

■ Liver cancer

Primary liver cancer is relatively uncommon, representing less than 1% of all registrations and less than 2% of all cancer deaths. Risk factors include cirrhosis and chronic hepatitis: in New Zealand hepatitis B virus (HBV) infection is especially important as a cause of chronic liver disease and hepatocellular carcinoma (Blakely et al 1999).

The incidence rates of liver cancer have increased steadily over the past three decades (if not longer). Between 1971 (when reliable data became available for this cancer) and 1996, the average annual age standardised incidence rate increased from 3 per 100,000 to 6 per 100,000 among males and from 1 per 100,000 to 2 per 100,000 among females. Over the same period the annual number of registrations almost trebled, from 30 to 89 registrations among males and 16 to 44 registrations among females. Increases in age specific rates explain less than half of the increase in the number of registrations, with the growth in size of the population accounting for the remainder.

Trends in liver cancer mortality rates largely mirror the trends in incidence, reflecting a low probability of survival with this cancer. The average annual age standardised mortality rate increased from 3 per 100,000 among males and 1 per 100,000 among females in 1972, to 5 per 100,000 and 2 per 100,000 in 1997, respectively. The annual number of deaths also increased rapidly, from 30 to 80 deaths among males and 15 to 38 deaths among females over the period 1972 to 1997. Demographic forces again were responsible for more than half of this increase.

The risk of liver cancer increases with age, but less steeply than for many other cancers. Males experience excess risk, with rates two to three times those of females.

Ethnic differentials in liver cancer risk are also marked. After controlling for age, in the mid to late 1990s, Māori liver cancer risk was two (females) to four (males) times higher than that of non-Māori. Much of the excess risk for Māori is thought to result from higher rates of chronic HBV infection experienced by this ethnic group (Blakely et al 1999). There is also strong evidence of a direct deprivation gradient in liver cancer in the mid 1990s, at least among males, with risks among the most deprived quintile being approximately four times those among the least deprived quintile.

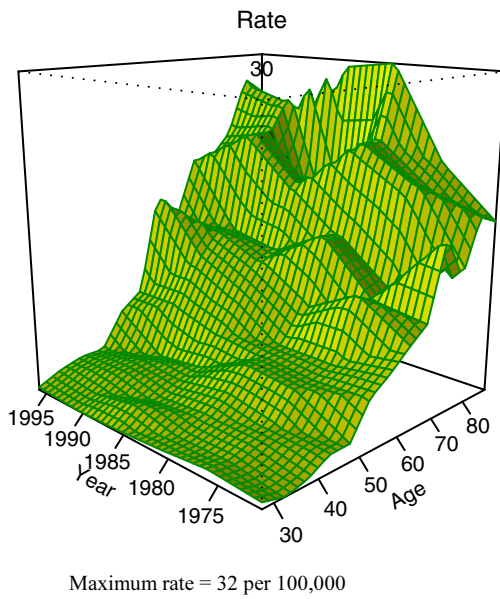
The upward trends in liver cancer incidence and mortality rates are forecast to continue to 2011/12. The age standardised incidence rate is projected to reach 8 per 100,000 (CI 7 – 11) among males and 3 per 100,000 (CI 2 – 4) among females. This increase in risk will contribute to a large increase in the annual number of registrations, which is projected to reach 158 (CI 118 – 244) among males and 73 (CI 46 – 106) among females in 2011. The corresponding forecast for mortality is for a rate of 6 per 100,000 (CI 5 – 8) or 134 deaths (CI 91 – 193) among males, and 2 per 100,000 (CI 2 – 3) or 62 deaths (CI 36 – 80) among females, in 2011/12.

Future increases in the number of liver cancer registrations and deaths will be increasingly driven by demographic trends, namely population growth and ageing. These forces are expected to be responsible for approximately two-thirds of the overall increase in the liver cancer burden from 1996/97 to the forecasting horizon.

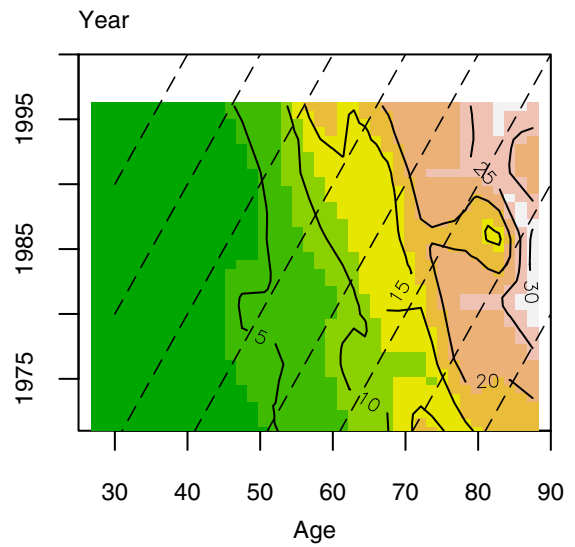
This forecast does not capture the impact of the national HBV immunisation programme, begun in the mid 1980s, or the selective screening of adults for chronic HBV infection, which began more recently (late 1990s). This is because the lag periods of these interventions are too long for them to significantly impact on the liver cancer burden before 2011/12.

Figure 22.1 Historical trends in age specific rates, liver cancer, males

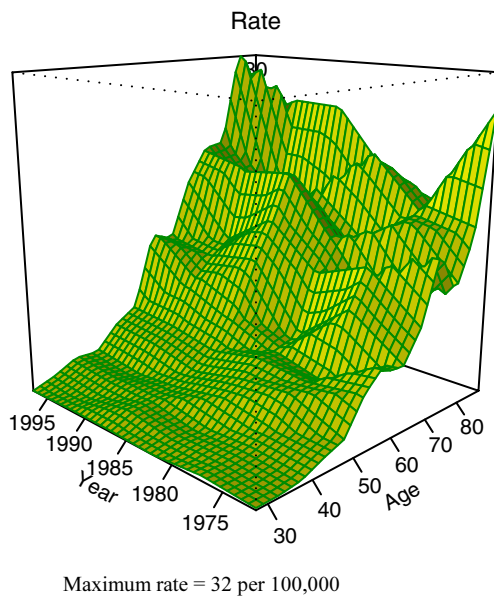
(a) Male incidence rates, perspective plot



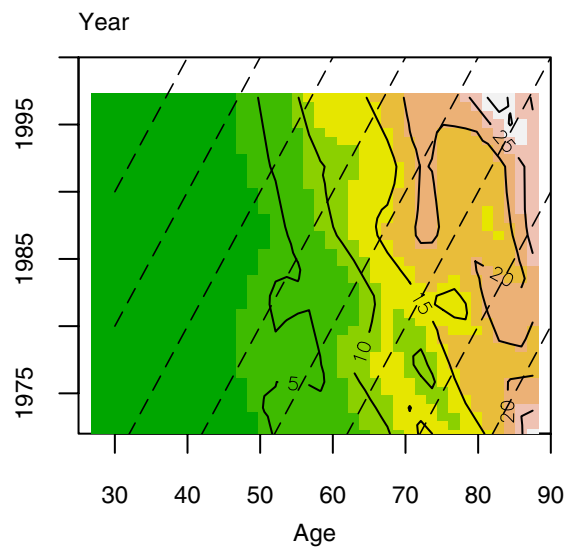
(b) Male incidence rates, contour plot



(c) Male mortality rates, perspective plot



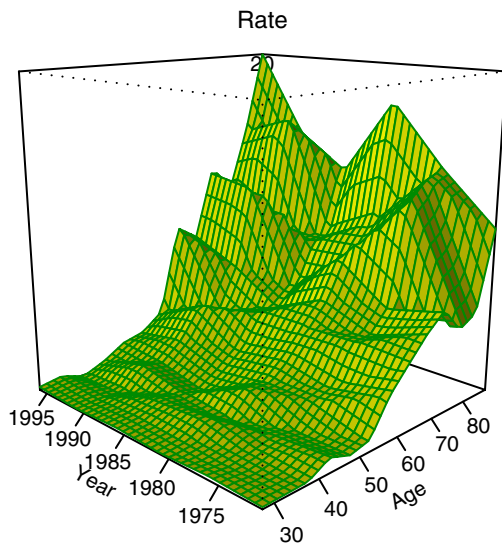
(d) Male mortality rates, contour plot



Please refer to Chapter 2 for interpretation of charts

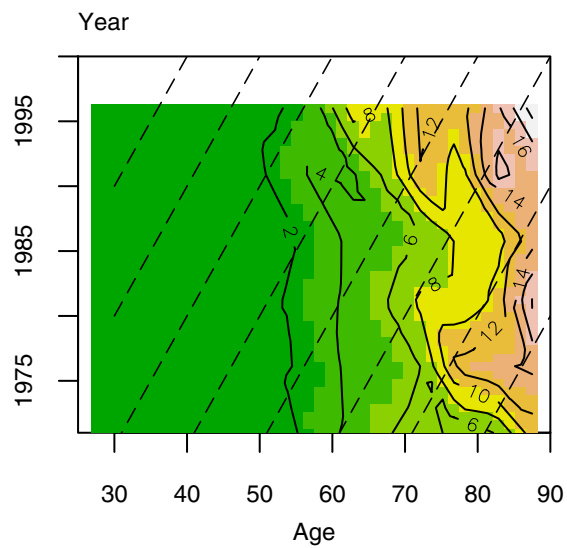
Figure 22.2 Historical trends in age specific rates, liver cancer, females

(a) Female incidence rates, perspective plot

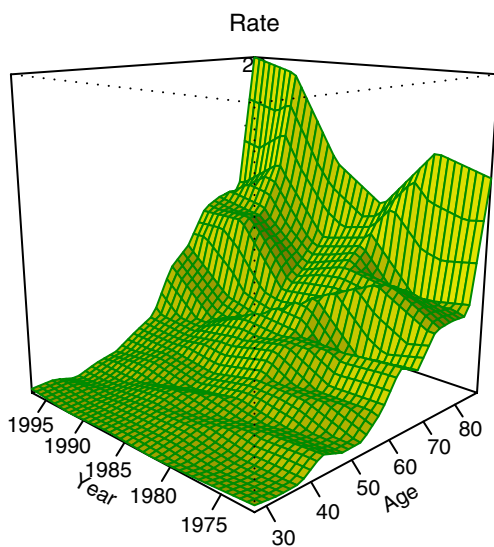


Maximum rate = 21 per 100,000

(b) Female incidence rates, contour plot



(c) Female mortality rates, perspective plot



Maximum rate = 21 per 100,000

(d) Female mortality rates, contour plot

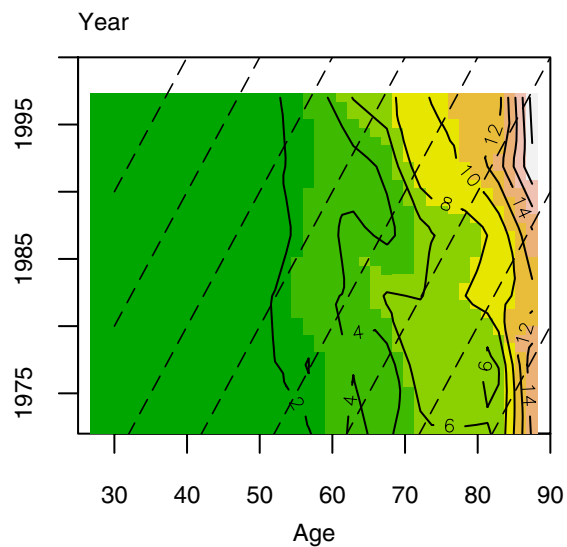
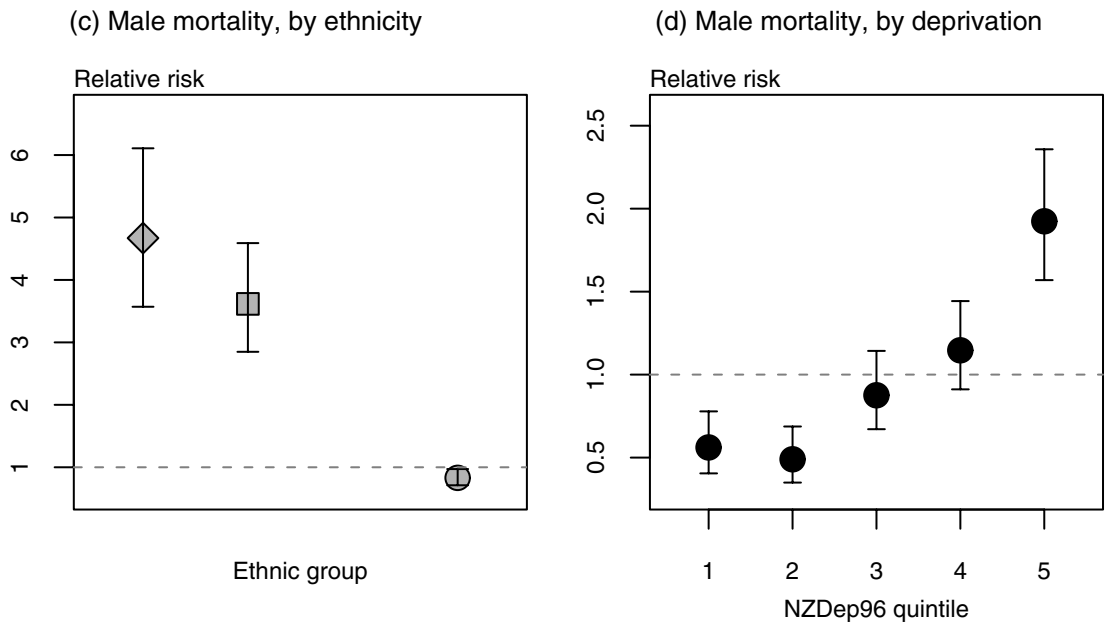
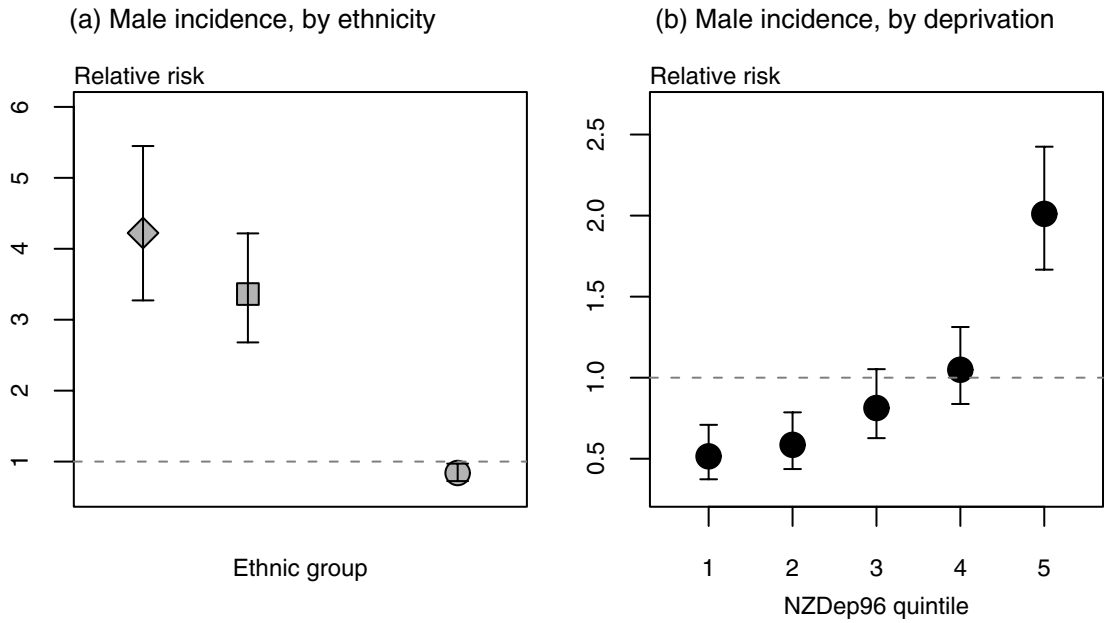


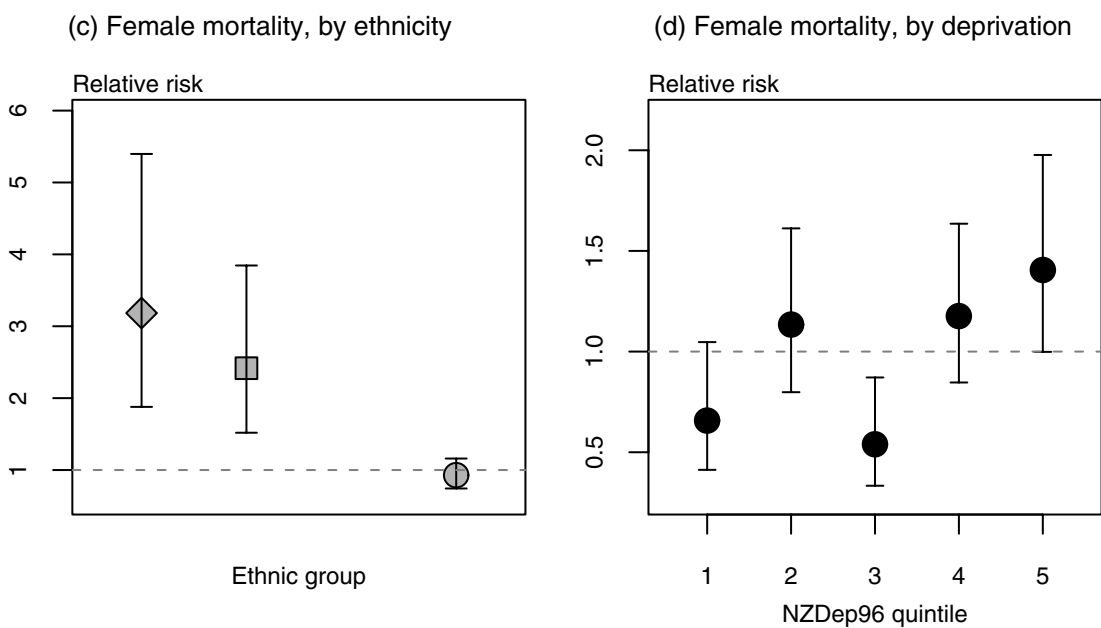
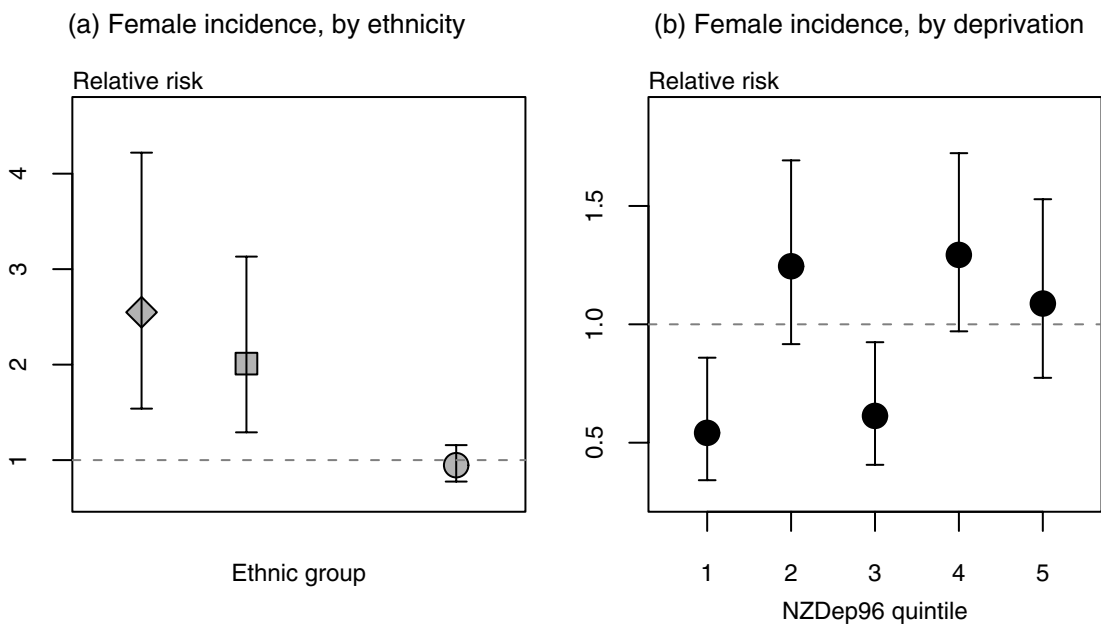
Figure 22.3 Relative risk 1996/97, liver cancer, males



Ethnic group key:

- ◆ sole Māori
- total Māori
- non-Māori

Figure 22.4 Relative risk 1996/97, liver cancer, females

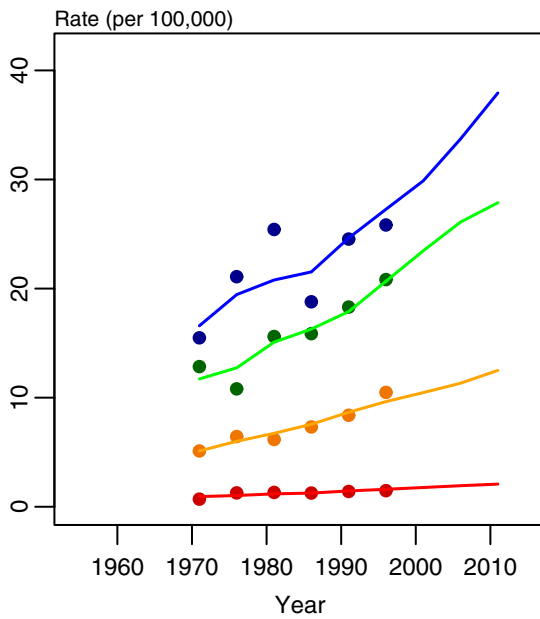


Ethnic group key:

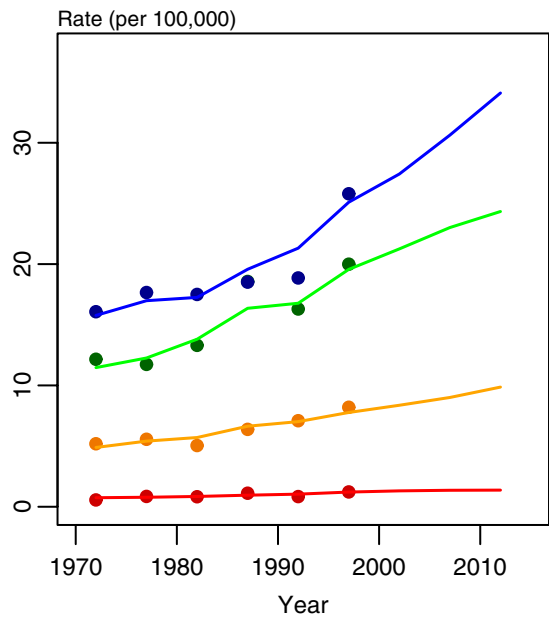
- ◆ sole Māori
- total Māori
- non-Māori

Figure 22.5 Trends and projections of life cycle stage specific rates, liver cancer

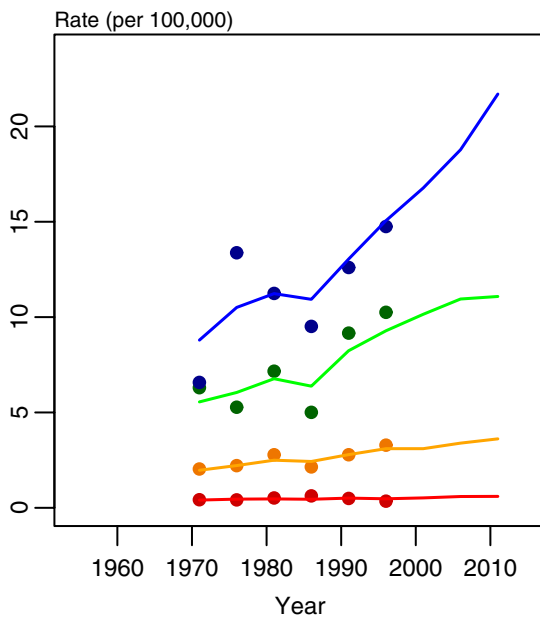
(a) Male incidence rates



(b) Male mortality rates



(c) Female incidence rates



(d) Female mortality rates

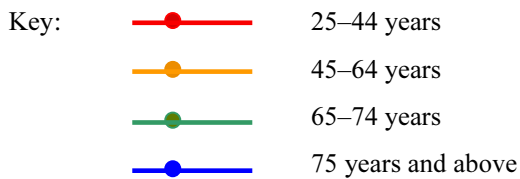
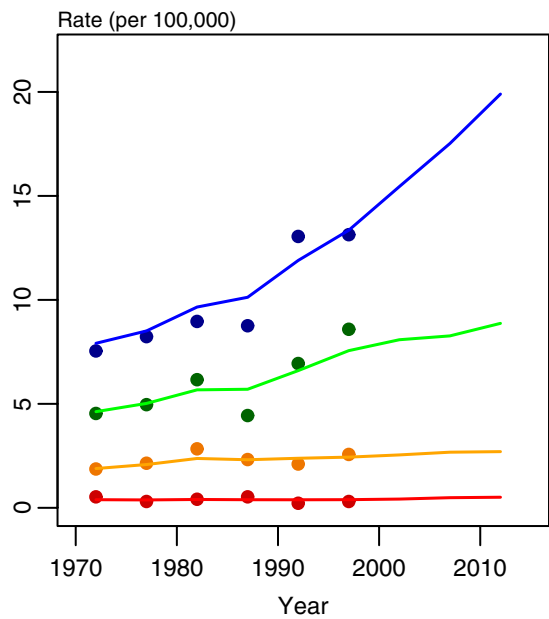
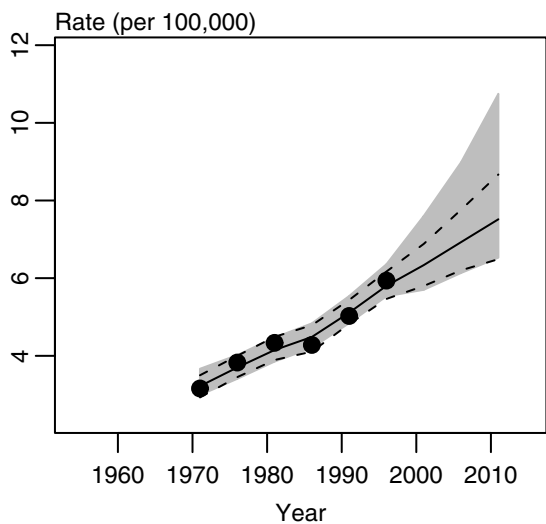
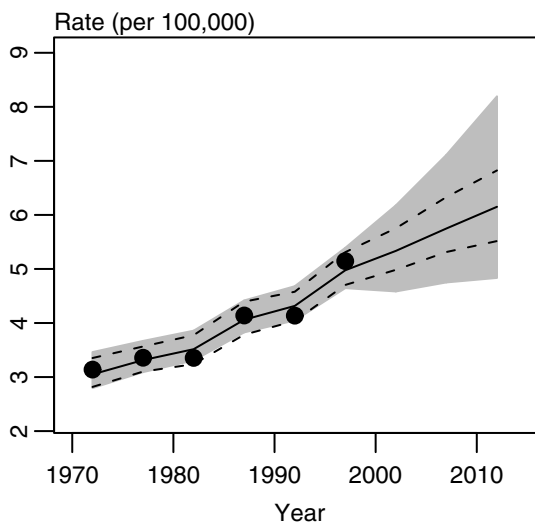


Figure 22.6 Trends and projections of age standardised rates, liver cancer

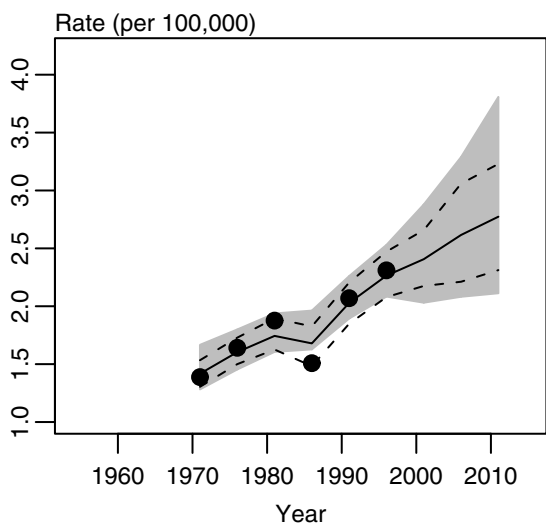
(a) Male incidence rates



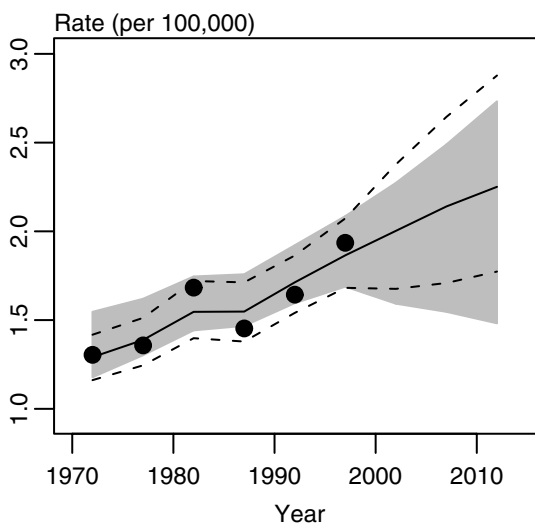
(b) Male mortality rates



(c) Female incidence rates



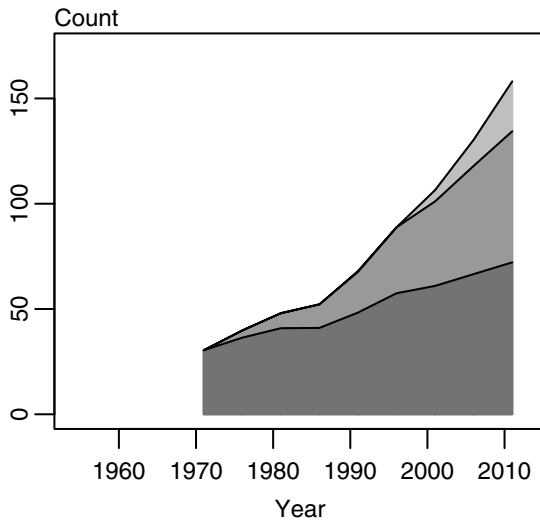
(d) Female mortality rates



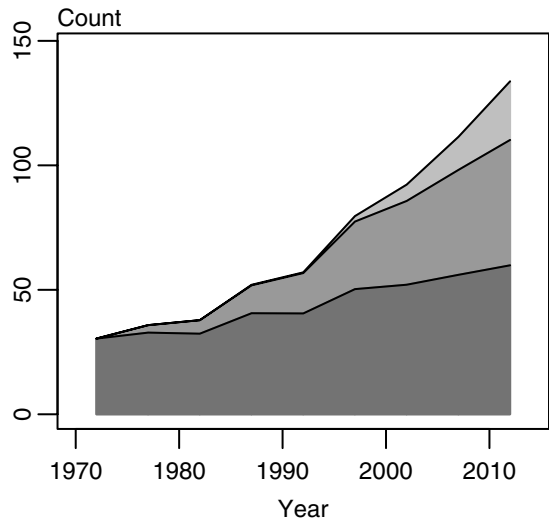
- Key:
- Observed
 - Fitted and projected
 - - Minimum and maximum estimates
 - 90% Bayesian credible interval

Figure 22.7 Drivers of change in the cancer burden, liver cancer

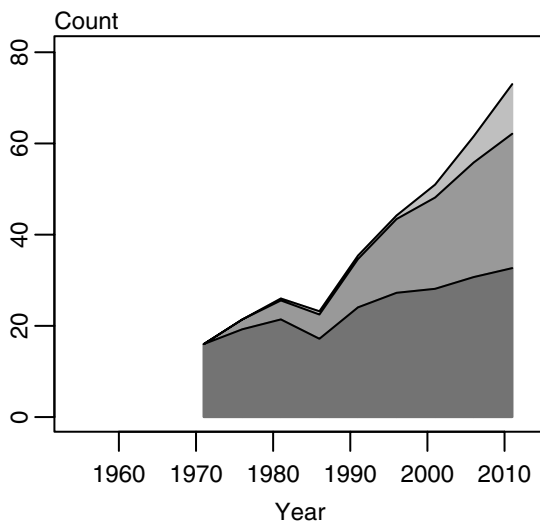
(a) Male registrations



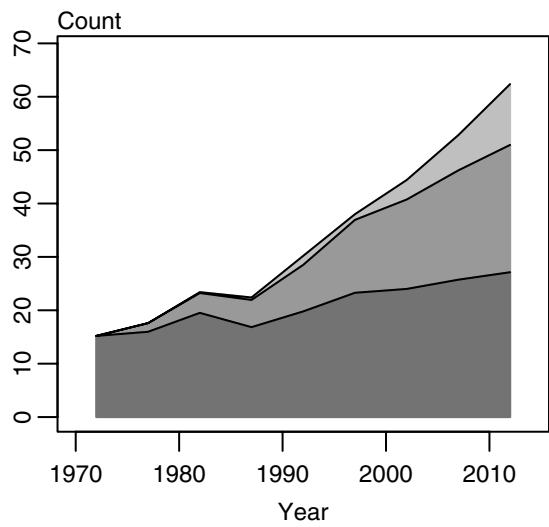
(b) Male deaths



(c) Female registrations



(d) Female deaths



Key:

- Risk effect
- Population size effect
- Population ageing effect

Table 22.1 Key results, liver cancer

Males

	Incidence			Mortality		
	1996	2011 (CI)	change (%)	1997	2012 (CI)	change (%)
<i>Age standardised or age specific rate (per 100,000)</i>						
15+	6	8 (7 – 11)	27	5	6 (5 – 8)	20
25–44	2	2 (2 – 4)	-	1	1 (1 – 2)	-
45–64	11	13 (9 – 19)	19	8	10 (7 – 14)	21
65+	23	32 (24 – 48)	41	22	28 (20 – 40)	28
<i>Number of cases</i>						
15+	89	158 (118 – 244)	78	80	134 (91 – 193)	68
25–44	8	11 (9 – 20)	38	7	8 (5 – 13)	14
45–64	39	67 (50 – 104)	72	31	54 (36 – 76)	74
65+	42	80 (59 – 120)	91	42	73 (50 – 104)	74

Females

	Incidence			Mortality		
	1996	2011 (CI)	change (%)	1997	2012 (CI)	change (%)
<i>Age standardised or age specific rate (per 100,000)</i>						
15+	2	3 (2 – 4)	-	2	2 (2 – 3)	-
25–44	0	1 (0 – 1)	-	0	1 (0 – 1)	-
45–64	3	4 (2 – 6)	-	3	3 (2 – 4)	-
65+	12	16 (10 – 22)	31	11	14 (8 – 18)	31
<i>Number of cases</i>						
15+	44	73 (46 – 106)	66	38	62 (36 – 80)	63
25–44	2	3 (2 – 7)	-	2	3 (2 – 5)	-
45–64	12	20 (13 – 31)	67	10	15 (8 – 20)	50
65+	30	49 (31 – 69)	63	26	44 (25 – 55)	69

CI = 90% Bayesian credible interval

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