

3 Complications of surgical and medical care deaths, Australia

Multiple Cause of Death: Y40–Y84, Y88 and T80–T88; or

Underlying Cause of Death: Y40–Y84, Y88

Table 3.1: Key indicators for complication of surgical and medical care deaths, Australia 2004–05

Indicator	Multiple Causes of Death			Underlying Cause of Death		
	Males	Females	Persons	Males	Females	Persons
Cases	995	814	1,809	135	121	256
Crude rate/100,000 population	9.9	8.0	8.9	1.3	1.2	1.3
Adjusted rate (direct)	10.7	6.7	8.5	1.5	1.0	1.2
Rate ratio*	1.27	0.79		1.24	0.83	
Mean YPLL <75years	7.4	6.6	7.1	5.4	3.9	4.7

* Rate ratios are standardised rate for male or female/standardised rate for persons.

The left-hand panel of Table 3.1 presents summary data for deaths satisfying the selection criteria given above and throughout this chapter, unless stated otherwise. The right-hand panel of Table 3.1 is based on cases selected according to the narrower criteria used in reports for deaths before 2003–04 (UCoD V01–V99). Adoption of the wider criteria has a very large effect on this topic, increasing case numbers by over 7 fold.

3.1 Overview

Deaths with an UCoD code in the range Y40–Y84, Y88 or any MCoD code in the range T80–T88 *Complications of surgical and medical care, not elsewhere classified* provide a rudimentary measure of occurrence of deaths related to medical care. However, the findings of this section should be interpreted with caution as the ICD coding and classification system and the available data have important limitations for this purpose.

Information recorded on Australian death certificates about causes of death may not always be accurate and complete. Adverse event deaths which have been certified by a coroner could be expected to have more accurate information than deaths which are not certified (Hargreaves 2001). Of the 1,809 deaths reported in this chapter, 23% ($n = 422$) were certified by a coroner. Assessing the extent to which adverse events are recorded on death certificates could provide some insight as to the appropriateness of using mortality data to monitor adverse events that are a cause of death.

The scope of this section has been limited to deaths assigned an MCoD code in the range T80–T88 *Complications of medical and surgical care, not elsewhere classified* or a UCoD code Y40–Y84 *Complications of medical and surgical care*, (or Y88 *Sequelae of complications*). By analogy with the approach used for community injury, we have not included in this chapter other deaths that include a Multiple cause code in the range Y40–Y84, Y88. This group of deaths is included in Chapter 4.

3.2 Major types of condition

Table 3.2 shows the major types of condition for deaths occurring due to complications of surgical and medical care in 2004–05. Over 57% ($n = 1,038$) of these deaths were coded to T81, *Complications of procedures, not elsewhere classified*. Of these, 24% ($n = 247$) were due to an infection following a procedure, 9% ($n = 98$) were due to a haemorrhage or haematoma complicating a procedure and 6% ($n = 63$) were due to vascular complications following a procedure. Over 53% ($n = 553$) of these deaths had complications of medical procedures which were not defined.

Just over 16% ($n = 289$) of all complications related deaths were coded to T82, *Complications of cardiac and vascular prosthetic devices, implants and grafts*. Of these, 18% ($n = 51$) resulted from an infection or inflammatory reaction to a vascular or prosthetic device. Close to 74% ($n = 214$) of these deaths had complications of cardiac and vascular prosthetic devices, implants and grafts which were not defined.

Just over 9% ($n = 167$) of all complications related deaths were coded to T84, *Complications of internal orthopaedic prosthetic devices, implants and grafts*. Of these, 21% ($n = 35$) resulted from an infection or inflammatory reaction to an internal joint prosthesis, with a further 14% ($n = 23$) resulting from an infection or inflammatory reaction to an internal fixation device. Over 64% ($n = 107$) of these deaths had complications of internal orthopaedic prosthetic devices, implants and grafts which were not defined.

Almost 5% ($n = 83$) of all complications related deaths were coded to T86, *Failure and rejection of transplanted organs and tissues*. Of these 83 deaths, 61% ($n = 51$) resulted from a bone marrow transplant reaction while 17% ($n = 14$) were due to failure and rejection of undefined organs or tissues.

Table 3.2: Major types of injury for complications of surgical and medical care deaths, Australia 2004–05

Condition code	Males		Females		Persons	
	Count	Per cent	Count	Per cent	Count	Per cent
Complications following infusion, transfusion & therapeutic injection	..	..	..	..	..	..
Complications of procedures, not elsewhere classified	576	57.9	462	56.8	1,038	57.4
Complications of cardiac and vascular prosthetic devices, implants and grafts	182	18.3	107	13.1	289	16.0
Complications of genitourinary devices, implants and grafts	26	2.6	14	1.7	40	2.2
Complications of internal orthopaedic prosthetic devices, implants and grafts	63	6.3	104	12.8	167	9.2
Complications of other prosthetic devices, implants and grafts	23	2.3	12	1.5	35	1.9
Failure and rejection of transplanted organs and tissues	48	4.8	35	4.3	83	4.6
Complications peculiar to reattachment and amputation	27	2.7	20	2.5	47	2.6
Other complications of surgical and medical care, not elsewhere classified	..	..	..	..	12	0.7
No T80–T88 code present	44	4.4	50	6.1	94	5.2
Total	995	100	814	100	1,809	100

.. Cell counts in tables that are 5 cases or fewer have been suppressed, as have percentages derived from them, to protect confidentiality.

3.3 External causes

Table 3.3 shows the external causes of injury for deaths occurring due to complications of surgical and medical care in 2004–05. Just over 84% ($n = 1,522$) of these deaths were coded to Y83, *Surgical operation and other surgical procedures as a cause of abnormal reaction of the patient, or of later complication, without mention of misadventure at the time of the procedure*. Of these 1,522 deaths, 18% ($n = 276$) involved partial or total removal of undefined organs, 17% ($n = 258$) involved a surgical operation with an implant of an artificial internal device, and 17% ($n = 257$) involved a surgical operation with anastomosis, bypass or graft. 10% ($n = 156$) involved surgical procedures which were not defined.

Almost 11% ($n = 192$) of all complication related deaths were coded to Y84, *Other medical procedures as a cause of abnormal reaction of the patient, or of later complication, without mention of misadventure at the time of the procedure*. Of these 192 deaths, 26% ($n = 50$) involved urinary catheterisation, and 14% ($n = 26$) involved kidney dialysis. 50% ($n = 95$) involved medical procedures which were not defined.

Table 3.3: External causes of injury for complications of surgical and medical care deaths, Australia 2004–05

Type of complication	Males		Females		Persons	
	Count	Per cent	Count	Per cent	Count	Per cent
Primarily systemic agents	..	..	..	..	10	0.6
Agents primarily affecting blood constituents	8	0.8	11	1.4	19	1.1
Other and unspecified drugs and medicaments	7	0.7	8	1.0	15	0.8
Surgical operation and other surgical procedures as a cause of abnormal reaction of the patient, or of later complication, without mention of misadventure at the time of the procedure	839	84.3	683	83.9	1,522	84.1
Other medical procedures as a cause of abnormal reaction of the patient, or later complication, without mention of misadventure at the time of the procedure	115	11.6	77	9.5	192	10.6
Sequelae with surgical and medical care as external cause	..	..	9	1.1	..	..
Other external cause categories	16	1.6	17	2.1	33	1.8
No external cause code present	..	..	..	..	..	..
Total	995	100	814	100	1,809	100

.. Cell counts in tables that are 5 cases or fewer have been suppressed, as have percentages derived from them, to protect confidentiality.

3.4 Age and sex distribution

Figure 3.1 shows age and sex distribution for deaths attributed to complications of surgical and medical care in 2004–05. Higher death rates are concentrated in older age groups and increase almost exponentially in both males and females from about 60 years of age onwards. Male rates are markedly higher than female rates in all age groups from 55–59 years onwards.

