

10 Colorectal cancer

Disease characteristics

Colorectal or bowel cancer starts in the large intestine or the rectum. It is usually detected through the presence of blood in faeces, bowel obstruction or the detection of secondary tumours in other organs. A colonoscopy or sigmoidoscopy with a biopsy usually confirms the cancer. Once colorectal cancer is confirmed it is usually treated by removing the affected part of the bowel, followed by radiotherapy or chemotherapy depending on the extent of the disease.

Although some colorectal cancers are hereditary, the main risk factor for colorectal cancer is a diet high in meat and fat, and low in fruits, vegetables and grains.

The Bowel Cancer Screening Taskforce of the Commonwealth Department of Health and Aging is currently running the Bowel Cancer Screening Pilot Program, with a screening program being planned to begin in 2002.

An estimated 1 in 43 males and 1 in 71 females will die from colorectal cancer before the age of 75. The 5-year survival rate for colorectal cancer is about 55% in Australia (AIHW & AACR 2000). This compares favourably with the rates for England and Wales (39% in 1990), Europe (45% in 1989) and USA (61% in 1990) (Coleman et al. 1999). Colorectal cancer was responsible for about 19,000 PYLL for males and about 14,000 PYLL for females in 1998. It was ranked seventh on this measure for males and sixth for females.

Historic view

Colorectal cancer is the second most common cause of cancer deaths and is responsible for 4% of all deaths, with rates of 288 and 198 per million population for males and females respectively in 1998. This corresponds to 2,605 male deaths and 2,311 female deaths.

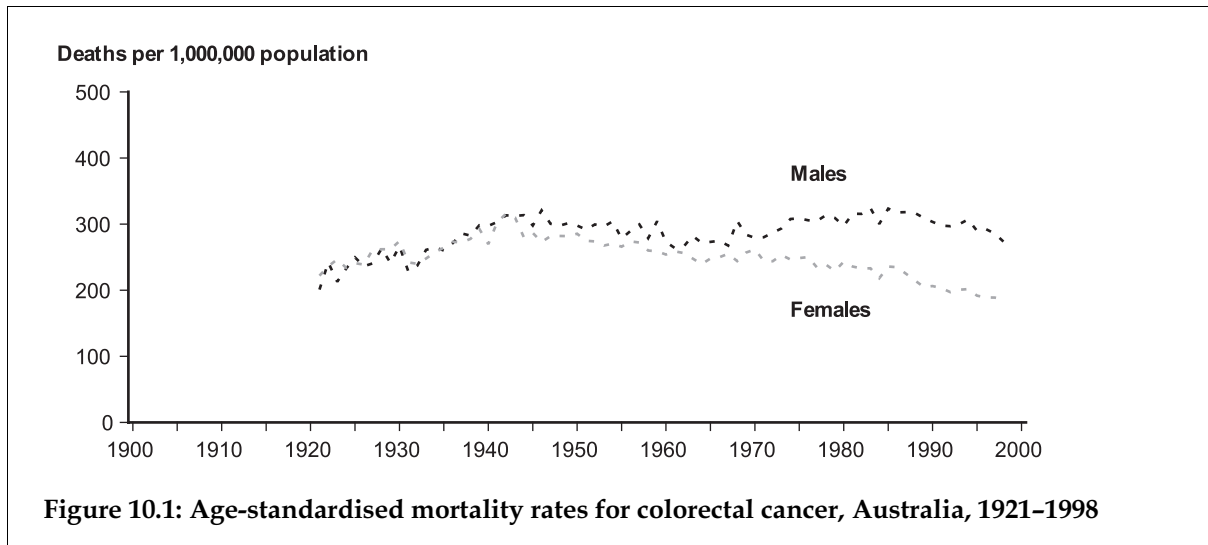
Recording of colorectal cancer began in 1921 after the third revision of the ICD. In 1921, colorectal mortality rates were 201 deaths per million population for males and 222 for females. The numbers of deaths were 303 males and 311 females.

Colorectal cancer mortality rates fluctuated over the following decades, beginning with an initial increase in rates between the 1920s and 1940s for males and females. After the early 1940s and the initial increase, differences between the male and female patterns in mortality rates began to appear. For males, the initial increase was followed by a decrease in rates between the early 1940s (321 deaths per million population) and early 1960s (259), before another increase between the early 1960s and late 1980s (323). Since the late 1980s, colorectal cancer mortality rates have been decreasing. For females the initial increase in mortality rates was followed by a general decrease from the early 1940s (310 deaths per million population) that is still continuing (Figure 10.1).

The overall decrease in colorectal cancer mortality rates has resulted from a combination of factors:

- identifying families at higher risk due to inherited genetic characteristics (e.g. familial adenomatous polyposis);
- improved diet;

- more timely diagnosis (faecal occult blood tests and colonoscopy); and
- improved clinical management (Ireland & Giles 1993).



Age–sex distribution

In 1998, 82% of male deaths occurred from the age of 60 and 38% occurred from age 75. For females, 84% of deaths occurred from age 60 onwards and 50% occurred from age 75. The age distribution for risk of colorectal cancer death has been consistent over the 1987–1998 period with deaths from colorectal cancer occurring in later life (Table 10.1).

Twelve-year trends 1987–1998

Over the 1987–1998 period, there has been a small but significant downward trend in colorectal cancer mortality rates in males of about 1.1% per year, while for females no significant decrease in mortality rates was detected (Figure 10.2). However, there were significant declines in colorectal cancer rates for some age groups, males and females aged 45–54 years – the ages at which screening trials have been targeted, males and females aged 75 years and older, and males aged 60–64 years (Table 10.1).

Geographical differences in mortality

As discussed in Chapter 4, regional differences are a complex interplay of many factors including socioeconomic status, occupational and environmental risk, migrant population, Aboriginal and Torres Strait Islander population, and proportion of the population living in rural and remote areas. Areas with a higher proportion of Aboriginal and Torres Strait Islander people will have higher mortality rates because of the higher mortality rates experienced by the Aboriginal and Torres Strait Islander population. Some of these factors are discussed separately below.

State and Territory comparison

The rates of colorectal cancer decreased between the periods 1987–1991 and 1994–1998 for males and females in all States and Territories except for males in Western Australia, and

females in Tasmania and the Northern Territory (Table 10.2). The mortality rate for colorectal cancer also showed some variation among the States and Territories. During the 1987–1991 period, compared with the national colorectal cancer mortality rate:

- The mortality rate for males in Victoria was significantly higher.
- The mortality rate for males in Western Australia was significantly lower.
- Mortality rates for females in Victoria and South Australia were significantly higher.
- Mortality rates for females in New South Wales and Western Australia were significantly lower.

During the 1994–1998 period:

- Mortality rates for males in Victoria and Tasmania were significantly higher.
- Mortality rates for females in Victoria, South Australia and Tasmania were significantly higher.
- Mortality rates for females in New South Wales and Western Australia were significantly lower.

Geographic category (by metropolitan, rural and remote area)

For 1995–1997, the mortality rate was highest for males in rural areas, although the differences among the geographical areas were not statistically significant. For females, there were significant differences between all areas, with the mortality rate highest in rural areas (219 deaths per million population) followed by those in metropolitan (194) and remote areas (150) (Table 10.3).

Country of birth

For the period 1992–1994, the world-standardised mortality rate for colorectal cancer for Australian males and females born in Australia was 246 deaths per million population for males and 177 deaths per million population for females (Table 10.5).

- Of the 25 countries of birth analysed for Australian males and females, none had significantly higher mortality rates for colorectal cancer than Australian males and females born in Australia.

Socioeconomic status

For the period 1995–1997 there were no clear trends in colorectal cancer mortality rates by socioeconomic status for either males or females. Mortality rates across the five SEIFA groups varied by less than 8% for males and females, using the SEIFA Index of Relative Socioeconomic Disadvantage (Table 10.4) (see Appendix D).

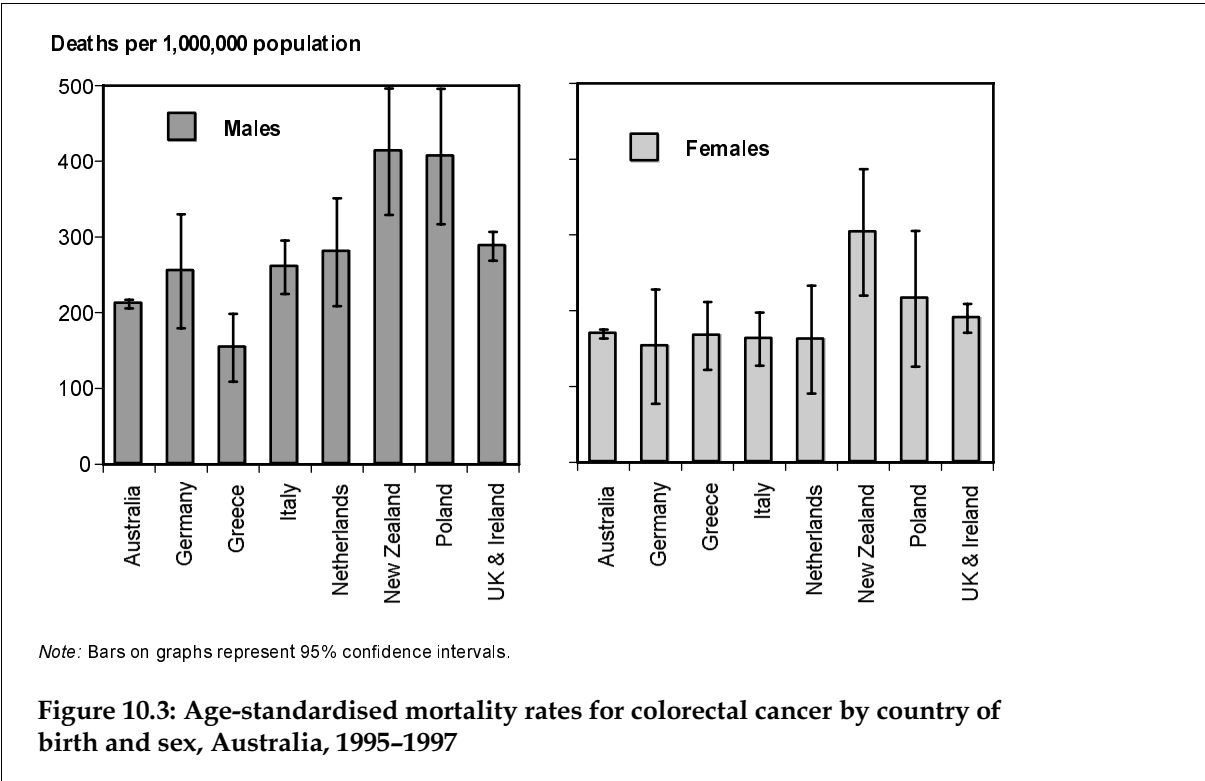
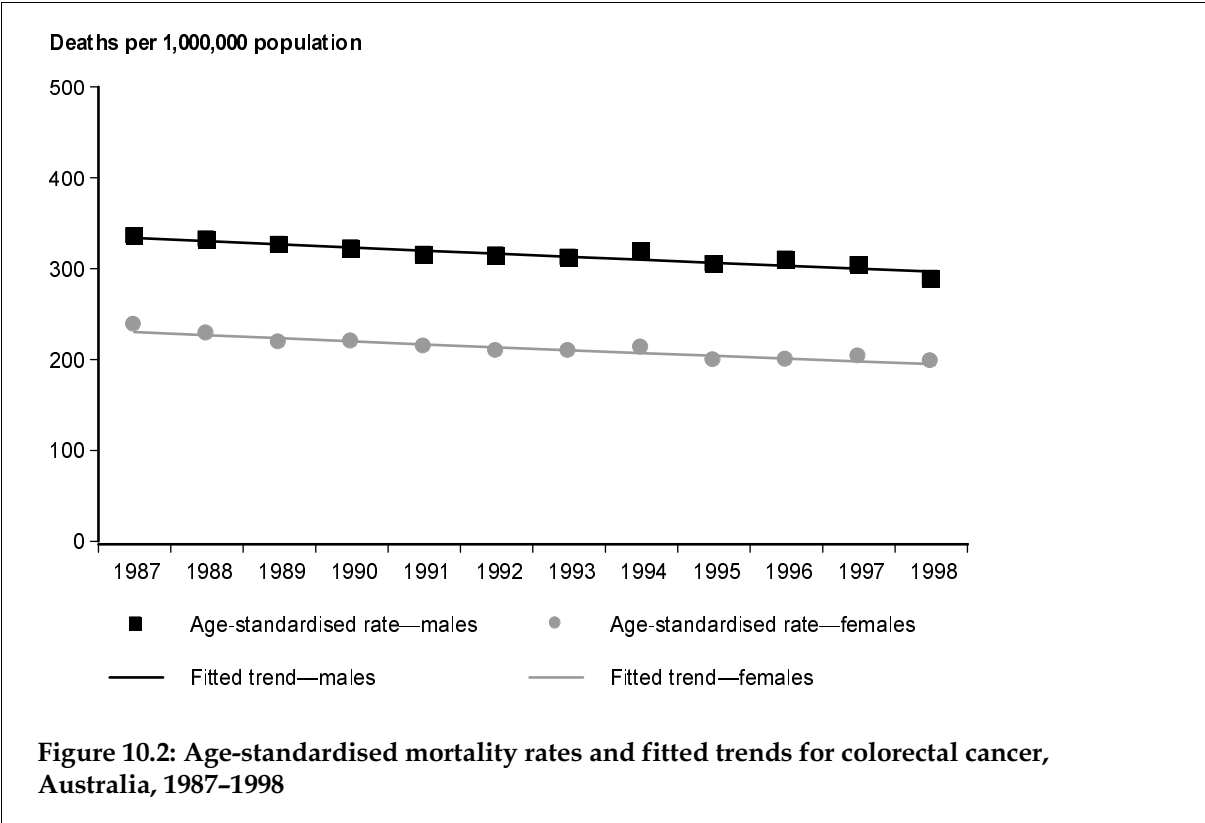


Table 10.1: Age-specific and age-standardised mortality rates for colorectal cancer per million population, Australia, 1987–1998

Year	Age																	ASMR		
	0-4	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65-69	70-74	75-79	80-84	85+	Crude rate	Augst 1991
Males																				
1987	0	0	0	0	1	6	14	22	52	177	346	507	971	1,194	1,747	2,535	3,396	4,303	278	335
1988	0	0	2	1	3	3	14	20	54	148	343	549	972	1,095	1,754	2,514	3,483	4,223	278	332
1989	0	0	0	0	0	3	9	26	68	143	293	533	921	1,225	1,626	2,243	3,503	4,627	274	326
1990	0	0	0	0	0	8	9	21	67	133	250	496	856	1,332	1,785	2,504	3,120	3,873	276	322
1991	0	0	0	1	0	4	13	24	70	133	327	504	856	1,187	1,685	2,346	3,151	3,890	274	315
1992	0	0	0	0	0	1	11	18	55	125	332	543	811	1,188	1,634	2,302	3,112	4,435	276	314
1993	0	0	0	0	0	6	11	22	55	133	261	521	866	1,231	1,524	2,431	2,897	4,429	278	312
1994	0	0	2	0	4	6	10	19	68	114	270	609	895	1,381	1,710	2,211	2,953	3,810	292	319
1995	0	0	0	0	1	1	8	20	51	126	254	482	840	1,214	1,733	2,147	2,992	4,087	282	305
1996	0	0	0	0	0	6	8	17	49	99	263	481	882	1,357	1,822	2,105	2,966	3,814	291	310
1997	0	1	0	0	3	4	9	19	50	114	246	499	894	1,189	1,779	2,282	2,681	3,804	291	304
1998	0	0	2	0	3	7	16	26	56	117	186	476	786	1,130	1,667	1,980	3,129	3,550	280	288
Females																				
1987	0	0	0	0	0	16	12	27	63	128	296	406	559	810	1,168	1,579	2,448	3,591	261	238
1988	0	0	0	0	0	0	3	30	61	142	254	440	546	805	1,140	1,729	2,108	3,016	251	228
1989	0	0	0	1	5	4	13	22	49	129	247	360	564	747	1,099	1,583	1,951	3,333	243	219
1990	0	0	0	0	6	3	12	21	53	111	284	356	558	786	1,134	1,495	1,952	3,314	245	219
1991	0	0	0	2	1	4	14	18	53	107	242	321	503	831	1,035	1,552	2,097	3,181	243	214
1992	0	0	0	0	0	4	8	25	61	134	217	355	501	717	1,101	1,371	2,120	3,087	240	209
1993	0	0	0	2	4	4	7	26	54	99	205	375	534	706	1,090	1,448	1,996	3,209	244	209
1994	0	0	0	0	0	6	11	14	49	97	172	407	588	801	1,084	1,396	1,890	3,451	252	213
1995	0	0	0	0	3	1	10	25	57	78	193	341	485	751	988	1,440	1,920	2,963	238	199
1996	0	0	0	0	1	7	15	19	43	105	197	336	516	682	1,046	1,403	1,959	2,903	242	199
1997	0	0	2	0	3	6	11	19	36	92	202	387	529	750	1,046	1,303	1,992	3,062	250	203
1998	0	0	0	3	2	1	10	18	52	109	172	307	510	744	1,044	1,508	1,706	2,855	246	198

Note: ASMR = age-standardised mortality rate.

Table 10.2: Number of deaths and age-standardised mortality rates for colorectal cancer per million population, States and Territories, 1987–1991 and 1994–1998

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Australia
Males									
	Deaths								
1987–1991	4,006	3,267	1,857	889	1,031	354	120	31	11,555
1994–1998	4,364	3,557	2,248	1,133	1,149	406	158	47	13,063
	Deaths per million population								
1987–1991	320	364	311	269	349	350	338	269	326
1994–1998	292	334	299	293	308	345	318	234	305
	Confidence intervals (95%)								
1987–1991	310–330	351–377	297–326	251–287	327–371	313–387	272–405	157–381	320–332
1994–1998	283–301	323–345	287–312	276–310	290–326	311–379	266–369	153–315	299–310
Females									
	Deaths								
1987–1991	3,465	3,038	1,609	855	1,017	324	108	28	10,444
1994–1998	3,721	3,169	1,869	938	1,055	385	120	34	11,292
	Deaths per million population								
1987–1991	207	249	217	195	266	248	247	189	223
1994–1998	189	221	201	183	222	255	193	212	202
	Confidence intervals (95%)								
1987–1991	200–214	240–258	206–227	182–208	249–282	221–275	200–294	111–268	219–228
1994–1998	183–195	213–229	191–210	171–195	209–236	229–281	158–228	134–290	198–206

Table 10.3: Age-standardised mortality rates for colorectal cancer per million population, by geographic area, 1995–1997

Geographic area	Males		Females	
	ASMR	95% confidence interval	ASMR	95% confidence interval
Metropolitan	301	293–309	194	188–200
Rural	318	305–331	219	209–228
Remote	291	243–338	150	117–184

Note: ASMR = age-standardised mortality rate.

Source: AIHW Mortality Database, based on *Statistical Local Area* resident population estimates compiled by the ABS.

Table 10.4: Age-standardised mortality rates for colorectal cancer per million population, by socioeconomic status, 1995–1997

SEIFA quintile	Males		Females	
	ASMR	95% confidence interval	ASMR	95% confidence interval
1 High SES	294	279–309	197	186–207
2	305	289–321	201	190–212
3	320	304–335	197	186–208
4	310	294–325	205	194–216
5 Low SES	302	288–317	203	192–214

Notes

1. ASMR = age-standardised mortality rate; SES = socioeconomic status.

2. A description of the SEIFA Index of Relative Socioeconomic Disadvantage may be found in Appendix D.

Source: AIHW Mortality Database, based on *Statistical Local Area* resident population estimates compiled by the ABS.

Table 10.5: Age-standardised mortality rates per million population for colorectal cancer, Australians by birthplace, 1992–1994

Males			Females		
Country of birth	ASMR (world)	95% CI	Country of birth	ASMR (world)	95% CI
New Zealand	288	231–345	New Zealand	215	166–264
Israel	283	0–621	Australia	177	171–182
Poland	273	201–346	Canada	170	43–296
France	250	59–440	France	154	29–279
Hong Kong and Macau	247	75–420	Poland	139	95–183
Australia	246	239–252	USA	139	37–240
USA	246	123–368	United Kingdom and Ireland	127	116–138
Austria	230	132–328	Greece	115	83–148
Finland	220	42–397	Hungary	112	56–168
United Kingdom and Ireland	190	177–203	Netherlands	111	77–145
Netherlands	184	140–229	Italy	110	91–128
Italy	174	152–197	Austria	105	4–205
Singapore	172	2–341	China	104	62–146
Hungary	163	99–227	Malta	104	55–152
Germany	160	116–204	Singapore	102	0–209
Chile	156	0–357	Germany	97	70–124
China	154	103–204	Hong Kong and Macau	95	4–186
Malta	143	86–200	Israel	94	0–225
Greece	111	82–140	Portugal	79	0–190
Canada	99	0–201	Finland	78	0–185
Mauritius	95	0–202	Chile	76	0–170
Switzerland	76	0–182	Switzerland	61	0–146
Korea	66	0–197	Japan	57	0–168
Portugal	51	0–149	Mauritius	29	0–70
Japan	31	0–93	Korea	19	0–58

Notes

1. ASMR = age-standardised mortality rate; CI = confidence interval.
2. Age-standardised mortality rates have been standardised to the World Standard Population.