overweight and obesity in adults, adolescents and children in Australia* (NHMRC 2013) indicate that bariatric surgery may be considered for adults with a BMI over 40 kg/m^2 or 35 kg/m^2 with related comorbidities. However, both the NHMD and MBS data lack information on the patient's BMI before surgery. Similarly, information on the patient's BMI after surgery and/or any information on whether the BMI decreased relative to the pre-surgery levels after the surgery is not available in either data

set. The absence of this information means that it is not possible to assess and compare surgical procedures with respect to their capacity to reduce patient BMI. Information on other outcomes (e.g. relating to chronic disease status, including diabetes) is also not available.

Routine national data linkage to inform patient outcomes is an area for future work. The ability to link data for different hospital episodes and with deaths data would enhance understanding about outcomes and the safety and quality of care provision. Information from the Bariatric Surgery Registry < http://www.med.monash.edu.au/sphpm/depts-centres-units/bariatric/about.html >, including data on quality and safety metrics, could also potentially be used to enhance the information presented here on patient outcomes.

6.3 Patient journeys

For this report, information is presented on individual hospital separations and Medicare-funded procedures. Information is not presented on the number of individual patients that received weight loss surgery (or procedures) and how these individual components may be used to describe a typical patient journey (for example, from an initial referral to the primary procedure and to subsequent procedures). The ability to describe and analyse these patient journeys would greatly assist in understanding relationships between primary surgical procedures and subsequent adjustments and revisions. This would require the linkage of data on the hospital separations and Medicare-funded procedures that make up each patient journey using identifying patient information. The process of accessing these patient identifiers and undertaking the necessary data linkage was beyond the scope or resources of this report.

6.4 Medicare items

Data on weight loss surgery-related Medicare items were used in Chapter 5 to provide information on the number of services and estimates of benefits paid. There are several areas where these data are likely to underestimate the service provided and actual cost.

Firstly there may be Medicare-funded weight loss surgery-related consultations that are not captured by the 'Medicare weight loss procedures' identified for this report (Table C.6). Five of the eight bariatric procedures are limited to 45 minutes; it is expected that some surgical procedures for weight loss may take longer, and be claimed against more generic Medicare items.

Assistance at operations can be funded through Medicare. All but 1 of the bariatric surgery items used in this report allow assistance at operations to be claimed. The specific Medicare item relating to *Initiation of the management of anaesthesia for bariatric surgery in a patient with severe obesity* (Medicare item code 20791) was included in the service and cost estimates. However, this specific anaesthetic MBS item may not account for all the anaesthetic services delivered and claimed during weight loss surgery.

Information on pre-operative and post-operative care and services, such as initial general practitioner visits, surgical referral, specialist appointments, pathology and diagnostic imaging information, is available in Medicare data but whether the care or services related to weight loss procedures is not known. Linkage of Medicare data and hospital morbidity data could assist with identifying more MBS items as related to weight loss surgery procedures.

6.5 Indigenous identification

The collection of the Indigenous status of patients by hospital providers is important for improving information on Aboriginal and Torres Strait Islander health. Under-identification of Indigenous status has serious implications for the provision of appropriate services for Aboriginal and Torres Strait Islander patients and makes accurate assessment of progress in 'closing the gap' difficult (AIHW 2013).

As noted earlier in the report, the accuracy and completeness of Indigenous status identification in private hospitals data is unknown. The number of separations for which Indigenous status was not recorded has decreased over the last 10 years. However, the number of separations for which the patient's Indigenous status has been incorrectly recorded is unknown.

The 2013 study *Indigenous identification in hospital separations data* (AIHW 2013) recommended that a data quality study of Indigenous identification should be periodically conducted for public and private hospitals on a nationally coordinated basis, in order to assess data quality and generate comparable and up-to-date under-identification factors.

6.6 Total costs

As noted above, information is not available on relevant publicly funded non-admitted patient care, nor on some relevant Medicare items, so costs for these types of care have not been included in this report. In addition, the costs presented in this report overlap to the extent that care provided in public hospitals was for private patients for whom items were billed to Medicare. Future work could include assessment of the extent of this overlap.

Appendix A: Database quality statement summaries

This appendix includes information on the data sources used in this report and details on aspects of the data sources relevant to interpretation of the data. The principal data set used in this report is the NHMD, a complete data quality statement is available online at <meteor.aihw.gov.au>.

Information relevant to interpretation of the National Elective Surgery Waiting Times Data Collection is available in *Elective surgery waiting times 2014–15: Australian hospital statistics* (AIHW 2015b) and on the AIHW website at <http://meteor.aihw.gov.au/content/index.phtml/itemId/592510>.

Other data sources used in this report include:

- National Health Survey
- Australian Aboriginal and Torres Strait Islander Health Survey
- Medicare Benefits Schedule data collection.

National Hospital Morbidity Database

The National Hospital Morbidity Database (NHMD) is a compilation of episode-level records from admitted patient morbidity data collection systems in Australian hospitals.

The data supplied are based on the National minimum data set (NMDS) for Admitted patient care and include demographic, administrative and length of stay data, as well as data on the diagnoses of the patients, the procedures they underwent in hospital and external causes of injury and poisoning.

The purpose of the NMDS for Admitted patient care is to collect information about care provided to admitted patients in Australian hospitals. The scope of the NMDS is episodes of care for admitted patients in all public and private acute and psychiatric hospitals, free-standing day hospital facilities and alcohol and drug treatment centres in Australia. Hospitals operated by the Australian Defence Force, corrections authorities and in Australia's offshore territories are not in scope but some are included.

The reference period for this data set is 2014–15. The data set includes records for admitted patient separations between 1 July 2014 and 30 June 2015.

More detailed information on admitted patient care in Australian hospitals during 2014–15 can be found in *Admitted patient care 2014–15: Australian hospital statistics* (AIHW 2016b).

Summary of key issues

- The NHMD is a comprehensive data set that has records for all separations of admitted patients from essentially all public and private hospitals in Australia.
- A record is included for each separation, not for each patient, so patients who separated more than once in the year have more than one record in the NHMD.
- For 2014–15, almost all public hospitals provided data for the NHMD. The exception was an early parenting centre in the Australian Capital Territory. The great majority of

private hospitals also provided data, the exceptions being the private free-standing day hospital facilities in the Australian Capital Territory.

- There is some variation between jurisdictions as to whether hospitals that predominantly provide public hospital services, but are privately owned and/or operated, are reported as public or private hospitals. In addition, hospitals may be re-categorised as public or private between, or within, years.
- Data on state of hospitalisation should be interpreted with caution because of cross-border flows of patients. This is particularly the case for the Australian Capital Territory. In 2014–15, about 18% of separations for Australian Capital Territory hospitals were for patients who resided in New South Wales.
- Although there are national standards for data on hospital services, there are some variations in how hospital services are defined and counted, between public and private hospitals, among the states and territories and over time. For example, there is variation in admission practices for some services, such as chemotherapy and endoscopy. As a result, people receiving the same type of service may be counted as same-day admitted patients in some hospitals and as non-admitted patients in other hospitals. In addition, some services are provided by hospitals in some jurisdictions and by non-hospital health services in other jurisdictions. The national data on hospital care does not include care provide by non-hospital providers, such as community health centres.
- Caution should be used in comparing diagnosis, procedure and external cause data over time, because the classifications and coding standards for those data can change over time.
  - Reporting in ICD-10-AM 8th edition commenced from 1 July 2013. A number of changes implemented in the 8th edition of the ICD-10-AM/ACHI classifications may affect the interpretation of data when compared with data reported in earlier years.
- The Indigenous status data in the NHMD for all states and territories are considered to be of sufficient quality for statistical reporting from 2010–11. In 2011–12, an estimated 88% of Indigenous patients were correctly identified in public hospitals (AIHW 2013). The overall quality of the data provided for Indigenous status is considered to be in need of some improvement and varied between states and territories. It is unknown to what extent Indigenous Australians might be under-identified in private hospital admissions data.

More detailed information for the NHMD is published in the AIHW's METeOR <http://meteor.aihw.gov.au/content/index.phtml/itemId/535047>.

National Elective Surgery Waiting Times Data Collection

The NESWTDC provides episode-level data on patients added to or removed from elective surgery waiting times managed by public hospitals. The NESWTDC provides information on waiting times for elective surgery in public hospitals. The scope of the data collection is patients on waiting lists for elective surgery that are managed by public hospitals. This may include public patients treated in private hospitals and other patients treated in public hospitals. Data for the NESWTDC were supplied to the AIHW by state and territory health authorities under the terms of the National Health Information Agreement. More detailed

information for the NESWTDC is published in the AIHW's METeOR <http://meteor.aihw.gov.au/content/index.phtml/itemId/520154>.

National Health Survey

The 2014–15 National Health Survey (NHS) was the largest and most comprehensive health survey ever conducted in Australia. The survey collected a range of information from Australians about health-related issues, including health status, risk factors, socioeconomic circumstances, health-related actions and use of medical services.

This report uses data collected in 2014–15 in relation to BMI. Data on the change in the prevalence of overweight and obesity over time was sourced from previous NHSs administered by the ABS in 1995 and 2007–08 and the Australian Health Survey in 2011–12. Further information on the in the National Health Survey and the Australian Health Survey can be found in the ABS publications *National Health Survey: first results, 2014–15* (ABS 2015) and *Australian Health Survey: updated results, 2011–12* (ABS 2013b).

Australian Aboriginal and Torres Strait Islander Health Survey

The 2012–13 Australian Aboriginal and Torres Strait Islander Health Survey (AATSIHS) included a sample of 12,000 Aboriginal and Torres Strait Islander people for the core sample and subsamples for various components of the survey such as voluntary biomedical data for adults. Further information on AATSIHS data quality issues can be found in the explanatory notes for the survey (ABS 2014).

AIHW Medicare Benefits Schedule (MBS) claims database

The Medicare Benefits Schedule data collection contains information on services that qualify for a benefit under the *Health Insurance Act 1973* and for which a claim has been processed. The AIHW MBS claims database is compiled from data supplied by the Department of Health for services processed between 1 April 2010 and June 2015. These data are generated as an administrative by-product of the processing of MBS claims and payments. Information is collected about patients, providers, the type of service provided (MBS item number), the amount of benefit paid for that service (based on the scheduled fee) and the total amount charged for the service provided. The database does not include information on public patients in public hospitals or services that are not listed on the MBS.

More detailed information for the AIHW's MBS claims database and its data quality is published in AIHW's METeOR <http://meteor.aihw.gov.au/content/index.phtml/itemId/603356>.

Appendix B: Technical appendix

This appendix covers:

- definitions and classifications used
- the presentation of data in this report
- analysis methods.

Definitions and classifications

Definitions

If not otherwise indicated, data elements were defined according to the definitions in the *National health data dictionary, version 16*, *16.1* and *16.2* (NHDD) (AIHW 2012 , 2015c, 2015d) summarised in the Glossary.

Data element definitions for the following National Minimum Data Sets (NMDSs) are also available online for:

- Admitted patient care NMDS 2014–15 at <http://meteor.aihw.gov.au/content/index.phtml/itemId/491555>.
- Elective surgery waiting times (removals data) NMDS 2013–14 at <http://meteor.aihw.gov.au/content/index.phtml/itemId/520154>.

Geographical classifications

Remoteness areas

Data on geographical location of the patient's usual residence and of the hospital location are defined using the ABS Australian Statistical Geography Standard (ASGS). Data on remoteness area of usual residence are defined using the ABS's ASGS Remoteness Structure 2011 (ABS 2011).

The ABS's ASGS Remoteness Structure 2011 categorises geographical areas in Australia into remoteness areas, described in detail on the ABS website <www.abs.gov.au>.
The classification is as follows:

- *Major cities* – for example: Sydney, Melbourne, Brisbane, Adelaide, Perth, Canberra and Newcastle.
- *Inner regional* – for example: Hobart, Launceston, Wagga Wagga, Bendigo and Murray Bridge.
- *Outer regional* – for example: Darwin, Moree, Mildura, Cairns, Charters Towers, Whyalla and Albany.
- *Remote* – for example: Port Lincoln, Esperance, Queenstown and Alice Springs
- *Very remote* – for example: Mount Isa, Cobar, Coober Pedy, Port Hedland and Tennant Creek.

More information on the quality of remoteness area information in the NHMD is available in *Admitted patient care 2014–15: Australian hospital statistics* (AIHW 2016b).

Socioeconomic status

Data on socioeconomic status groups are defined using the ABS's Socio-Economic Indexes For Areas 2011 (SEIFA) 2011 (ABS 2013b).

The SEIFA 2011 data are generated by the ABS using a combination of 2011 Census data such as income, education, health problems/disability, access to Internet, occupation/unemployment, wealth and living conditions, dwellings without motor vehicles, rent paid, mortgage repayments and dwelling size. Composite scores are averaged across all people living in areas and defined for areas based on the Census collection districts. However, they are also compiled for higher levels of aggregation. The SEIFAs are described in detail on the ABS website <www.abs.gov.au>.

The SEIFA Index of Relative Socio-Economic Disadvantage (IRSD) is one of the ABS's SEIFA indexes. The relative disadvantage scores indicate the collective socioeconomic status of the people living in an area, with reference to the situation and standards applying in the wider community at a given point in time. A relatively disadvantaged area is likely to have a high proportion of relatively disadvantaged people. However, such an area is also likely to contain people who are not disadvantaged, as well as people who are relatively advantaged.

Australian Health Survey data

For the AHS reported data, SEIFA area-based quintiles (containing 20% of areas) are used by the ABS for calculating the differentials.

Admitted patient care data

Separation rates by socioeconomic status were generated by the AIHW using the IRSD scores for the SA2 of usual residence of the patient reported or derived for each separation. The '1—Lowest' group represents the areas containing the 20% of the national population with the most disadvantage, and the '5—Highest' group represents the areas containing the 20% of the national population with the least disadvantage. These SES groups do not necessarily represent 20% of the population in each state or territory. Disaggregation by SES group is based on the area of usual residence of the patient, not the location of the hospital.

SEIFA table and figure labels

The following labels for each socioeconomic group have been used throughout this report:

Label	Socioeconomic status group
1—Lowest	Most disadvantaged
2	Second most disadvantaged
3	Middle
4	Second least disadvantaged
5—Highest	Least disadvantaged

Classifications of clinical data

ICD-10-AM/ACHI

Diagnosis, procedure and external cause data for 2014–15 were reported to the NHMD by all states and territories using the 8th edition of the *International statistical classification of diseases*

and related health problems, 10th revision, Australian modification (ICD-10-AM) (NCCC 2012), incorporating the *Australian classification of health interventions* (ACHI).

In tables and figures presenting information on diagnoses, external causes and procedures, the codes and abbreviated descriptions of the ICD-10-AM/ACHI classification are used. Full descriptions of the categories are available in ICD-10-AM/ACHI publications (NCCC 2012).

Diagnoses

One or more diagnoses can be reported for each separation. The principal diagnosis is the diagnosis established after study to be chiefly responsible for occasioning the patient's episode of admitted patient care. An additional diagnosis is a condition or complaint that either co-exists with the principal diagnosis or arises during the episode of care. An additional diagnosis is reported if the condition affects patient management.

The ICD-10-AM comprises classifications of diseases and external causes of injuries and poisoning, based on the World Health Organization's version of ICD-10.

The disease classification is hierarchical, with 20 summary disease chapters that are divided into a large number of more specific disease groupings (represented by 3-character codes). Most of the 3-character disease groupings can be divided into an even larger number of very specific disease categories represented by 4-character and 5-character codes.

Most of the information about principal diagnoses in this report is presented using 3-character ICD-10-AM groupings, which describe the diseases at a specific level.

External causes

The external cause classification (Chapter 20 of ICD-10-AM) is hierarchical, consisting of 397 three-character categories (including place of occurrence and activity when injured).

Procedures

One or more procedures can be reported for each separation, but procedures are not undertaken for all hospital admissions, so only some of the separation records include procedure data.

The ACHI classification is divided into 20 chapters by anatomical site, and within each chapter by a 'superior' to 'inferior' (head to toe) approach. These subchapters are further divided into more specific procedure blocks, ordered from the least invasive to the most invasive. The blocks, which are numbered sequentially, group the very specific procedure information.

The procedure information is presented using 2 methods of grouping procedures based on the ACHI procedure classification:

- ACHI procedure blocks—these 1,412 categories describe procedures at a specific level.
- ACHI procedures—there are over 6,300 individual procedures. Sections relating to specific procedures for weight loss surgery use this information.

Australian Refined Diagnosis Related Groups

Australian Refined-Diagnosis Related Groups is an Australian admitted patient classification system that provides a clinically meaningful way of relating the number and type of patients treated in a hospital (that is, its casemix) to the resources expected to be used by the hospital. This system categorises acute admitted patient episodes of care into groups with similar

conditions and similar expected use of hospital resources, based on information in the hospital morbidity record.

The AR-DRG classification is partly hierarchical, with 23 Major Diagnostic Categories (MDCs), divided into *Surgical*, *Medical* and *Other* partitions, and then into 771 individual AR-DRGs.

AR-DRG versions

Following receipt of the data from states and territories, the AIHW regrouped the data (using the mapping facility in the DRGroup™ software) to ensure that the same grouping method was used for all data. The AR-DRGs that resulted from this regrouping are reported here, and may differ slightly from the AR-DRGs derived by the states and territories.

For 2014–15, each separation in the NHMD was classified to AR-DRG versions 6.0x (DoHA 2010).

Presentation of data

For the majority of tables in this report, data are presented by the state or territory of the hospital, not by the state or territory of usual residence of the patient.

Throughout the publication, percentages may not add up to 100.0 because of rounding. Percentages and rates printed as 0.0 or 0 generally indicate a zero.

Suppression of data

The AIHW operates under a strict privacy regime that has its basis in Section 29 of the *Australian Institute of Health and Welfare Act 1987* (AIHW Act). Section 29 requires that confidentiality of data relating to persons (living and deceased) and organisations be maintained. The Privacy Act governs confidentiality of information about living individuals.

The AIHW is committed to reporting that maximises the value of information released for users while being statistically reliable and meeting legislative requirements described earlier.

Data (cells) in tables may be suppressed in order to maintain the privacy or confidentiality of a person or organisation, or because a proportion or other measure related to a small number of events and may therefore not be reliable.

Data have been suppressed to avoid attribute disclosure. Some measures have been suppressed if there if there were fewer than 100 separations in the category being presented (for example, for length of stay, separations rates and elective surgery waiting times). The abbreviation 'n.p.' has been used in tables to denote these suppressions. For these tables, the totals include the suppressed information.

The data for private hospitals in Tasmania, the Australian Capital Territory and the Northern Territory were not published for confidentiality reasons.

Analysis methods

Admitted patient care data analyses

Records for 2014–15 are for hospital separations (discharges, transfers, deaths or changes in care type) in the period 1 July 2014 to 30 June 2015. Data on patients who were admitted on

any date before 1 July 2014 are included, provided that they also separated between 1 July 2014 and 30 June 2015. A record is included for each separation, not for each patient, so patients who separated more than once in the year have more than one record in the NHMD.

Patient day statistics can be used to provide information on hospital activity that, unlike separation statistics, account for differences in length of stay. Because the database contains records for patients separating from hospital during the reporting period (1 July 2014 to 30 June 2015), this means that not all patient days reported will have occurred in that year. It is expected, however, that patient days for patients who separated in 2014–15, but who were admitted before 1 July 2014, will be counterbalanced overall by the patient days for patients in hospital on 30 June 2015 who will separate in future reporting periods.

Age of patient

The patient's age is calculated at the date of admission. In tables by age group and sex, separations for which age and sex were not reported are included in the totals

Estimated resident populations

All populations are based on the estimated resident population as at 30 June (at the beginning of the reporting period), based on the 2011 Census data.

Age-standardised rates

Unless noted otherwise, population rates presented in this report are age-standardised, calculated using the direct standardisation method and 5-year age groups.

The ABS's population estimates for 30 June at the beginning of the reporting period were used for the observed rates.

All populations are based on the 2011 Census data.

The total Australian population for 30 June 2001 was used as the standard population against which expected rates were calculated.

There was some variation in the age groups used for age-standardising:

- Separation rates (by hospital state, remoteness areas and by quintiles of socioeconomic advantage/disadvantage) were directly age-standardised, using the estimated resident populations as at 30 June 2014. The estimated resident populations use a highest age group of 85 and over.
- Separation rates by Indigenous status were directly age-standardised, using the projected Indigenous population (low series) as at 30 June 2014. The population for other Australians was based on the estimated resident populations as at 30 June 2014. Because the projected Indigenous population estimates use a highest age group of 65 and over, standardised rates calculated for analyses by Indigenous status are not directly comparable with the rates presented in this report that use a highest age group of 85 and over.

Counts of separations by groups of diagnoses, procedures and external causes

For tables with counts of separations by groups of procedures, a separation is counted once for the group if it has at least one procedure. Because more than one procedure can be reported for each separation, for separations with more than one weight loss procedure the procedure counted was in order of surgical technique, open (approach not specified), laparoscopic and endoscopic. Table 3.12 presents counts of all procedures for weight loss surgery for comparison.

National elective surgery waiting times data analyses

Elective surgery waiting times

The waiting times data presented in this report are for patients who complete their wait and are admitted for their surgery as either an elective or emergency admission.

The waiting times calculated in this report (Table 3.19) have been calculated using methods outlined in *Elective surgery waiting times 2014–15: Australian hospital statistics* (AIHW 2015b) from the elective surgery waiting times cluster in the NHMD. The Appendix material in that report provides more details on the National Elective Surgery Waiting Times Data Collection, technical notes and data quality.

Classification of hospital-acquired diagnoses

The classification of hospital-acquired diagnoses (CHADx) is a comprehensive classification of hospital-acquired conditions available for use with ICD-10-AM. The CHADx includes over 4,500 categories arranged into 17 major classes and 145 minor classes (ACSQHC 2013).

Method

Hospital-acquired conditions are mainly identified using the condition onset flag. Conditions that arose during the episode are assigned to CHADx classes according to the algorithm published on the ACSQHC website (ACSQHC 2013). It should be noted that not all conditions that arise during the episode will be allocated to a CHADx class.

The exception to the use of the condition onset flag is for obstetric and perinatal conditions classified to the major CHADx classes (MCHADx) 11, 12 and 13, for which diagnoses are assigned to CHADx classes regardless of the value of the condition onset flag.

For some conditions, the CHADx method relies on the sequencing of diagnosis and external cause codes to identify whether a hospital-acquired condition occurred.

A separation is counted only once for each CHADx class where at least one condition (that is assigned to the class) was reported for the separation.

Limitations

Due to the specifications and structure required for submitting admitted patient care data for the NHMD, the original sequencing of ICD-10-AM codes (as recorded at the hospital) may be destroyed. Therefore, due to uncertainty about the sequencing of the diagnosis and external cause codes, a CHADx analysis of the NHMD may result in either overestimating or underestimating hospital-acquired diagnoses.

For CHADx classes that require a combination of diagnosis and external cause codes, the AIHW has allocated a condition to a CHADx class if both the specified external cause and the diagnosis code had condition onset flags of '1', regardless of the sequence of the codes. This assumption is possible because the onset flag on the external cause is required to be the same as the onset flag for the related diagnosis code. However, this assumption may result in overestimation because the external cause may be related to a different condition, which also has an onset flag of '1'.

It should be noted that the data in the NHMD are collected primarily for the purposes of recording care provided to admitted patients and that their use for purposes such as reporting hospital-acquired conditions has not been validated for completeness or accuracy in Australia. The results should therefore be treated with caution.

Appendix C: Weight loss surgery-related ACHI procedure codes and Medicare Benefit Schedule items used for this report

This appendix contains detailed information on the weight loss surgery procedures used in this report as described by the Australian Classification of Health Interventions in Chapter 3 (Tables C.1 to C.5) and Medicare Benefits Schedule items in Chapter 5 (Table C.6).

Australian Classification of Health Interventions

Table C.1: Australian Classifications of Health Interventions (ACHI) 8th edition, Block 889 Procedures for obesity[(a)] 2012

Procedure code	Procedure, procedure description, inclusion notes and instructional notes
30511-09	**Laparoscopic sleeve gastrectomy [LSG]**
	Laparoscopic: banded sleeve gastrectomy, gastrectomy (longitudinal, tube, vertical)
	Includes: diaphragmatic (crural) repair
	Note: may be performed as the first stage of a two-stage surgery
	Excludes: when performed concurrently with BPD-DS (30512-01 [889])
30511-10	**Sleeve gastrectomy [SG]**
	Banded sleeve gastrectomy [BSG]
	Gastrectomy: longitudinal, tube, vertical
	Includes: diaphragmatic (crural) repair
	Note: may be performed as the first stage of a two-stage surgery
	Excludes: when performed concurrently with BPD-DS (30512-02 [889])
30511-02	**Laparoscopic adjustable gastric banding [LAGB]**
	Laparoscopic gastric banding NOS
	Includes: diaphragmatic (crural) repair that with replacement
	Code also when performed: replacement of gastric band reservoir (31441-00 [889]), revision procedure for obesity (30514-01 [889])
30511-03	**Laparoscopic nonadjustable gastric banding [LNGB]**
	Laparoscopic fixed gastric band
	Includes: diaphragmatic (crural) repair that with replacement
	Note: involves marlex mesh or gastric ring reinforcement
	Code also when performed: replacement of gastric band reservoir (31441-00 [889]), revision procedure for obesity (30514-01 [889])
30511-04	**Adjustable gastric banding [AGB]**
	Gastric banding NOS
	Includes: diaphragmatic (crural) repair that with replacement
	Note: involves marlex mesh or gastric ring reinforcement
	Code also when performed: replacement of gastric band reservoir (31441-00 [889]), revision procedure for obesity (30514-01 [889])

(continued)

Table C.1 (continued): Australian Classifications of Health Interventions (ACHI) 8th edition, Block 889 Procedures for obesity[(a)] 2012

Procedure code	Procedure, procedure description, inclusion notes and instructional notes
30511-05	**Nonadjustable gastric banding [NGB]**
	Fixed gastric band
	Includes: diaphragmatic (crural) repair that with replacement
	Note: involves marlex mesh or gastric ring reinforcement
	Code also when performed: **replacement of gastric band reservoir (31441-00 [889]), revision procedure for obesity (30514-01 [889])**
30512-03	**Laparoscopic gastric bypass**
	Laparoscopic bypass: banded (ring), loop, mini gastric, Roux-en-Y (LRYGB)
	Includes: anastomosis, diaphragmatic (crural) repair, dilation of gastro-enteral stricture
	Note: may be performed as the second stage of a two-stage surgery
	Code also when performed: gastro-enterostomy (30515-00 [881]), revision procedure for obesity (30514-01 [889])
	Excludes: Roux-en-Y not for obesity (see Alphabetic Index: Roux-en-Y procedure)
30512-00	**Gastric bypass**
	Bypass: banded (ring), loop, mini gastric, Roux-en-Y (RYGB)
	Includes: anastomosis, diaphragmatic (crural) repair, dilation of gastro-enteral stricture
	Note: may be performed as the second stage of a two-stage surgery
	Code also when performed: gastro-enterostomy (30515-00 [881]), revision procedure for obesity (30514-01 [889])
	Excludes: Roux-en-Y not for obesity (see Alphabetic Index: Roux-en-Y procedure)
30512-01	**Laparoscopic biliopancreatic diversion [LBPD]**
	Laparoscopic: biliopancreatic diversion with duodenal switch [LBPD-DS], duodenal switch [LDS], Scopinaro procedure
	Includes: anastomosis, cholecystectomy, diaphragmatic (crural) repair, distal gastrectomy, sleeve gastrectomy
	Note: may be performed as the second stage of a two-stage surgery
	Code also when performed: gastro-enterostomy (30515-00 [881]), revision procedure for obesity (30514-01 [889])
30512-02	**Biliopancreatic diversion [BPD]**
	Biliopancreatic diversion with duodenal switch [BPD-DS]
	Duodenal switch [DS]
	Scopinaro procedure
	Includes: anastomosis, cholecystectomy, diaphragmatic (crural) repair, distal gastrectomy, sleeve gastrectomy
	Note: may be performed as the second stage of a two-stage surgery
	Code also when performed: gastro-enterostomy (30515-00 [881]), revision procedure for obesity (30514-01 [889])
30511-06	**Laparoscopic gastroplasty**
	Laparoscopic: gastric (plication, stapling, suturing), vertical banded gastroplasty [VBG]
	Includes: diaphragmatic (crural) repair
	Code also when performed: revision procedure for obesity (30514-01 [889])
30511-07	**Endoscopic gastroplasty**
	Endoluminal: gastric (plication, stapling, suturing), vertical banded gastroplasty [VBG]
	Includes: diaphragmatic (crural) repair
	Code also when performed: revision procedure for obesity (30514-01 [889])

(continued)

Table C.1 (continued): Australian Classifications of Health Interventions (ACHI) 8th edition, Block 889 Procedures for obesity[(a)] 2012

Procedure code	Procedure, procedure description, inclusion notes and instructional notes
30511-08	**Gastroplasty**
	Gastric: plication, stapling, suturing
	Vertical banded gastroplasty [VBG]
	Includes: diaphragmatic (crural) repair
	Code also when performed: **revision procedure for obesity (30514-01 [889])**
90940-00	**Duodenal-jejunal bypass [DJ bypass]**
	Includes: **sleeve gastrectomy**
90941-00	**Ileal interposition**
	Includes: sleeve gastrectomy
90950-00	**Insertion of gastric balloon**
90950-01	**Removal of gastric balloon**
90942-01	**Laparoscopic removal of gastric band**
	Laparoscopic removal of gastric band: adjustable, nonadjustable (fixed)
	Includes: removal of (implanted) gastric band reservoir/port
	Excludes: that with replacement (30511-02, 30511-03 [889])
90942-02	**Endoscopic removal of gastric band**
	Endoscopic removal of gastric band: adjustable, nonadjustable (fixed)
	Includes: removal of (implanted) gastric band reservoir/port
	Excludes: that with replacement (30511-02, 30511-03 [889])
90942-00	**Removal of gastric band**
	Removal of gastric band: adjustable, nonadjustable (fixed)
	Includes: removal of (implanted) gastric band reservoir/port
	Excludes: that with replacement (30511-04, 30511-05 [889])
14215-01	**Adjustment of gastric band reservoir**
	Accessing in order to add or remove fluid (saline) from implanted reservoir/port of gastric band to adjust tightness
31441-00	**Revision of gastric band reservoir**
	Repair of implanted reservoir/port
	Replacement of implanted reservoir/port
	Repositioning of implanted reservoir/port
	Code also when performed: replacement of gastric band (30511-02, 30511-03, 30511-04, 30511-05 [889])
31441-01	**Removal of gastric band reservoir**
	Removal of implanted reservoir/port
	Excludes: replacement (31441-00 [889]) with removal of gastric band (90942 [889])
90943-01	**Other laparoscopic procedures for obesity**
	Code also when performed: revision procedure for obesity (30514-01 [889])
90943-02	**Other endoscopic procedures for obesity**
	Endoluminal sleeve
	Code also when performed: revision procedure for obesity (30514-01 [889])
90943-00	**Other procedures for obesity**
	Code also when performed: revision procedure for obesity (30514-01 [889])

(a) Excludes implantable gastric stimulation (vagal block) (39134-01 [1604]).

Source: NCCC 2012.

Table C.2: Australian Classifications of Health Interventions (ACHI) 4th, 5th, 6th and 7th editions, Block 889 Procedures for obesity, 2004, 2006, 2007, 2010

Procedure code	Procedure, procedure description, inclusion notes and instructional notes
14215-00	**Revision of gastric band**
	Addition or removal of fluid (saline) from implanted reservoir of gastric band
	Adjustment of gastric band
	Replacement of implanted reservoir of gastric band
30511-01	**Laparoscopic gastric reduction**
	Laparoscopic adjustable gastric banding (LAGB)
30511-00	**Gastric reduction**
	Gastric:
	banding
	stapling
	Gastroplasty for morbid obesity
30512-00	**Gastric bypass**
	Includes: anastomosis
30512-01	**Laparoscopic biliopancreatic diversion**
	Includes:
	anastomosis
	cholecystectomy
30512-02	**Biliopancreatic diversion**
	Includes:
	anastomosis
	cholecystectomy
90950-00	**Insertion of gastric bubble [balloon]**

Source: NCCH 2004, 2006, 2008 2010.

Changes to ACHI weight loss surgery-related procedure codes

A number of changes implemented from 1 July 2013 for the 8th edition of the ACHI classification may affect the interpretation of 2013–14 and 2014–15 data presented when compared with earlier data (see Table 3.4 for time series data).

The ACHI Block 889 *Procedures for obesity* was used to define weight loss surgery separations in this report. The procedure codes in Block 889 changed between the ACHI 7th and 8th editions. In particular, 27 new procedure codes were added to the original 8 procedure codes used in ACHI 4th to 7th editions. These changes allowed the identification of the 'approach' taken for the surgery (for example, endoscopic, laparoscopic or open procedures) and added 2 new procedures (duodenal-jejunal bypass—DJ bypass—and ileal interposition).

The National Casemix and Classification Centre (NCCC) historical mappings map almost all the ACHI 8th Edition Block 889 procedures back to the Block 889 procedures in previous editions (see Table C.5). However, 5 ACHI 8th Edition Block 889 procedures are instead mapped back to previous ACHI edition Block 890 *Other procedures on the stomach*, that contained a single procedure—*Other procedures on the stomach* (90305-00).

These 5 procedures are:

- Duodenal-jejunal bypass (90940-00).

- Ileal interposition (90941-00).
- Other procedures for obesity (90943-00).
- Other endoscopic procedure for obesity (90943-01).
- Other laparoscopic procedures for obesity (90943-02).

Given these 5 procedures are weight loss surgery-related, they have been included in the data for 2013–14 and 2014–15 in this report, including the time series data in Table 3.4. There were 117 and 139 separations, respectively, of these weight loss surgery separations for 2014–15. However, Block 890 data have not been included in the time series data for 2005–06 to 2011–12 because it is not possible to disaggregate the information on Block 890 into weight loss surgery procedures and other procedures.

The analysis excludes *Revision procedure for obesity* (Block 889 30514-01) because the coding rules note that this code is a flag.

It also excludes *Surgical reversal of procedure for morbid obesity* unless another *Procedures for morbid obesity* (Block 889, 2005–06 to 2012–13) was also performed in the weight loss surgery separation.

Grouping of weight-loss surgery related ACHI procedure codes

The selected weight loss surgery procedures can be grouped according to:

- procedures that are typically primarily or initial procedures for weight loss surgery or procedures that are described as adjustments, revisions, removals and other procedures (see Table C.3)
- the approach taken by the surgeon—for example, either open (or approach not specified), laparoscopic or endoscopic procedure (see Table C.4).

Medicare Benefit Schedule items

Table C.6 presents the MBS items used in this report and provides information on their descriptions. The table also shows how the MBS items are grouped according to whether the procedure is the first (or primary) procedure, or adjustments, revisions and removals procedures.

Table C.3: Surgical procedure groupings used for ACHI 8th edition procedures

Procedure grouping	ACHI 8th edition procedure code and description
Primary procedures	
	30511-09 Laparoscopic sleeve gastrectomy [LSG]
	30511-10 Sleeve gastrectomy [SG]
	30511-02 Laparoscopic adjustable gastric banding [LAGB]
	30511-03 Laparoscopic nonadjustable gastric banding [LNGB]
	30511-04 Adjustable gastric banding [AGB]
	30511-05 Nonadjustable gastric banding [NGB]
	30512-03 Laparoscopic gastric bypass
	30512-00 Gastric bypass
	30512-01 Laparoscopic biliopancreatic diversion [LBPD]
	30512-02 Biliopancreatic diversion [BPD]
	30511-06 Laparoscopic gastroplasty
	30511-07 Endoscopic gastroplasty
	30511-08 Gastroplasty
	90940-00 Duodenal-jejunal bypass [DJ bypass]
	90941-00 Ileal interposition
	90950-00 Insertion of gastric balloon
Adjustments, revisions and removals	
	90950-01 Removal of gastric balloon
	90942-01 Laparoscopic removal of gastric band
	90942-02 Endoscopic removal of gastric band
	90942-00 Removal of gastric band
	14215-01 Adjustment of gastric band reservoir
	31441-00 Revision of gastric band reservoir
	31441-01 Removal of gastric band reservoir
Other procedures	
	90943-01 Other laparoscopic procedures for obesity
	90943-02 Other endoscopic procedures for obesity
	90943-00 Other procedures for obesity

Source: NCCC 2012.

Table C.4: Surgical approach groupings used for ACHI 8th edition procedures

Procedure grouping	ACHI 8th edition procedure code and description
Open (or approach not specified)	
	30511-10 Sleeve gastrectomy [SG]
	30511-04 Adjustable gastric banding [AGB]
	30511-05 Nonadjustable gastric banding [NGB]
	30512-00 Gastric bypass
	30512-02 Biliopancreatic diversion [BPD]
	30511-08 Gastroplasty
	90940-00 Duodenal-jejunal bypass [DJ bypass]
	90941-00 Ileal interposition
	90942-00 Removal of gastric band
	14215-01 Adjustment of gastric band reservoir
	31441-00 Revision of gastric band reservoir
	31441-01 Removal of gastric band reservoir
	90943-00 Other procedures for obesity
Laparoscopic procedures	
	30511-09 Laparoscopic sleeve gastrectomy [LSG]
	30511-02 Laparoscopic adjustable gastric banding [LAGB]
	30511-03 Laparoscopic nonadjustable gastric banding [LNGB]
	30512-03 Laparoscopic gastric bypass
	30512-01 Laparoscopic biliopancreatic diversion [LBPD]
	30511-06 Laparoscopic gastroplasty
	90942-01 Laparoscopic removal of gastric band
	90943-01 Other laparoscopic procedures for obesity
Endoscopic procedures	
	30511-07 Endoscopic gastroplasty
	90950-00 Insertion of gastric balloon
	90950-01 Removal of gastric balloon
	90942-02 Endoscopic removal of gastric band
	90943-02 Other endoscopic procedures for obesity

Source: NCCC 2012.

Table C.5: Surgical procedure groupings used for time series 2005–06 to 2014–15

2005–06 to 2011–12 (ACHI 4th to 7th edition procedure code and description)	2013–14 to 2014–15 (ACHI 8th edition procedure code and description)	
Primary procedures	**Primary procedures**	
30511-01 Laparoscopic gastric reduction	30511-09 Laparoscopic sleeve gastrectomy [LSG]	30512-01 Laparoscopic biliopancreatic diversion [LBPD]
30511-00 Gastric reduction	30511-10 Sleeve gastrectomy [SG]	30512-02 Biliopancreatic diversion [BPD]
30512-00 Gastric bypass	30511-02 Laparoscopic adjustable gastric banding [LAGB]	30511-06 Laparoscopic gastroplasty
30512-01 Laparoscopic biliopancreatic diversion	30511-03 Laparoscopic nonadjustable gastric banding [LNGB]	30511-07 Endoscopic gastroplasty
30512-02 Biliopancreatic diversion	30511-04 Adjustable gastric banding [AGB]	30511-08 Gastroplasty
90950-00 Insertion of gastric bubble [balloon]	30511-05 Nonadjustable gastric banding [NGB]	90940-00 Duodenal-jejunal bypass [DJ bypass]
	30512-03 Laparoscopic gastric bypass	90941-00 Ileal interposition
	30512-00 Gastric bypass	90950-00 Insertion of gastric balloon
Adjustments, revisions, removals and other procedures	**Adjustments, revisions, removals and other procedures**	
14215-00 Revision of gastric band	90950-01 Removal of gastric balloon	90943-01 Other laparoscopic procedures for obesity
30514-00 Surgical reversal of procedure for morbid obesity	90942-01 Laparoscopic removal of gastric band	90943-02 Other endoscopic procedures for obesity
	90942-02 Endoscopic removal of gastric band	90943-00 Other procedures for obesity
	90942-00 Removal of gastric band	
	14215-01 Adjustment of gastric band reservoir	
	31441-00 Revision of gastric band reservoir	
	31441-01 Removal of gastric band reservoir	

Sources: NCCH 2004, 2006, 2008, 2010; NCCC 2012.

Table C.6: Medicare item numbers relating to weight loss procedures used in this report, by type of procedure, 2014–15

MBS item number	MBS item description
Primary procedures	
31569	Adjustable gastric band, placement of, with or without crural repair taking 45 minutes or less, for a patient with clinically severe obesity[(a)]
31572	Gastric bypass by Roux-en-Y including associated anastomoses, with or without crural repair taking 45 minutes or less, for a patient with clinically severe obesity not being associated with a service to which item 30515[(b)] applies
31575	Sleeve gastrectomy, with or without crural repair taking 45 minutes or less, for a patient with clinically severe obesity
31578	Gastroplasty (excluding by gastric plication), with or without crural repair taking 45 minutes or less, for a patient with clinically severe obesity
31581	Gastric bypass by biliopancreatic diversion with or without duodenal switch including gastric resection and anastomoses, with or without crural repair taking 45 minutes or less, for a patient with clinically severe obesity
30511[(c)]	Morbid obesity, gastric reduction or gastroplasty for, by any method
Adjustments, revisions and removals procedures	
31584	Surgical reversal of adjustable gastric banding (removal or replacement of gastric band), gastric bypass, gastroplasty (excluding by gastric plication) or biliopancreatic diversion being services to which items 31569 to 31581 apply
31590	Adjustment of gastric band reservoir, repair, revision or replacement of
31587	Adjustment of gastric band as an independent procedure including any associated consultation
14215[(c)]	Long-term implanted reservoir associated with the adjustable gastric band, accessing of to add or remove fluid
31441[(c)]	Long term implanted reservoir associated with the adjustable gastric band, repair, revision or replacement of
Other	
20791	Initiation of the management of anaesthesia for bariatric surgery in a patient with clinically severe obesity

(a) The term clinically severe obesity in the MBS refers to a patient with a body mass index (BMI) of 40 kg/m^2 or more, or a patient with a BMI of 35 kg/m^2 or more with other major medical comorbidities (such as diabetes, cardiovascular disease or cancer).

(b) Medicare item 30515 is Gastroenterostomy including gastroduodenostomy or enterocolostomy or enteroenterostomy.

(c) Medicare item numbers for weight loss surgery-related procedures performed before 2014–15, but billed to Medicare during 2014–15. These items were de-listed from the Medicare Benefits Schedule after 30 June 2013.

Source: DHS 2016.

Glossary

Some definitions in the Glossary contain an identification number from the Metadata Online Registry (METeOR). METeOR is Australia's central repository for health, community services and housing assistance metadata, or 'data about data'. It provides definitions for data for health and community services-related topics and specifications for related national minimum data sets (NMDSs). METeOR can be viewed on the AIHW website at <http://meteor.aihw.gov.au/content/index.phtml/itemId/181162>.

acute: Having a short and relatively severe course.

acute care: See **care type**.

additional diagnosis: A condition or complaint either coexisting with the principal diagnosis or arising during the episode of admitted patient care, episode of residential care or attendance at a health care establishment. METeOR identifier: 514271.

admitted patient: A patient who undergoes a hospital's admission process to receive treatment and/or care. This treatment and/or care is provided over a period of time and can occur in hospital and/or in the person's home (for **hospital-in-the-home** patients). METeOR identifier: 268957.

adverse event: An incident in which harm resulted to a person receiving health care. This includes infections, falls and other injuries, and reactions or complications due to surgery and other procedures, medical devices or medication, some of which may be preventable.

age-standardisation: A set of techniques used to remove, as far as possible, the effects of differences in age when comparing 2 or more populations.

Australian Classification of Health Interventions (ACHI): ACHI was developed by the National Centre for Classification in Health. The 8th edition was used for the 2014–15 procedures data for admitted patients in Australian hospitals.

Australian Refined Diagnosis Related Groups (AR-DRGs): An Australian system of diagnosis related groups (DRGs). DRGs provide a clinically meaningful way of relating the number and type of patients treated in a hospital (that is, its casemix) to the resources required by the hospital. Each AR-DRG represents a class of patients with similar clinical conditions requiring similar hospital services.

average length of stay (ALOS): The average number of patient days for admitted patient episodes. Patients admitted and separated on the same date are allocated a length of stay of 1 day.

bariatric (surgery): A variety of surgical procedures performed on people for morbid obesity.

biliopancreatic diversion: A procedure where portions of the stomach are surgically removed creating a small tubular pouch. The distal portion of the small intestine is connected to the pouch bypassing the upper sections of the small intestine (duodenum and jejunum). This procedure restricts both food intake and calorie absorption (ASMBS 2017). Biliopancreatic diversion can be performed through open and laparoscopic surgery.

body mass index (BMI): The category of weight deficit or excess in adults and weight excess only in children and adolescents as measured by a code. METeOR identifier 270474.

care type: The care type defines the overall nature of a clinical service provided to an admitted patient during an episode of care (admitted care), or the type of service provided by the hospital for boarders or posthumous organ procurement (care other than admitted care). METeOR identifier: 491557.

Admitted patient care consists of the following categories:

- acute care
- rehabilitation care
- palliative care
- geriatric evaluation and management
- psychogeriatric care
- maintenance care
- newborn care
- other admitted patient care—this is, where the principal clinical intent does not meet the criteria for any of the above.

Care other than admitted care include:

- posthumous organ procurement
- hospital boarder.

casemix: The range and types of patients (the mix of cases) treated by a hospital or other health service. Casemix classifications (such as AR-DRGs) provide a way of describing and comparing hospitals and other services for management purposes.

chronic: Persistent and long-lasting.

complication: A secondary problem that arises from a disease, injury or treatment (such as surgery) that makes the patient's condition worse and treatment more complicated.

condition onset flag (COF): A means of differentiating those conditions which arise during, or arose before, an admitted patient episode of care. Having this information can provide an insight into the kinds of conditions patients already have when entering hospital and what arises during the episode of care. A better understanding of those conditions arising during the episode of care may inform prevention strategies, particularly in relation to complications of medical care. METeOR identifier: 496512.

conduction anaesthesia: Regional or local (limited to a specific area) anaesthesia to inhibit nerve transmission. Includes spinal, epidural, nerve block and field block anaesthesia.

cost weight: The costliness of an AR-DRG relative to all other AR-DRGs such that the average cost weight for all separations is 1.00. A separation for an AR-DRG with a cost weight of 5.0, therefore, on average costs 10 times as much as a separation with a cost weight of 0.5.

There are separate cost weights for AR-DRGs in the public and private sectors, reflecting the differences in the range of costs in the different sectors.

Diagnosis Related Group (DRG): A widely used casemix classification system used to classify admissions into groups with similar clinical conditions (related diagnoses) and similar resource usage. This allows the activity and performance of hospitals to be compared on a common basis. In Australian acute hospitals, AR-DRGs are used. METeOR identifier: 391295.

duodenum: The first portion of the small intestine.

elective surgery: Elective care where the procedures required by patients are listed in the surgical operations section of the Medicare Benefits Schedule, with the exclusion of specific procedures frequently done by non-surgical clinicians. METeOR identifier: 327226.

endoscopic: During procedures that are endoscopic, a flexible tube with an attached camera (endoscope) is inserted through an opening in the body, most commonly the mouth or nose. Using the images from the camera, surgeons perform surgery with special instruments, also inserted through the mouth.

episode of care: The period of admitted patient care between a formal or statistical admission and a formal or statistical separation, characterised by only 1 care type (see **care type** and **separation**). METeOR identifier: 491557 (Care type), METeOR identifier: 268956 (Episode of admitted patient care).

external cause: The environmental event, circumstance or condition as the cause of injury, poisoning and other adverse effect. METeOR identifier: 514295.

funding source for hospital patient: The principal source of funds for an admitted patient episode or non-admitted patient service event. METeOR identifier: 339080.

gastric banding: A surgical procedure that involves placing a band around the upper portion of the stomach to create a smaller stomach pouch. Adjustable gastric bands have an access port is inserted under the skin. As the recipient of the adjustable band loses weight, the treating doctor adjusts the size of the band by changing the level of fluid within the band, a procedure often performed in the treating doctor's consultation rooms. Gastric banding can be performed through a laparoscopic or open surgery.

gastric bypass: A surgical procedure that involves creating a small pouch from the upper stomach, the larger lower portion of the stomach is then bypassed by attaching a section of the small intestine to the newly created pouch. The section of the small intestine attached to the pouch may vary (proximal to distal). Gastric bypass can be performed through open and laparoscopic surgery.

gastroplasty: A procedure that involves surgically stapling the upper portion of the stomach to create a small pouch. This pouch is connected to the remainder of the stomach via a narrow outlet (stoma) with a band or mesh placed to stop the stoma from widening. Gastroplasty can be performed through open, laparoscopic and endoscopic surgery.

hospital: A health-care facility established under Commonwealth, state or territory legislation as a hospital or a free-standing day procedure unit and authorised to provide treatment and/or care to patients. METeOR identifier: 268971.

hospital-in-the-home care (HITH): Provision of care to hospital admitted patients in their place of residence as a substitute for hospital accommodation. Place of residence may be permanent or temporary. METeOR identifier: 270305.

Index of Relative Socio-Economic Disadvantage: One of the set of Socio-Economic Indexes for Areas for ranking the average socioeconomic conditions of the population in an area. It summarises attributes of the population such as low income, low educational attainment, high unemployment and jobs in relatively unskilled occupations.

Indigenous status: A measure of whether a person identifies as being of Aboriginal or Torres Strait Islander origin. This is in accord with the first 2 of 3 components of the Commonwealth definition:

> An Aboriginal or Torres Strait Islander is a person of Aboriginal or Torres Strait Islander descent who identifies as an Aboriginal or Torres Strait Islander and is accepted as such by the community in which he or she lives. METeOR identifier: 291036.

International Classification of Diseases (ICD): The World Health Organization's internationally accepted classification of diseases and related health conditions. The 10th revision, Australian modification (ICD-10-AM) is currently in use in Australian hospitals for admitted patients.

jejunum: The second section of the small intestine.

laparoscopic: During procedures that are laparoscopic, several small incisions are made in the abdomen, through which a slender tube with a camera attached (a laparoscope) in inserted. Using the images from the camera, surgeons perform surgery with specially developed instruments inserted into the incisions.

non-Indigenous: People who have stated they are not of Aboriginal or Torres Strait Islander descent. Compare with other Australians.

Organisation for Economic Co-operation and Development (OECD): An organisation of 34 countries including Australia, mostly developed and some emerging (such as Mexico, Chile and Turkey); the organisation's aim is to promote policies that will improve the economic and social wellbeing of people around the world.

Other Australians: People who have stated that they are not of Aboriginal or Torres Strait Islander descent, and those for whom Indigenous status is unknown. Compare with **non-Indigenous**.

overnight-stay patient: A patient who, following a clinical decision, receives hospital treatment for a minimum of 1 night (that is, who is admitted to and separated from the hospital on different dates).

patient days: The total number of days for all patients who were admitted for an episode of care and who separated during a specified reference period. A patient who is admitted and separated on the same day is allocated 1 patient day. METeOR identifier: 270045.

principal diagnosis: The diagnosis established after study to be chiefly responsible for occasioning an episode of admitted patient care, an episode of residential care or an attendance at the health care establishment. METeOR identifier: 514273.

private hospital: A privately owned and operated institution, catering for patients who are treated by a doctor of their own choice. Patients are charged fees for accommodation and other services provided by the hospital and relevant medical and paramedical practitioners. Acute care and psychiatric hospitals are included, as are private free-standing day hospital facilities.

procedure: A clinical intervention that is surgical in nature, carries a procedural risk, carries an anaesthetic risk, requires specialised training and/or requires special facilities or equipment available only in an acute care setting. METeOR identifier: 514040.

public hospital: A hospital controlled by a state or territory health authority. Public hospitals offer free diagnostic services, treatment, care and accommodation to all eligible patients.

public patient: A patient admitted to a public hospital who has agreed to be treated by doctors of the hospital's choice and to accept shared ward accommodation. This means that the patient is not charged. This includes separations with a funding source of *Health service budget*, *Other hospital or public authority* (with a *Public* patient election status), *Health service budget* (*due to eligibility for Reciprocal health care agreements*) and *Health service budget – no charge raised due to hospital decision* (in public hospitals).

remoteness area: A classification of the remoteness of a location using the Australian Statistical Geography Standard Remoteness Structure (2011), based on the Accessibility/ Remoteness Index of Australia (ARIA) which measures the remoteness of a point based on the physical road distance to the nearest urban centre.

resection: The surgical removal (excision) of part of a tissue or organ.

same-day patient: An admitted patient who is admitted and separated on the same date. METeOR identifier: 327270.

separation: An episode of care for an **admitted patient**, which can be a total hospital stay (from admission to discharge, transfer or death) or a portion of a hospital stay beginning or ending in a change of type of care (for example, from acute care to rehabilitation).

Separation also means the process by which an admitted patient completes an episode of care either by being discharged, dying, transferring to another hospital or changing type of care.

separation rate: The total number of episodes of care for admitted patients divided by the total number of persons in the population under study. Often presented as a rate per 1,000 or 10,000 members of a population. Rates may be crude or standardised.

separations: The total number of episodes of care for admitted patients, which can be total hospital stays (from admission to discharge, transfer or death) or portions of hospital stays beginning or ending in a change of type of care (for example, from acute to rehabilitation) that cease during a reference period. METeOR identifier: 270407.

sleeve gastrectomy: A restrictive procedure that involves surgically resecting about 75–80% of the stomach, usually along the greater curvature of the stomach. The remaining portion of the stomach has a sleeve or tubular shape. Sleeve gastrectomy is irreversible and can be performed through open and laparoscopic surgery.

socioeconomic status: An indication of how 'well off ' a person or group is. In this report, socioeconomic status is reported using the Index of Relative Socio-economic Disadvantage, typically for 5 groups, from the most disadvantaged (worst off) to the least disadvantaged (best off).

weight loss surgery: Weight-loss, or bariatric, surgery helps patients lose weight and lowers the risk of medical problems associated with obesity.

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Weight loss surgery in Australia 2014–15: Australian hospital statistics is a new report in AIHW's series of summary reports describing the characteristics of hospitals and hospital services in Australia. In 2014–15, there were about 22,700 hospital separations involving one or more weight loss surgery procedures. Seven in 8 of these separations occurred in private hospitals. Around 18,000 of weight loss surgery separations, or 79%, were for female patients. From 2005–06 to 2014–15, the total number of weight loss surgery separations more than doubled, from about 9,300 to 22,700.