

■ Kidney cancer

Cancers of the kidney currently represent 2% of all cancer cases. Tobacco smoking, and possibly obesity, are recognised risk factors (Aitchison 2001b). However, the aetiology of most cases remains unexplained. In fact, at least two sub-sites can be differentiated: cancers of the renal parenchyma and those of the renal pelvis, which may have distinct aetiologies. All sub-sites are pooled in this analysis, however.

The incidence rate of kidney cancer has increased dramatically over the observation period. Between 1956 and 1996 the average annual age standardised incidence rate has more than doubled, from 6 per 100,000 to 14 per 100,000 among males, and from 3 per 100,000 to 7 per 100,000 among females. The annual number of registrations has increased at an even faster pace, by nearly five-fold, from 44 to 208 among males and 24 to 126 among females. Over two-thirds of the increases in the registration numbers are attributable to demographic changes.

In contrast to the increasing incidence trend, kidney cancer mortality rates have varied little over the past three decades. Between 1972 and 1997 the average annual age standardised mortality rate stayed at around 6 per 100,000 among males and 3 per 100,000 among females. Over the same period, however, the annual number of kidney cancer deaths almost doubled, increasing from 53 to 92 among males and 32 to 62 among females as a result of demographic trends in the interim.

Kidney cancer risk shows the typical exponential age distribution seen with many cancer types, with three- to four-fold increases in rates between 45–64 years and 65 years and above age groups. Rates for males are roughly double those for females.

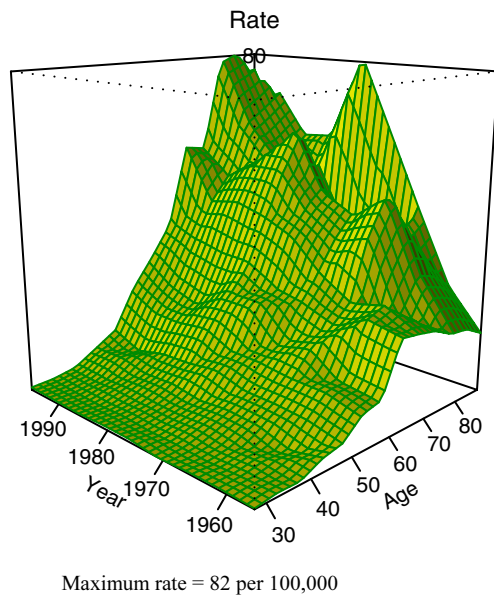
Adjusting for age, Māori have comparable incidence rates but significantly higher mortality rates for males than non-Māori (mid to late 1990s), suggesting lower kidney cancer survival among Māori males. A direct deprivation gradient is also observable in the data for males, with rates among the most deprived NZDep96 quintile as much as 70% higher than those of the least deprived quintile.

Projecting out to 2011/12, the age standardised incidence rate of kidney cancer is forecast to continue to increase, reaching 17 per 100,000 (CI 13 – 20) among males and 9 per 100,000 (CI 7 – 11) among females. The age standardised mortality rate, on the other hand, is projected to stay close to the 1997 level, at 6 per 100,000 (CI 5 – 7) and 3 per 100,000 (CI 2 – 4) among males and females, respectively.

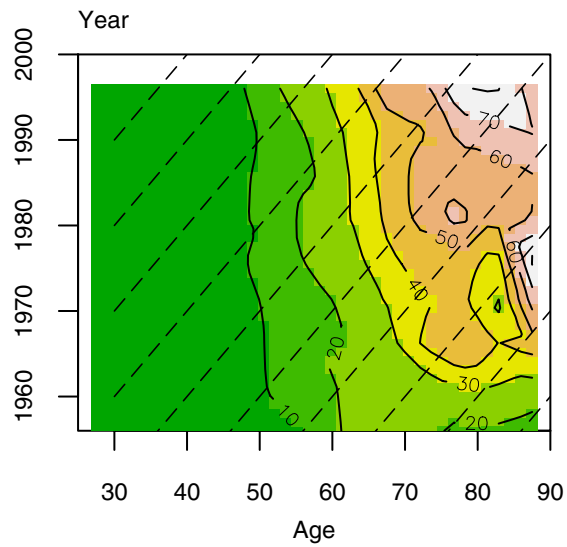
Over the same period the numbers of annual registrations and deaths is projected to continue to increase, to 362 registrations (CI 256 – 449) and 129 deaths (CI 91 – 177) among males and 226 registrations (CI 154 – 300) and 86 deaths (CI 57 – 125) among females. Increasing (incidence) or stable (mortality) risk, together with demographic trends, account for this increase in burden. Structural ageing of the population is forecast to become an increasingly important contributor to the rise in absolute burden of kidney cancer over the first decade of this century.

Figure 18.1 Historical trends in age specific rates, kidney cancer, males

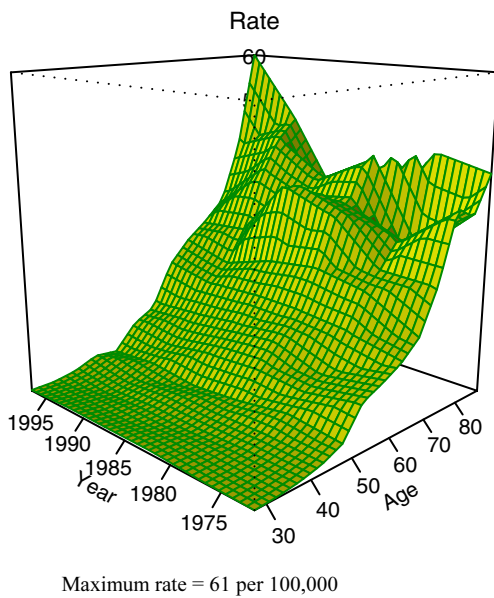
(a) Male incidence rates, perspective plot



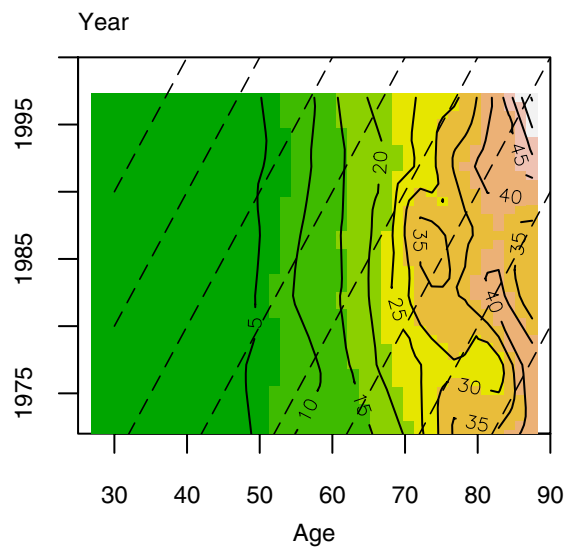
(b) Male incidence rates, contour plot



(c) Male mortality rates, perspective plot



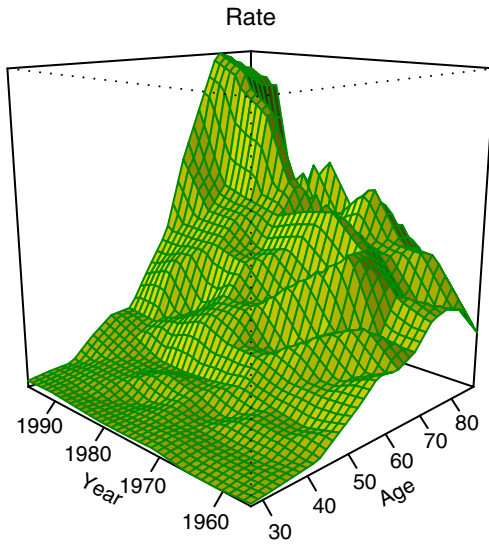
(d) Male mortality rates, contour plot



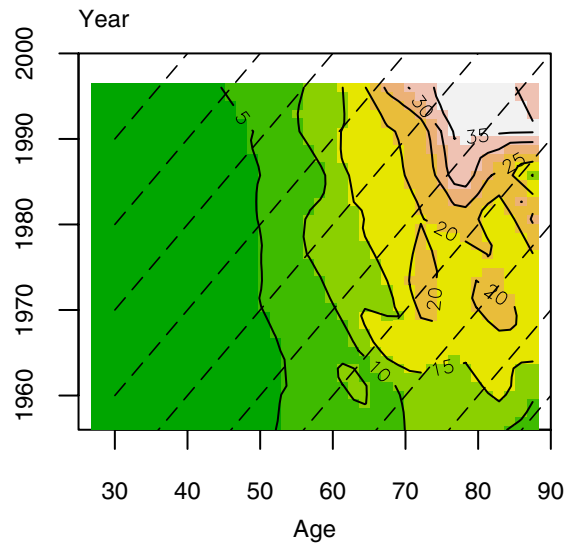
Please refer to Chapter 2 for interpretation of charts

Figure 18.2 Historical trends in age specific rates, kidney cancer, females

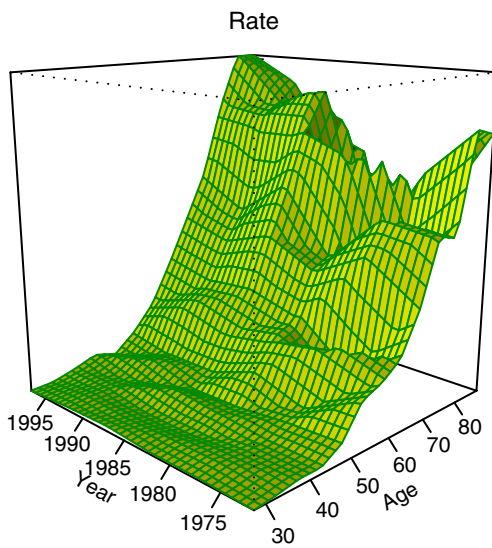
(a) Female incidence rates, perspective plot



(b) Female incidence rates, contour plot



(c) Female mortality rates, perspective plot



(d) Female mortality rates, contour plot

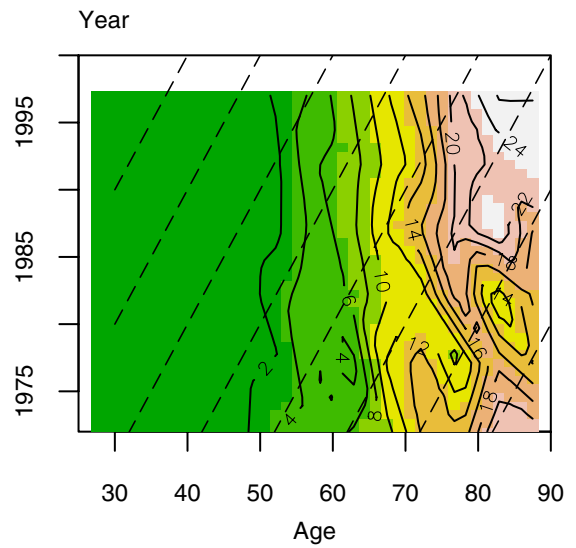
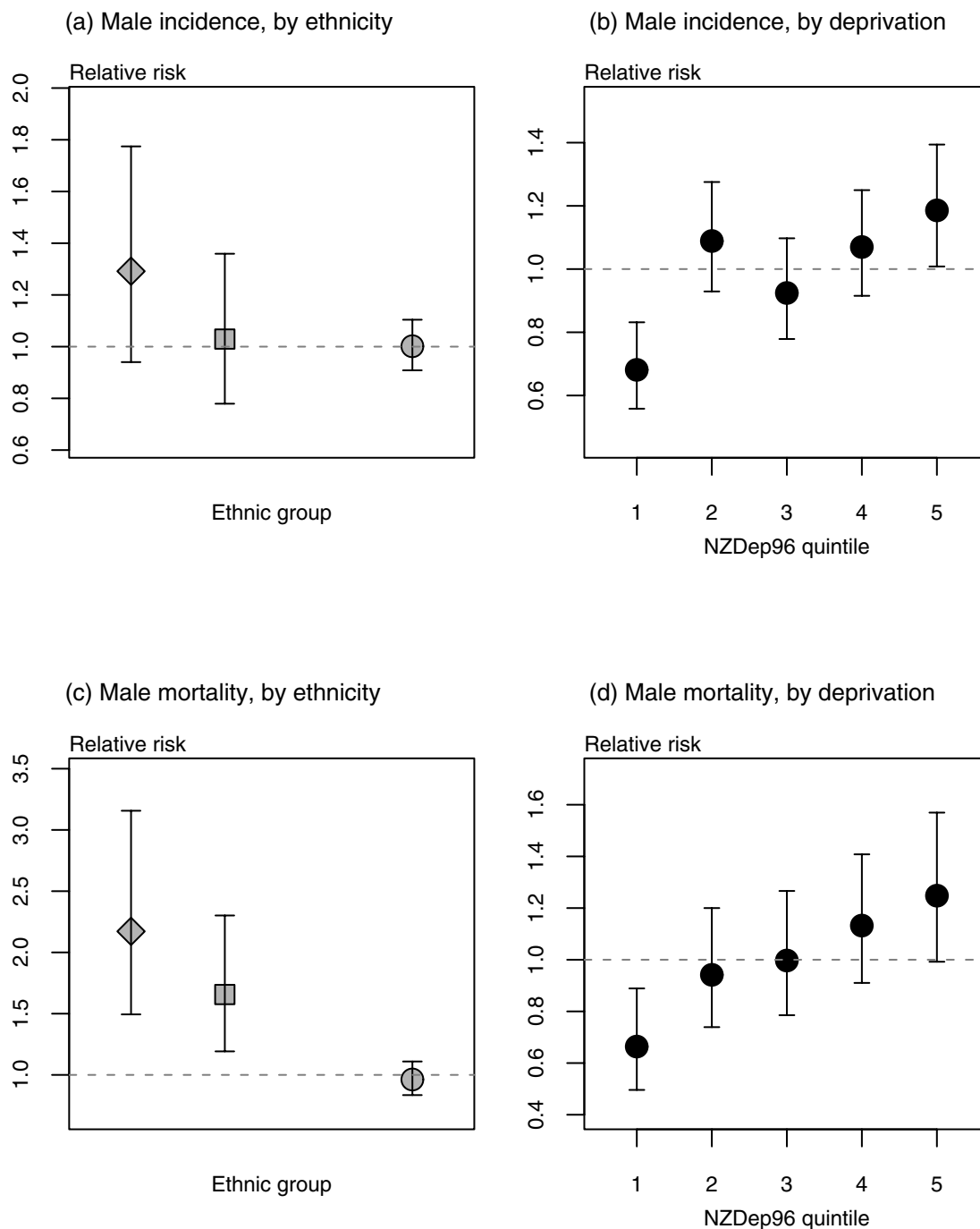


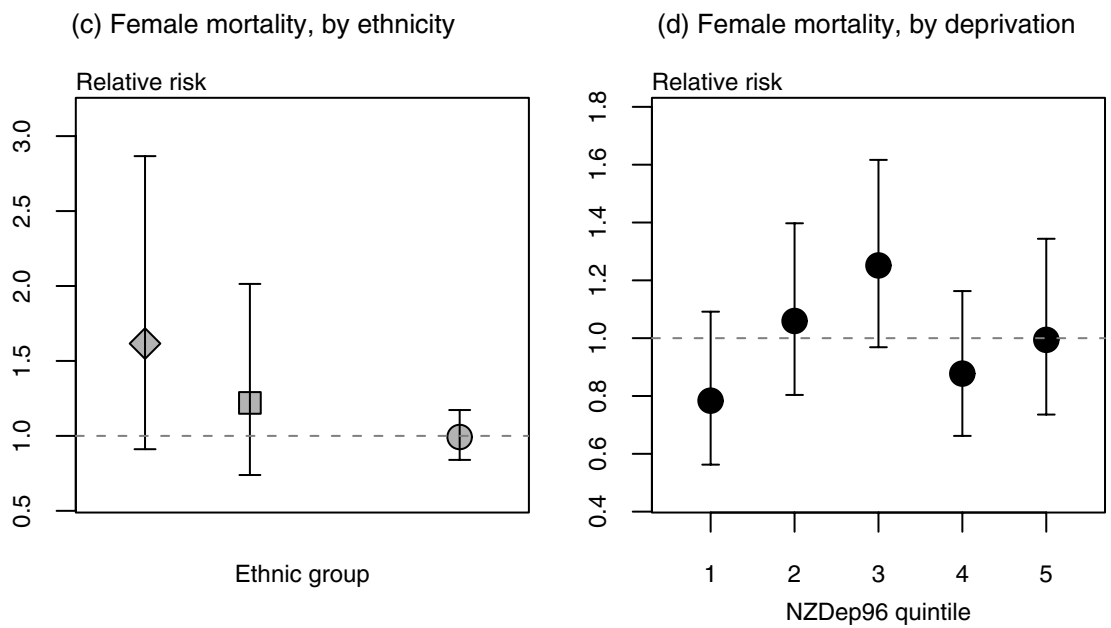
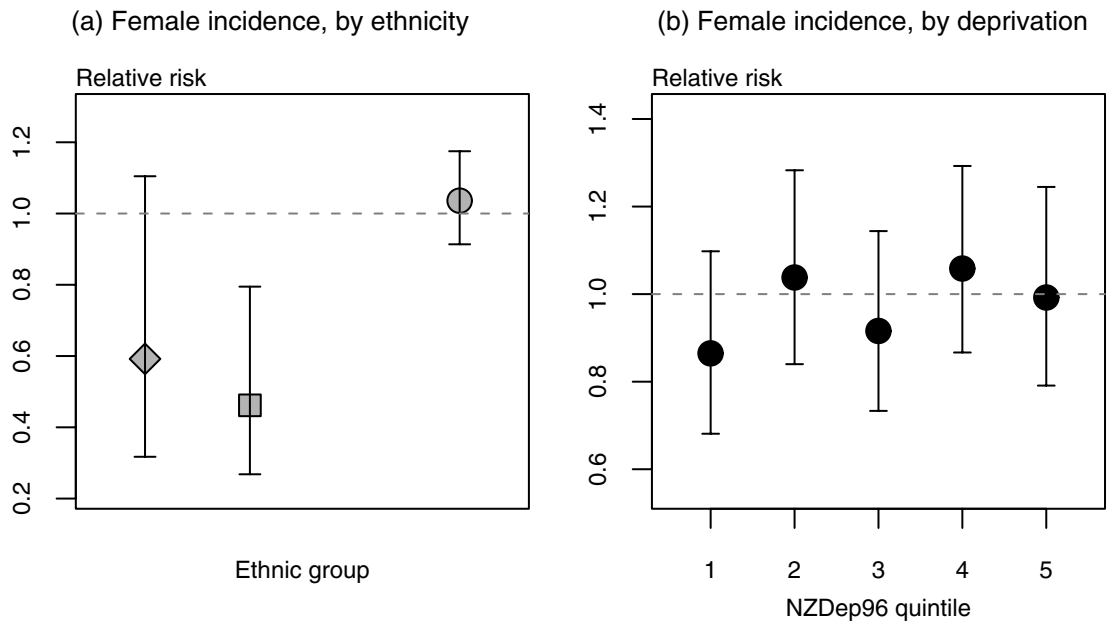
Figure 18.3 Relative risk 1996/97, kidney cancer, males



Ethnic group key:

- ◆ sole Māori
- total Māori
- non-Māori

Figure 18.4 Relative risk 1996/97, kidney cancer, females

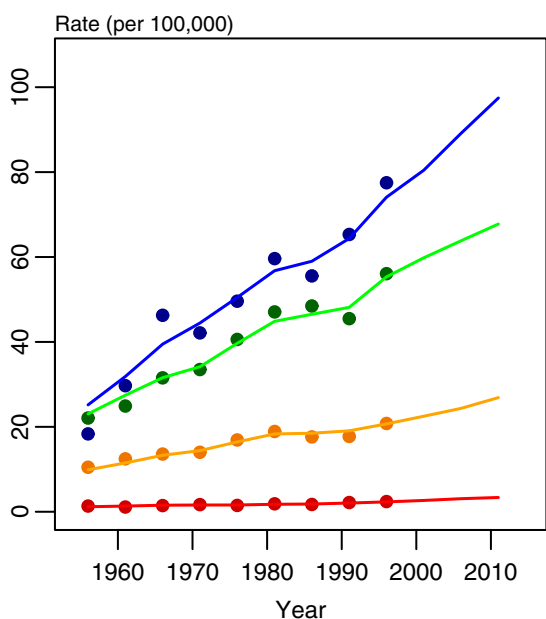


Ethnic group key:

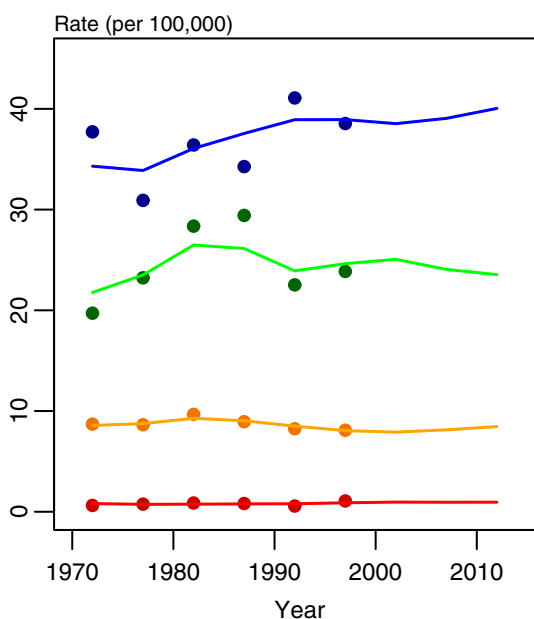
- ◆ sole Māori
- total Māori
- non-Māori

Figure 18.5 Trends and projections of life cycle stage specific rates, kidney cancer

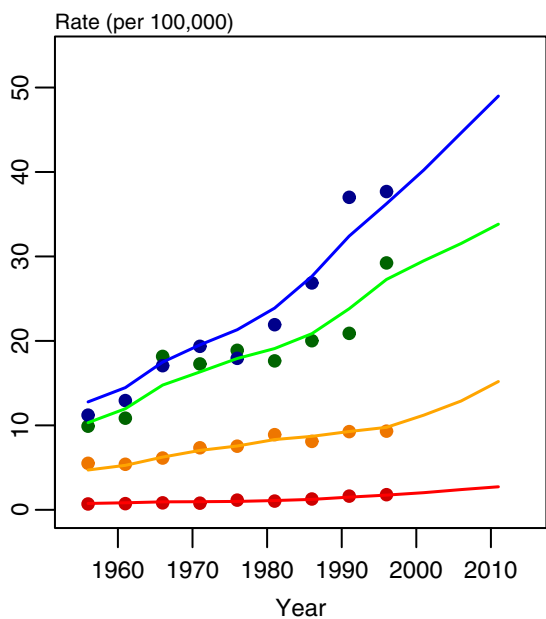
(a) Male incidence rates



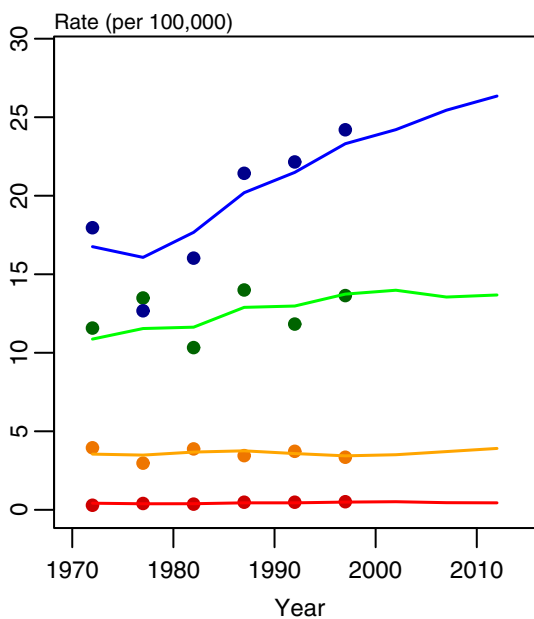
(b) Male mortality rates



(c) Female incidence rates



(d) Female mortality rates

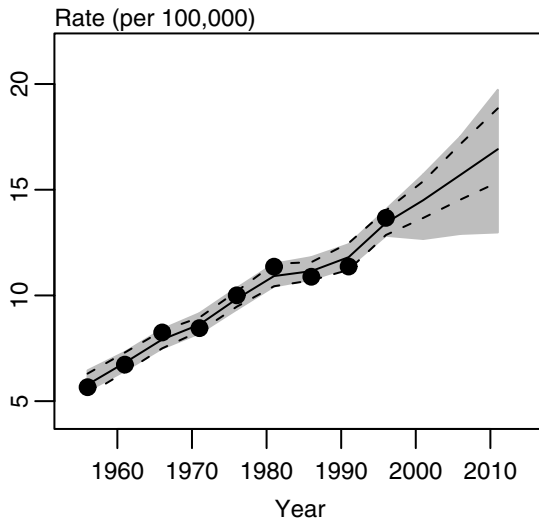


Key:

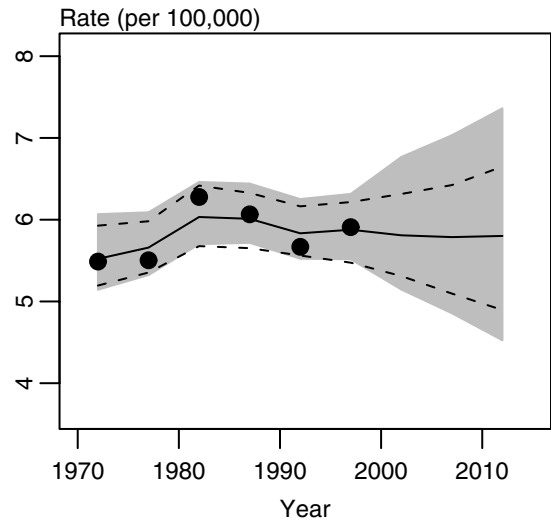
- 25-44 years
- 45-64 years
- 65-74 years
- 75 years and above

Figure 18.6 Trends and projections of age standardised rates, kidney cancer

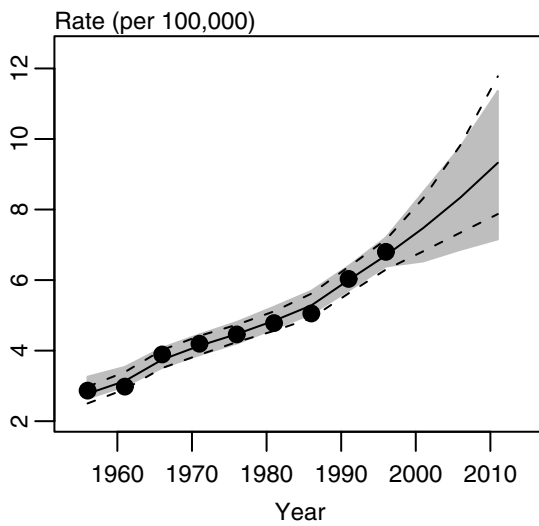
(a) Male incidence rates



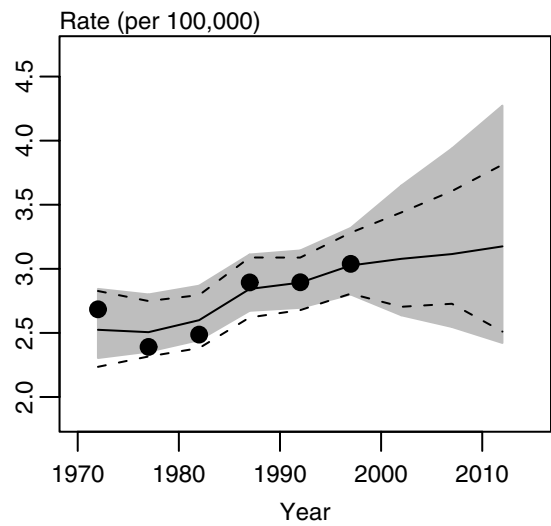
(b) Male mortality rates



(c) Female incidence rates



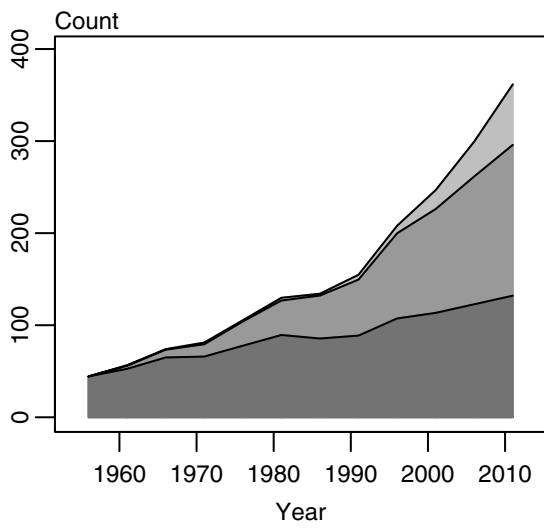
(d) Female mortality rates



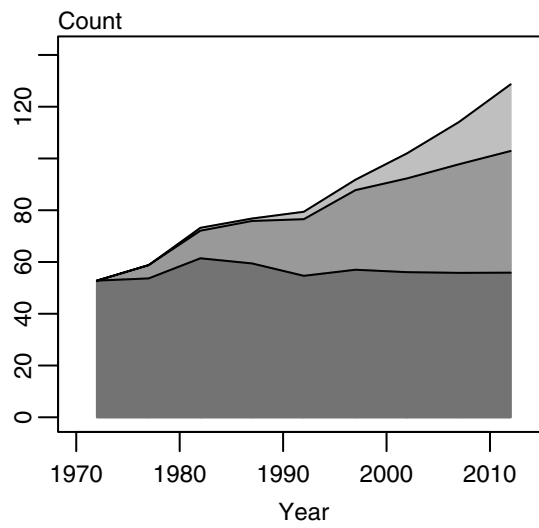
Key: ● Observed
 — Fitted and projected
 - - Minimum and maximum estimates
 ■ 90% Bayesian credible interval

Figure 18.7 Drivers of change in the cancer burden, kidney cancer

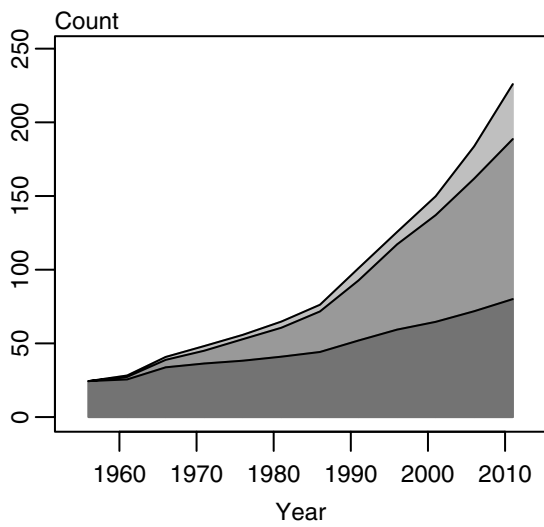
(a) Male registrations



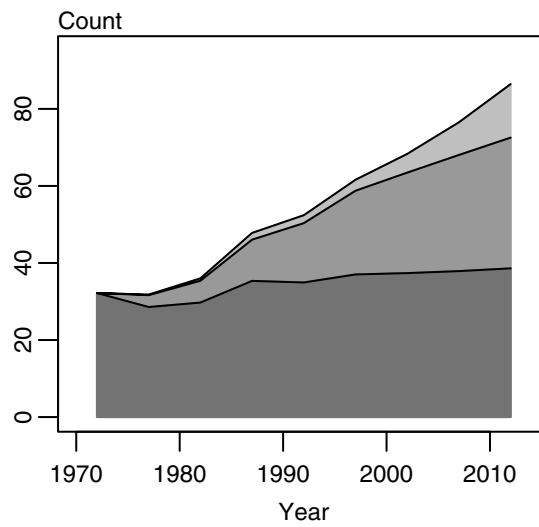
(b) Male deaths



(c) Female registrations



(d) Female deaths



Key:

- Risk effect
- Population size effect
- Population ageing effect

Table 18.1 Key results, kidney cancer

Males

	Incidence			Mortality		
	1996	2011 (CI)	change (%)	1997	2012 (CI)	change (%)
<i>Age standardised or age specific rate (per 100,000)</i>						
15+	14	17 (13 – 20)	24	6	6 (5 – 7)	-2
25–44	2	3 (2 – 4)	-	1	1 (1 – 1)	-
45–64	21	27 (19 – 33)	29	8	9 (6 – 12)	5
65+	64	80 (58 – 100)	25	29	30 (22 – 41)	3
<i>Number of cases</i>						
15+	208	362 (256 – 449)	74	92	129 (91 – 177)	40
25–44	13	18 (10 – 20)	39	6	5 (3 – 7)	-17
45–64	77	144 (102 – 179)	87	31	46 (32 – 63)	48
65+	118	199 (144 – 249)	69	55	77 (56 – 107)	40

Females

	Incidence			Mortality		
	1996	2011 (CI)	change (%)	1997	2012 (CI)	change (%)
<i>Age standardised or age specific rate (per 100,000)</i>						
15+	7	9 (7 – 11)	37	3	3 (2 – 4)	-
25–44	2	3 (1 – 3)	-	1	0 (0 – 1)	-
45–64	9	15 (10 – 19)	63	3	4 (3 – 6)	-
65+	33	41 (30 – 57)	24	19	20 (13 – 28)	5
<i>Number of cases</i>						
15+	126	226 (154 – 300)	79	62	86 (57 – 125)	39
25–44	10	15 (8 – 17)	50	3	2 (2 – 4)	-
45–64	35	85 (55 – 109)	143	13	22 (14 – 33)	69
65+	81	126 (91 – 174)	56	46	62 (42 – 88)	35

CI = 90% Bayesian credible interval

Percentage change omitted when estimate is not robust because of small numbers.

