

■ Colorectal cancer

Colorectal cancer is currently the most common cancer among males in terms of incidence, and second most common (after lung cancer) in terms of mortality. Among females colorectal cancer is the second most common site (after breast cancer) for both incidence and mortality.

The incidence of colorectal cancer increased from the beginning of the study period (the late 1950s) until the mid 1980s, after which it has remained stable. Between 1956 and 1996 the average annual age standardised incidence rate more than doubled, from 32 per 100,000 to 80 per 100,000 among males and 28 per 100,000 to 63 per 100,000 among females. Over the same period the annual number of registrations increased almost five-fold, from 253 to 1230 registrations among males and from 240 to 1194 among females. The much greater increase in numbers compared with rates reflects the growth of the New Zealand population in the interim, which accounts for two-thirds of the total increase in registrations over the period.

Since the early 1970s a slowly declining trend has been experienced for colorectal cancer mortality. The decline among females has been more rapid than that among males. By 1997 the average annual age standardised mortality rate had reached 36 per 100,000 among males and 26 per 100,000 among females. Despite this declining rate, the annual number of colorectal cancer deaths nevertheless increased by 40% from 1972, to 576 male and 541 female deaths in 1997.

Colorectal cancer shows a more or less exponential increase in risk with age, with two-thirds to three-quarters of registrations and deaths occurring among older people. Risk at these older ages is typically four to five times higher than at the middle ages.

Males are at a higher risk than females, both of being diagnosed with and of dying from colorectal cancer. In the late 1990s the male excess risk was one-quarter to one-third over the corresponding female rates.

Māori were less likely to be diagnosed with colorectal cancer than non-Māori in the mid to late 1990s, but risks of dying from this cancer were not significantly different between the two ethnic groups (except for females under the 'total' ethnicity classification), suggesting poorer survival with colorectal cancer among Māori. Also in the mid 1990s, incidence and mortality rates among males appear to display a direct deprivation gradient, though no clear pattern is discernible among females.

Colorectal cancer incidence rates are forecast to now begin to decline. Among males the age standardised incidence rate is projected to fall to 71 per 100,000 (CI 53 – 94) by 2011, a fall of approximately 11% from the 1996 level. However, the number of registrations among males is projected to increase to 1589 (CI 1149 – 2155), a 29% increase over 1996, as the continuing growth in population size and (increasingly) the effect of population ageing more than offset the forecast decrease in risk. Among females the incidence rate is projected to fall to 50 per 100,000 (CI 37 – 64), a decline of 21% from 1996, while the number of registrations is projected to increase to 1382 (CI 1013 – 1869), an increase of 16% over the same time period.

The recent decline in colorectal cancer mortality rates is forecast to accelerate, reflecting both the projected reduction in incidence and further improvement in survival. Among males the age standardised mortality rate is projected to fall to 29 per 100,000 (CI 24 – 35), a reduction of 21% since 1997, while the number of deaths increases to 673 (CI 529 – 857), a 17% increase over the period. Among females the corresponding fall in mortality rate is 31%, to 18 per 100,000 (CI 15 – 23), while the number of deaths remains unchanged at 542 (CI 424 – 722).

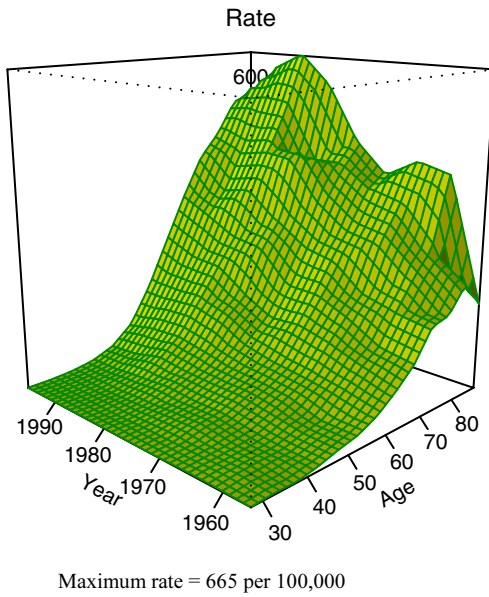
The projected decline in colorectal cancer incidence and mortality rates over the next decade represents a major finding of this study. The causes of the cohort and period effects underlying this forecast are unclear. Changes in dietary exposures or physical activity levels are possible explanations (National Cancer Institute 2002); on the other hand, the very recent increase in obesity prevalence will not be reflected in the historical time series and could lessen the projected decline in risk.

This forecast does not include the possible introduction of a population-based colorectal cancer screening programme (using faecal occult blood testing followed by colonoscopy as the screening tests). Even were such a programme to be introduced and achieve high coverage in the next few years, little impact on mortality would be expected within the forecasting timeframe.

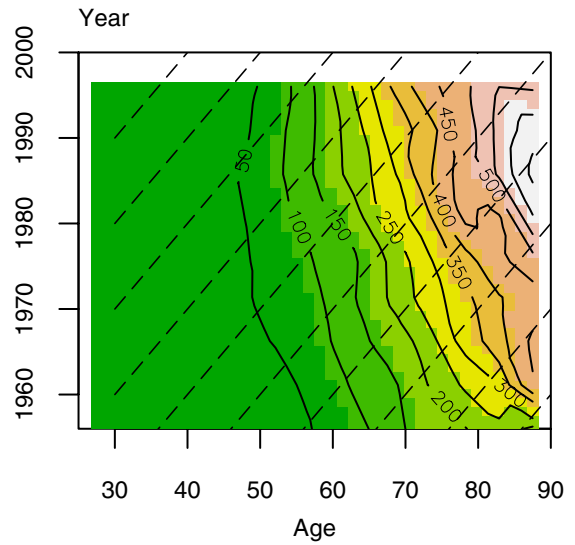
Despite the projected decline in incidence and mortality rates, colorectal cancer is predicted to remain among the most highly ranked sites for both genders for both endpoints (registrations and deaths). In 2011/12 this cancer will still rank second for incidence and third for mortality among all sites for both genders.

Figure 14.1 Historical trends in age specific rates, colorectal cancer, males

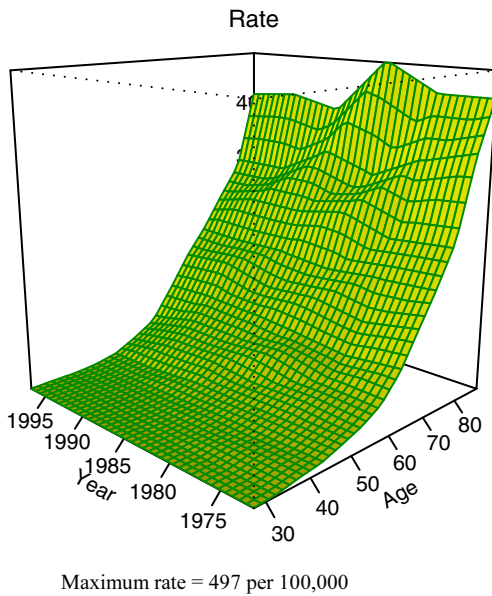
(a) Male incidence rates, perspective plot



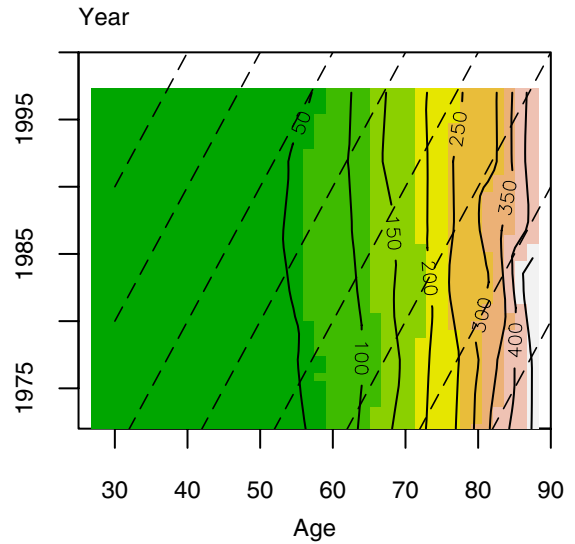
(b) Male incidence rates, contour plot



(c) Male mortality rates, perspective plot



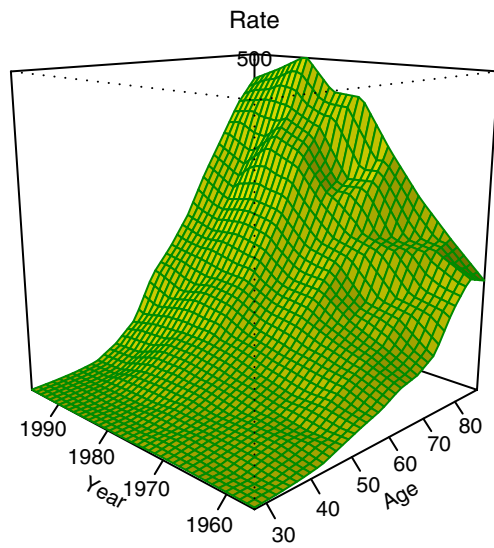
(d) Male mortality rates, contour plot



Please refer to Chapter 2 for interpretation of charts

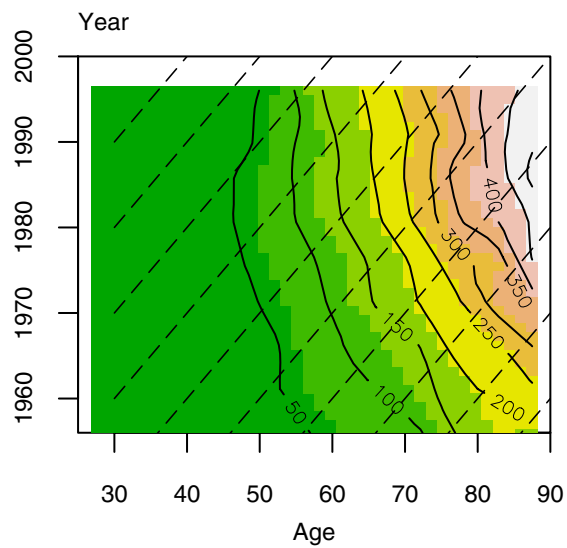
Figure 14.2 Historical trends in age specific rates, colorectal cancer, females

(a) Female incidence rates, perspective plot

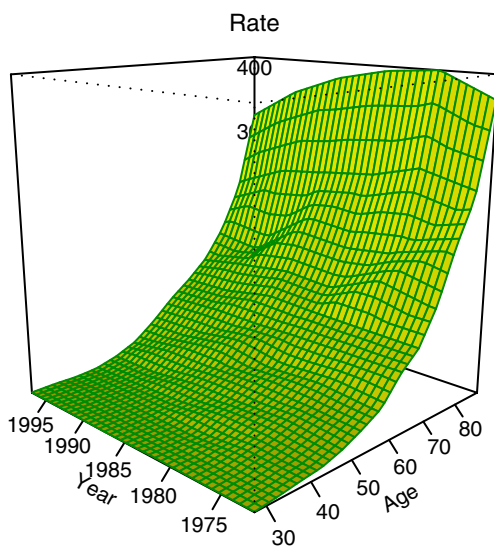


Maximum rate = 514 per 100,000

(b) Female incidence rates, contour plot



(c) Female mortality rates, perspective plot



Maximum rate = 418 per 100,000

(d) Female mortality rates, contour plot

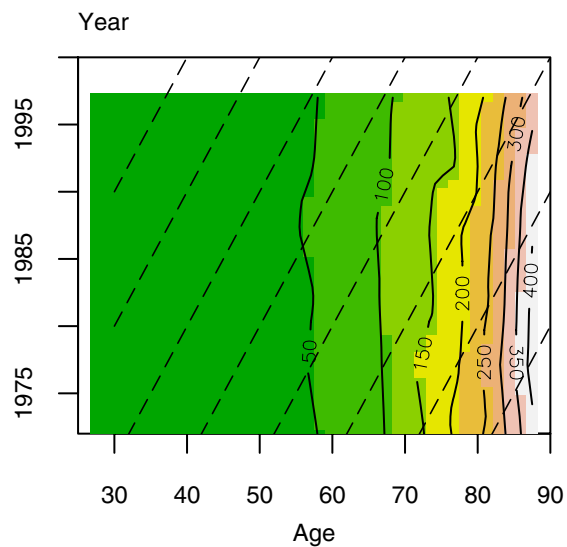
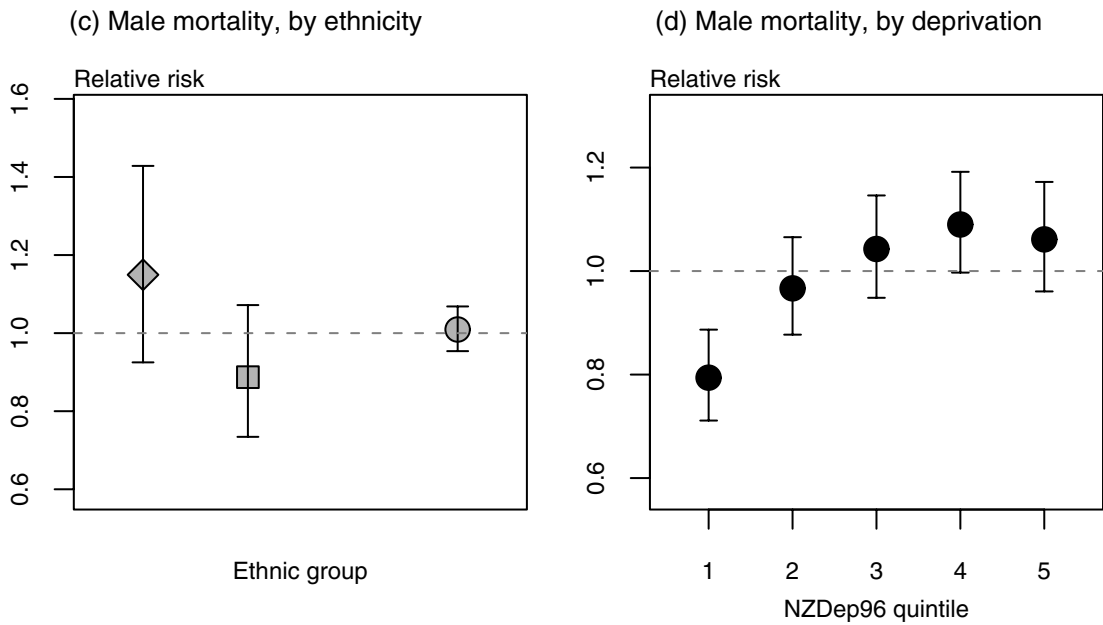
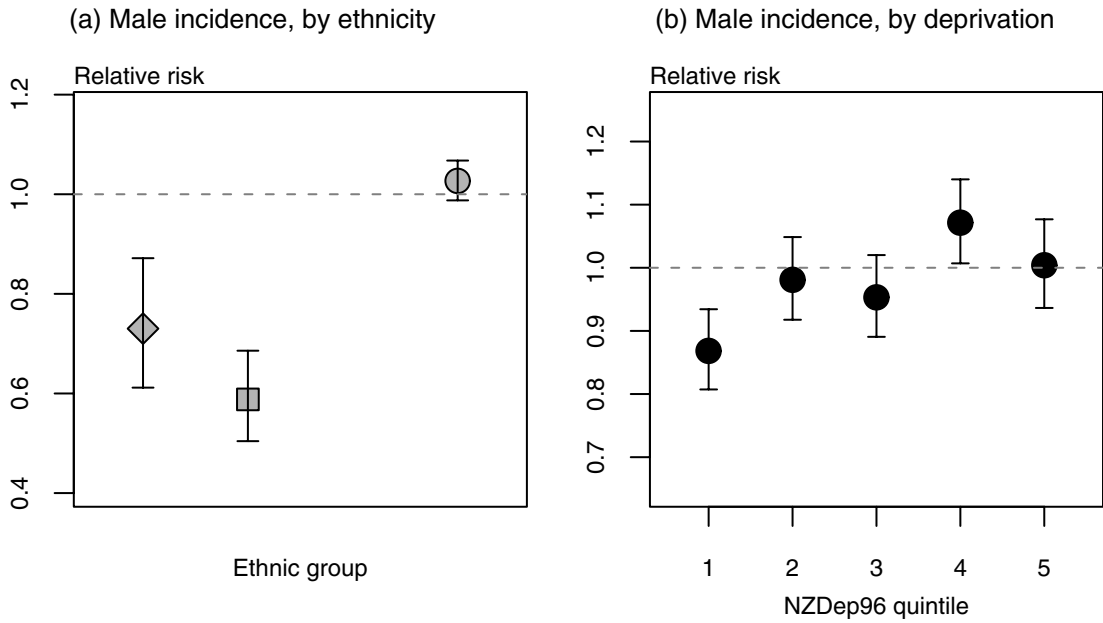


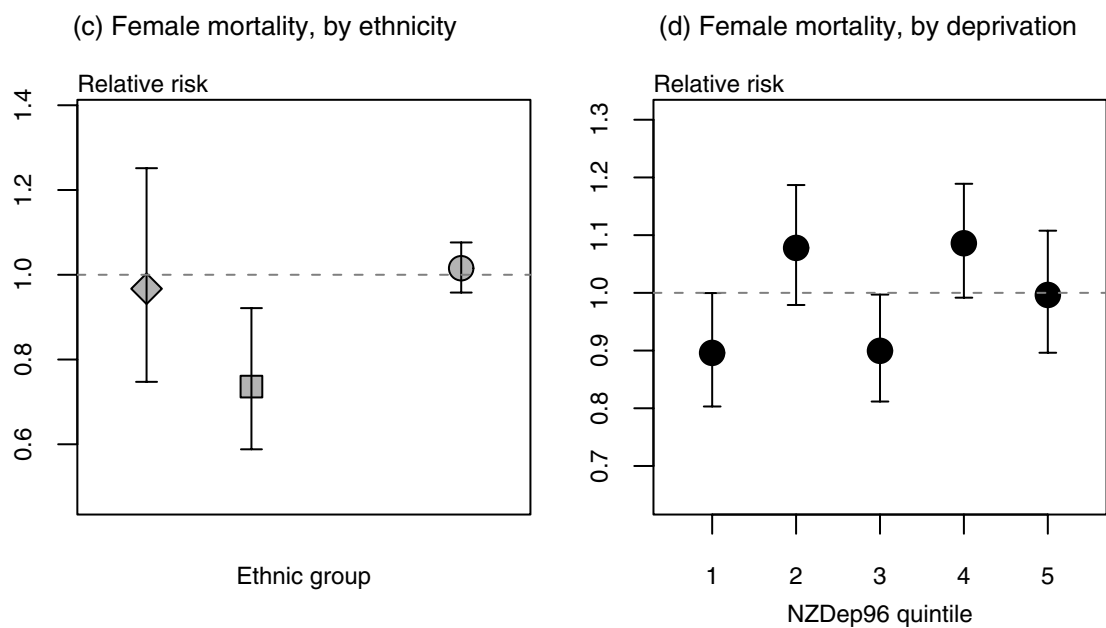
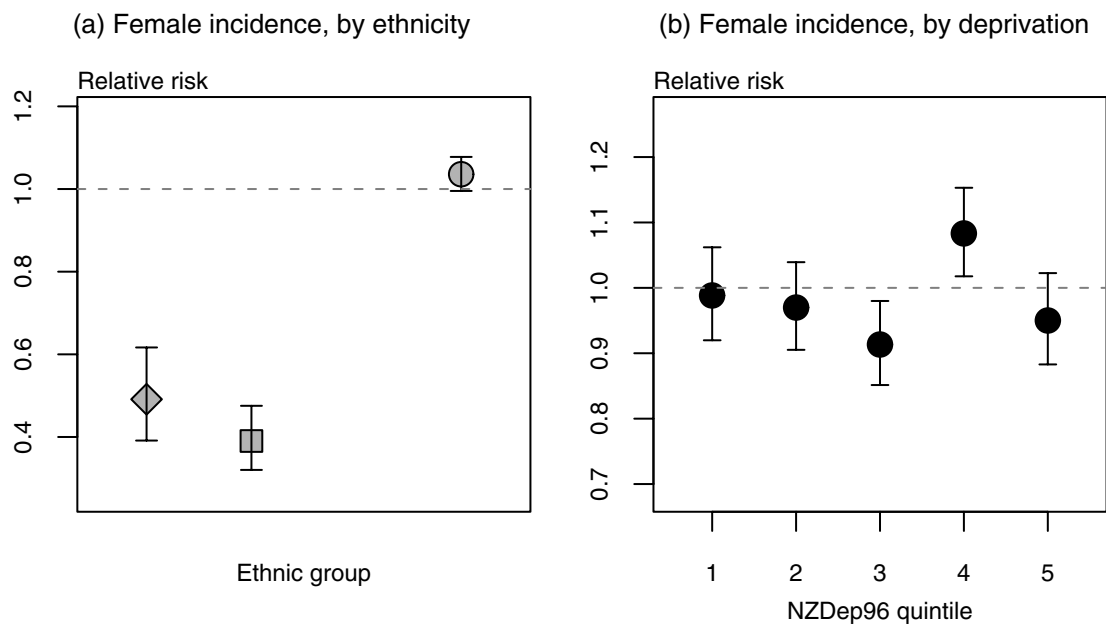
Figure 14.3 Relative risk 1996/97, colorectal cancer, males



Ethnic group key:

- ◆ sole Māori
- total Māori
- non-Māori

Figure 14.4 Relative risk 1996/97, colorectal cancer, females

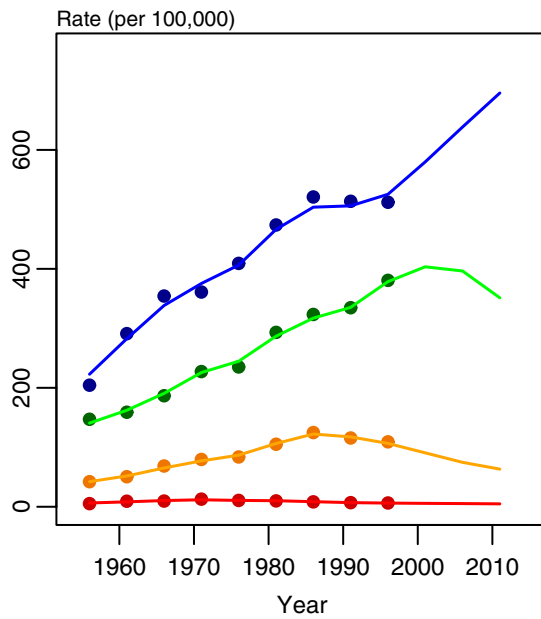


Ethnic group key:

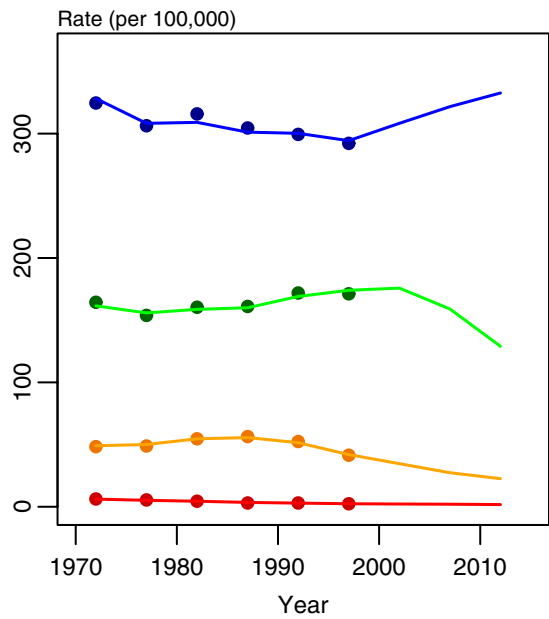
- ◆ sole Māori
- total Māori
- non-Māori

Figure 14.5 Trends and projections of life cycle stage specific rates, colorectal cancer

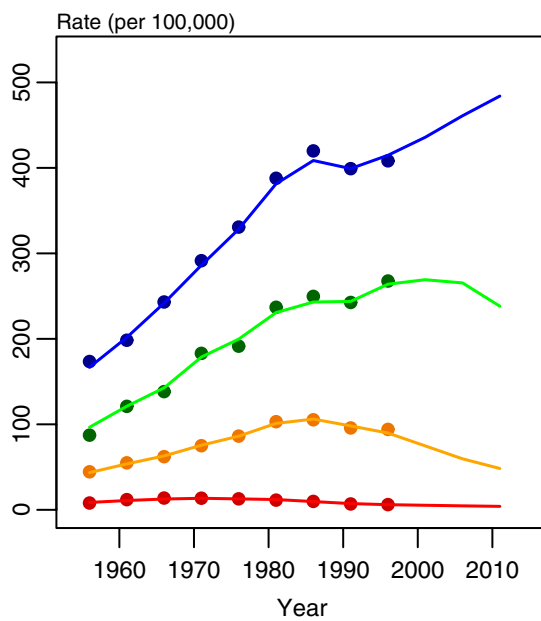
(a) Male incidence rates



(b) Male mortality rates



(c) Female incidence rates



(d) Female mortality rates

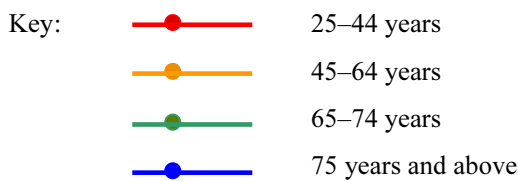
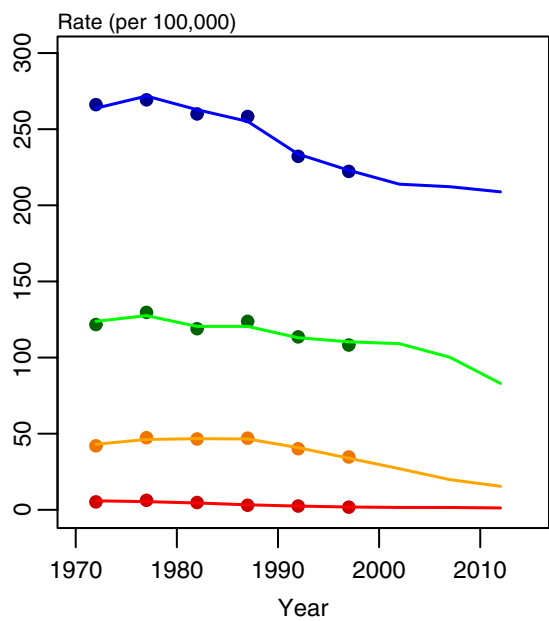
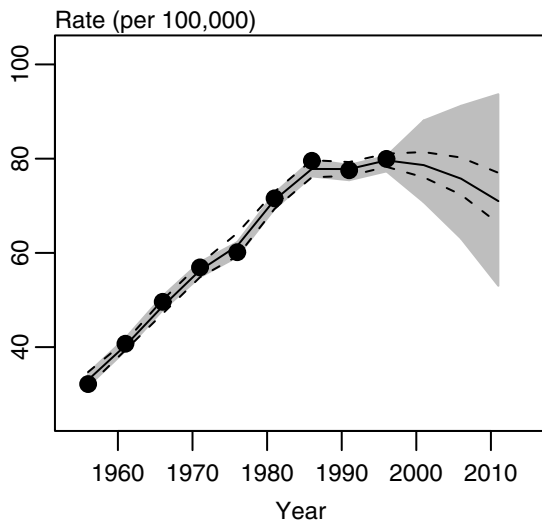
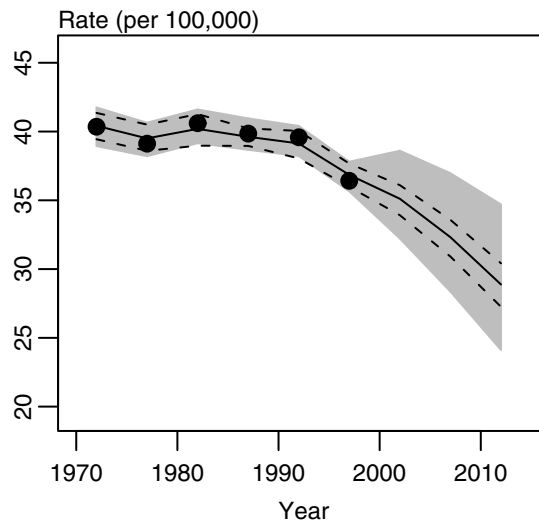


Figure 14.6 Trends and projections of age standardised rates, colorectal cancer

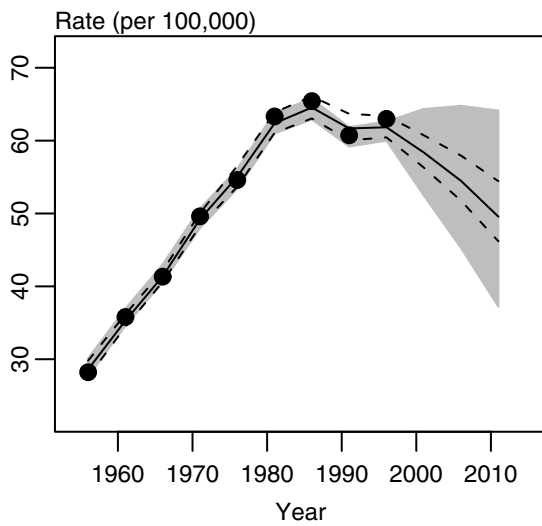
(a) Male incidence rates



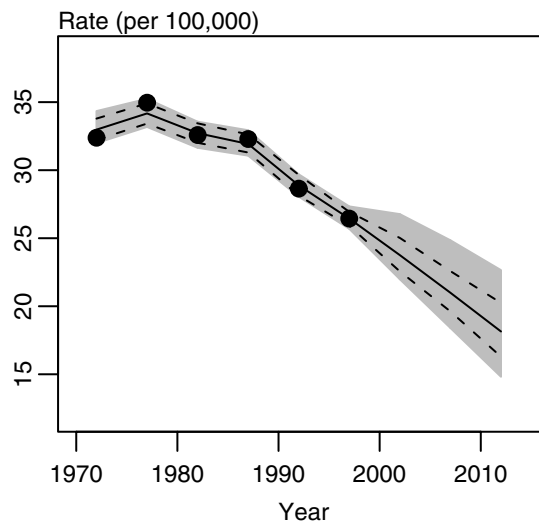
(b) Male mortality rates



(c) Female incidence rates



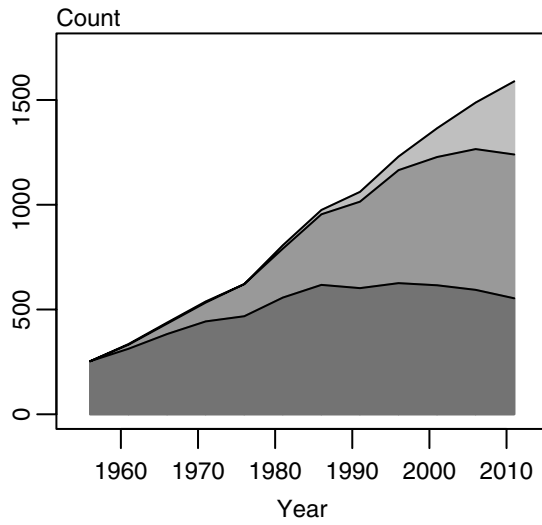
(d) Female mortality rates



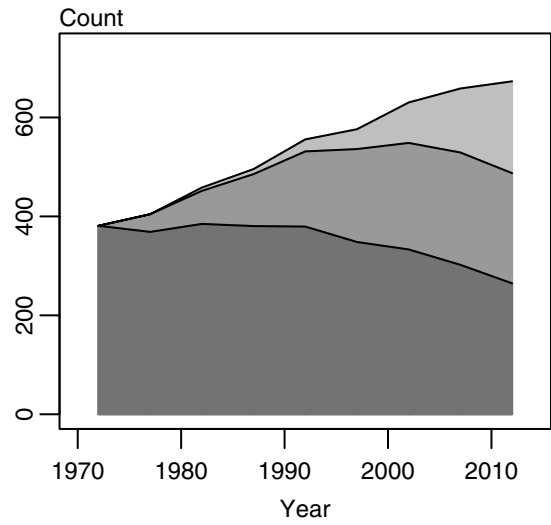
- Key:
- Observed
 - Fitted and projected
 - - Minimum and maximum estimates
 - 90% Bayesian credible interval

Figure 14.7 Drivers of change in the cancer burden, colorectal cancer

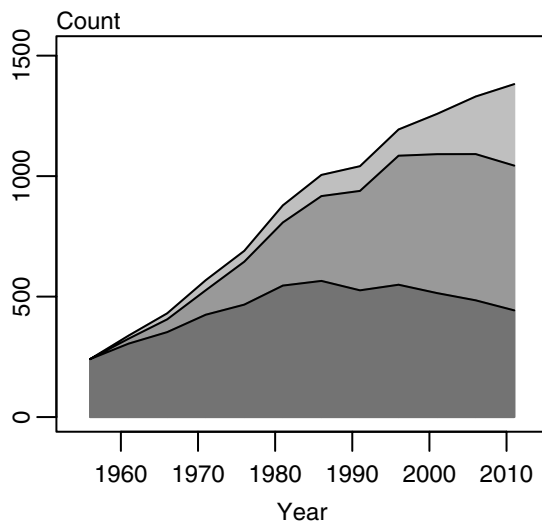
(a) Male registrations



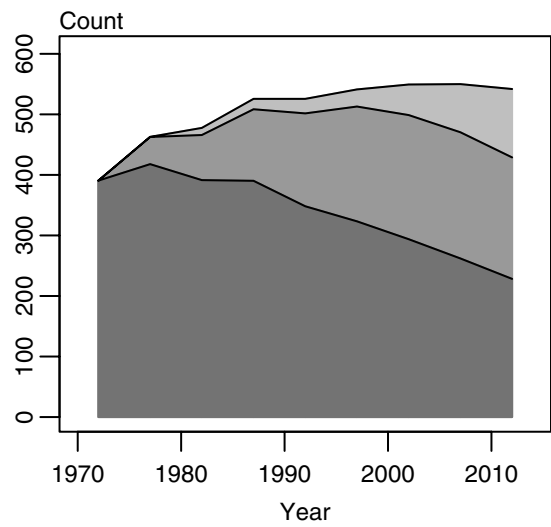
(b) Male deaths



(c) Female registrations



(d) Female deaths



Key:

- Risk effect
- Population size effect
- Population ageing effect

Table 14.1 Key results, colorectal cancer

Males

	Incidence			Mortality		
	1996	2011 (CI)	change (%)	1997	2012 (CI)	change (%)
<i>Age standardised or age specific rate (per 100,000)</i>						
15+	80	71 (53 – 94)	-11	36	29 (24 – 35)	-21
25–44	6	5 (3 – 7)	-22	2	2 (1 – 2)	-
45–64	109	63 (43 – 82)	-42	41	23 (18 – 30)	-45
65+	428	491 (361 – 672)	15	216	210 (166 – 264)	-3
<i>Number of cases</i>						
15+	1230	1589 (1149 – 2155)	29	576	673 (529 – 857)	17
25–44	35	27 (18 – 40)	-23	13	10 (5 – 13)	-23
45–64	405	340 (232 – 440)	-16	158	123 (96 – 164)	-22
65+	790	1222 (899 – 1674)	55	405	541 (427 – 680)	34

Females

	Incidence			Mortality		
	1996	2011 (CI)	change (%)	1997	2012 (CI)	change (%)
<i>Age standardised or age specific rate (per 100,000)</i>						
15+	63	50 (37 – 64)	-21	26	18 (15 – 23)	-31
25–44	6	4 (2 – 5)	-	2	1 (1 – 1)	-
45–64	94	48 (33 – 61)	-49	35	16 (11 – 20)	-55
65+	333	355 (266 – 489)	7	162	142 (114 – 191)	-12
<i>Number of cases</i>						
15+	1194	1382 (1013 – 1869)	16	541	542 (424 – 722)	0
25–44	35	23 (13 – 29)	-34	10	7 (3 – 8)	-30
45–64	350	270 (183 – 341)	-23	133	88 (62 – 112)	-34
65+	809	1089 (817 – 1499)	35	398	447 (360 – 602)	12

CI = 90% Bayesian credible interval

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