

## ■ Non-Hodgkin's lymphoma

Non-Hodgkin's lymphoma (NHL) is a heterogeneous category, comprising lymphomas of all histological types and anatomical sites other than Hodgkin's disease.

The incidence of NHL increased steadily from the late 1950s to the early 1980s, and the rate of increase has since accelerated. The average annual age standardised incidence rate increased from 7 per 100,000 in 1956 to 19 per 100,000 in 1996 among males, and from 4 per 100,000 to 14 per 100,000 among females. The annual number of registrations over the 40 year period has increased even faster, from 52 to 287 among males and from 37 to 258 among females, reflecting the changing demographic environment.

This rising incidence trend has been accompanied by a rising mortality trend, albeit at a slower pace. Between 1972 and 1997 the average annual age standardised mortality rate increased from 7 per 100,000 to 9 per 100,000 among males, and from 4 per 100,000 to 7 per 100,000 among females. The annual number of deaths has increased more noticeably, from 66 to 147 among males and from 48 to 142 among females.

As a result, NHL is already ranked sixth and fifth among male cancers for incidence and mortality respectively; the corresponding rankings for female cancers are seventh and sixth.

NHL shows a fairly typical age distribution, with half or more of registrations and about two-thirds of deaths occurring in older people. There is no strong evidence of ethnic and socioeconomic differentials in NHL risk, though the numbers may be too small to produce a stable pattern.

A continuation of the historical trends in NHL incidence and mortality is forecast to 2011/12. The age standardised incidence rate is projected to reach 30 per 100,000 (CI 24 – 37) or 623 registrations (CI 450 – 817) among males, and 24 per 100,000 (CI 18 – 30) or 574 registrations (CI 397 – 754) among females. This is an increase in age standardised rate of 60–70% over 1996, compared to a more than doubling in numbers.

The age standardised NHL mortality rate is projected to reach 11 per 100,000 (CI 9 – 15) or 255 deaths (CI 169 – 367) among males, and 9 per 100,000 (CI 7 – 11) or 251 deaths (CI 165 – 328) among females by 2011/12. This is an increase since 1997 of 20–30% in the age standardised rate, but an increase of over 70% in the number of deaths.

By 2011/12 NHL is forecast to rank sixth for incidence and fifth for mortality among the selected cancer sites for males, and fifth and fourth respectively for females.

Approximately one-third of the increase in NHL incidence between 1956 and 2011 is driven by an increasing risk of disease, about half results from the anticipated increase in population size, and the remaining one-sixth reflects ageing of the population over the period.

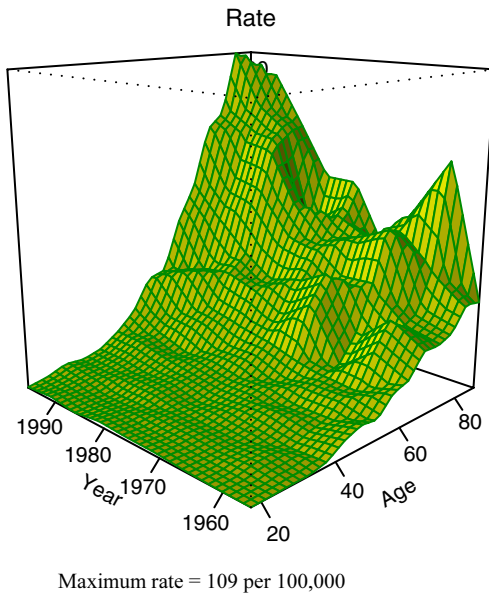
The causes of the historical trend in NHL incidence are unclear: some of the apparent increase may be artefactual, reflecting changes in diagnostic classification and ICD coding

rules for the lymphomas and related cancers (Armitage and Weisenburger 1998). In turn, this will be reflected in the projections. In some countries at least part of the increase is attributable to HIV/AIDS; however, this is at most only a minor cause of NHL in New Zealand.

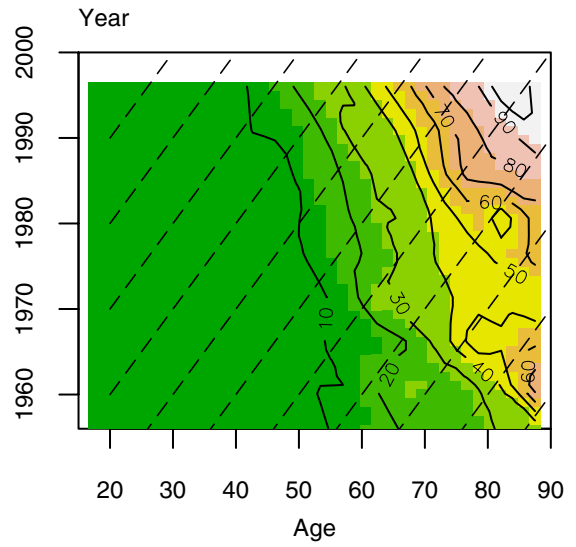
Whatever the causes of the upward trend in NHL incidence and mortality, the projections suggest that NHL will become an increasingly important cancer over the next decade, accounting for an annual average of approximately 5% of the total cancer burden by 2011/12.

**Figure 26.1** Historical trends in age specific rates, non-Hodgkin's lymphoma, males

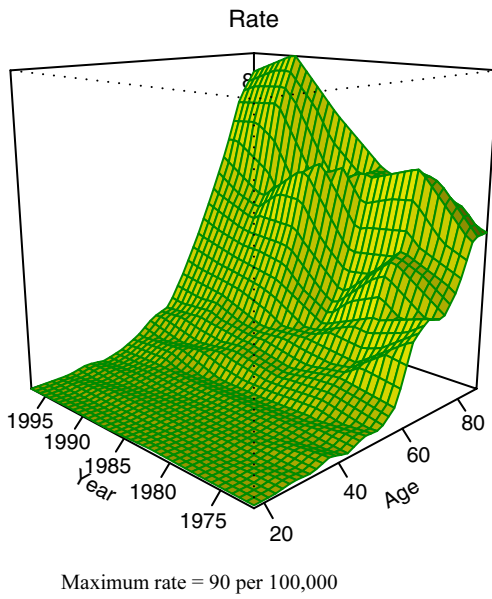
(a) Male incidence rates, perspective plot



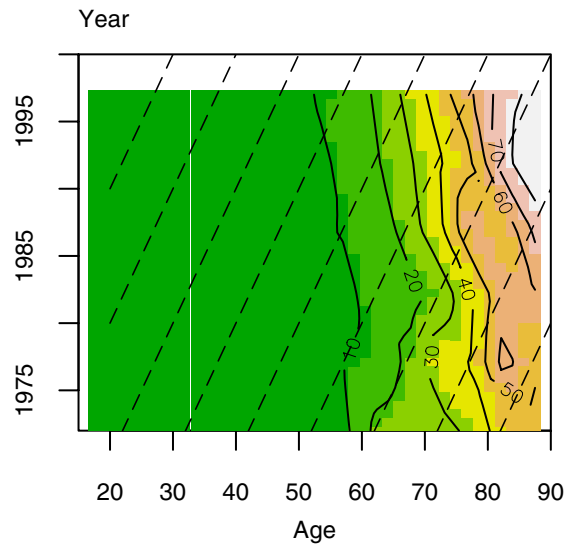
(b) Male incidence rates, contour plot



(c) Male mortality rates, perspective plot



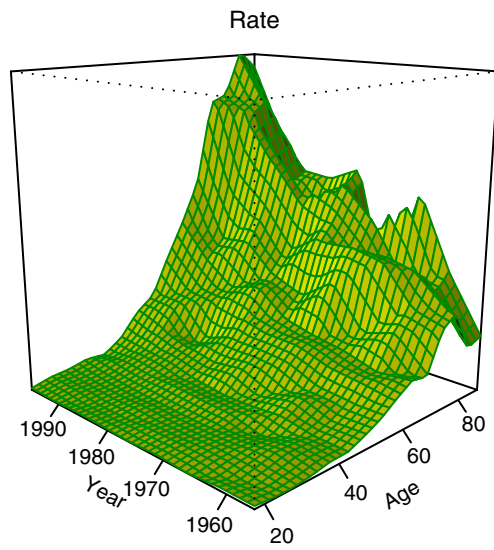
(d) Male mortality rates, contour plot



Please refer to Chapter 2 for interpretation of charts

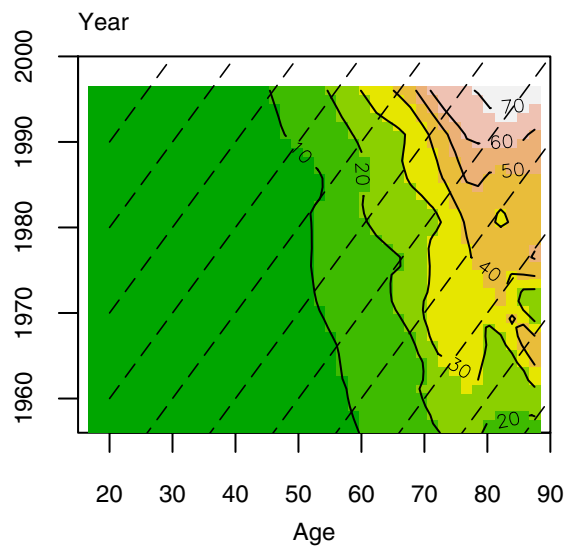
**Figure 26.2** Historical trends in age specific rates, non-Hodgkin's lymphoma, females

(a) Female incidence rates, perspective plot

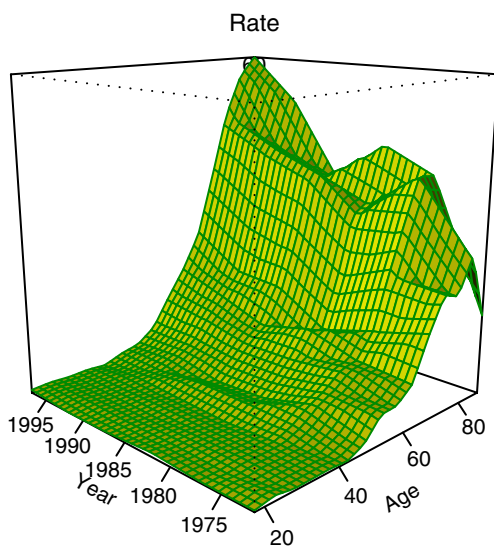


Maximum rate = 80 per 100,000

(b) Female incidence rates, contour plot

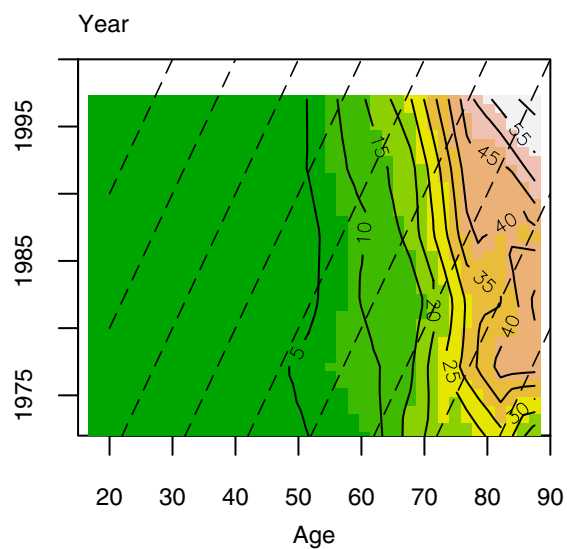


(c) Female mortality rates, perspective plot

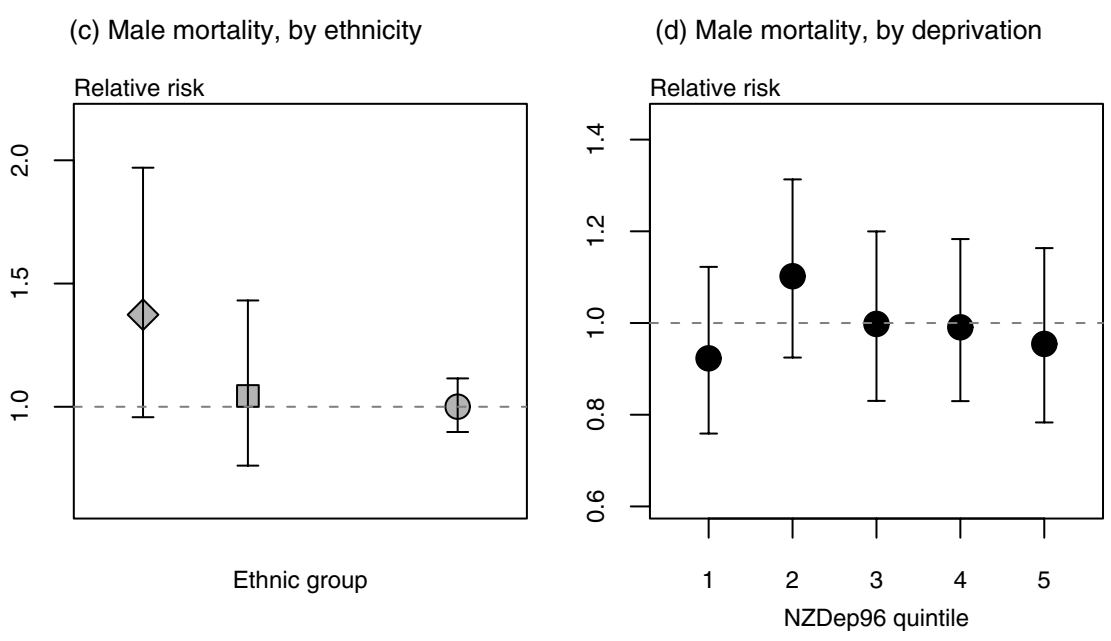
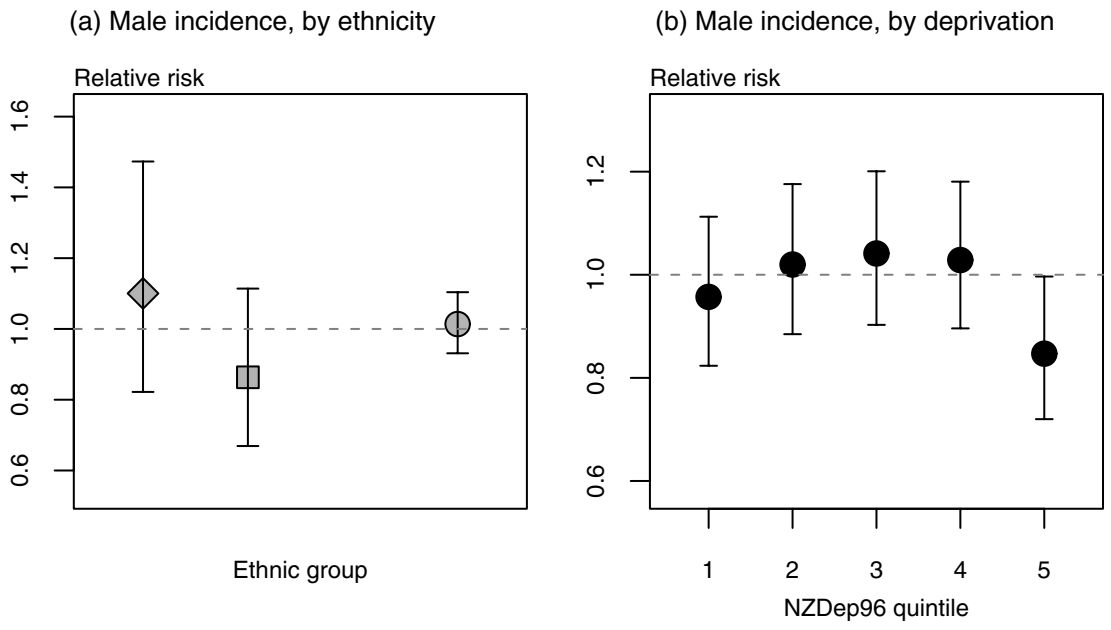


Maximum rate = 62 per 100,000

(d) Female mortality rates, contour plot



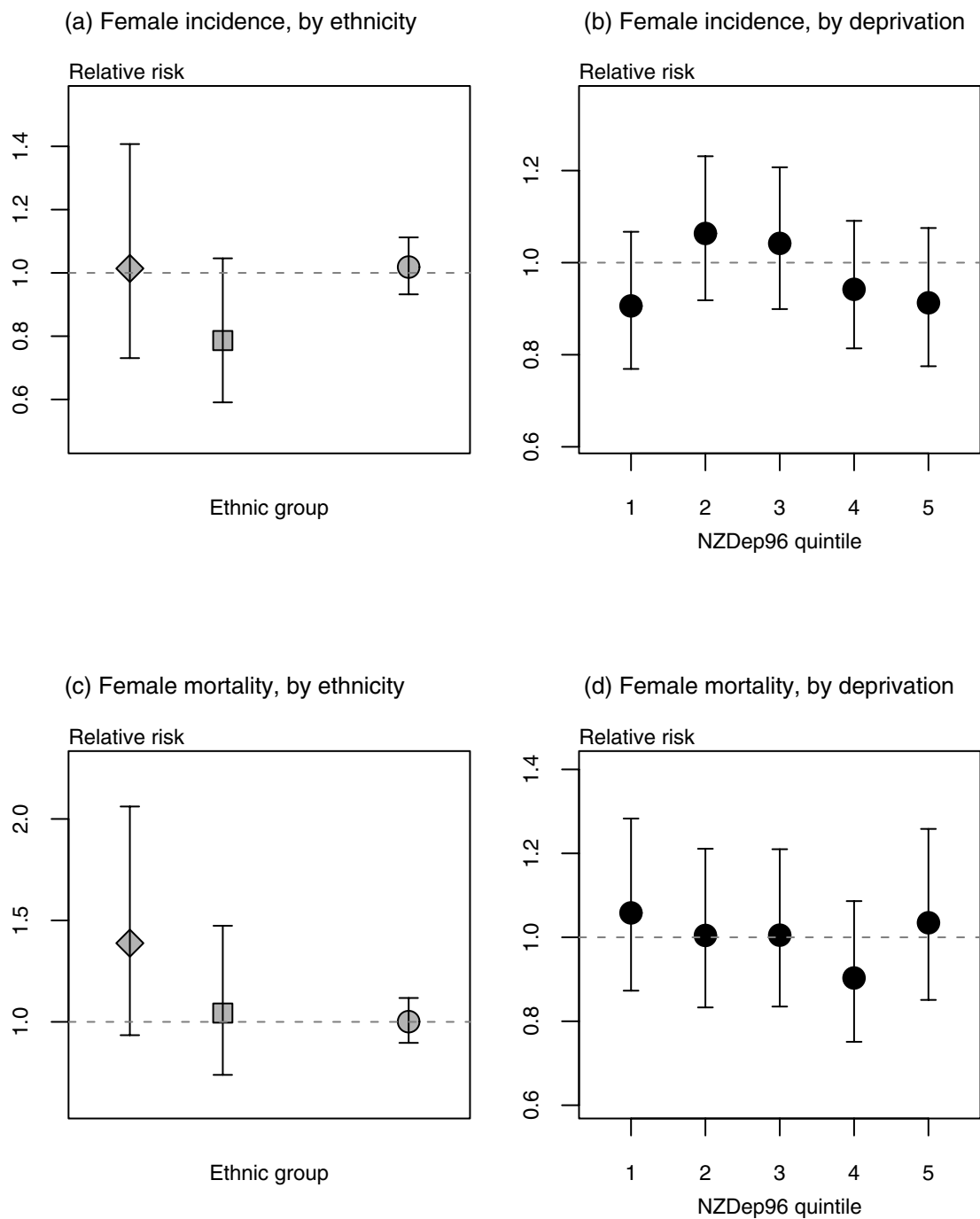
**Figure 26.3** Relative risk 1996/97, non-Hodgkin's lymphoma, males



Ethnic group key:

- ◆ sole Māori
- total Māori
- non-Māori

**Figure 26.4** Relative risk 1996/97, non-Hodgkin's lymphoma, females

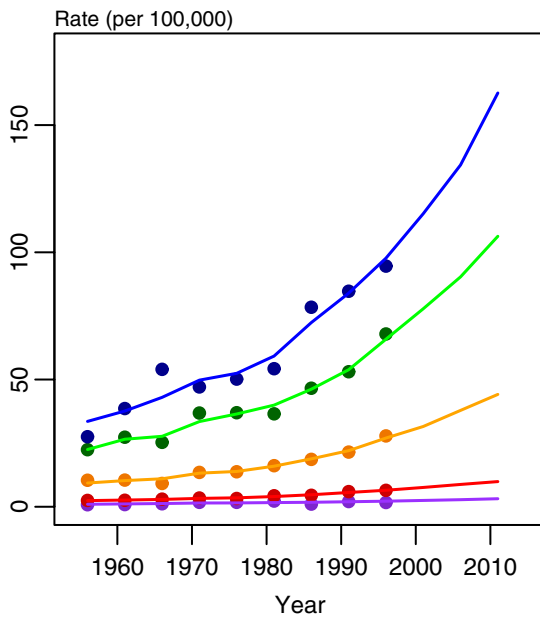


Ethnic group key:

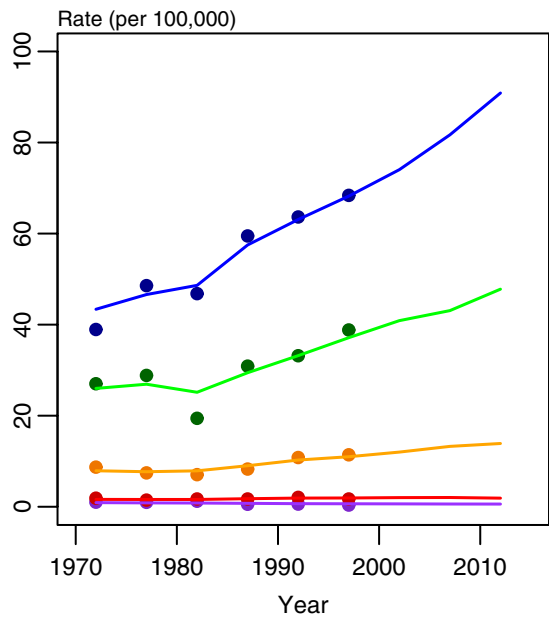
- ◆ sole Māori
- total Māori
- non-Māori

**Figure 26.5** Trends and projections of life cycle stage specific rates, non-Hodgkin's lymphoma

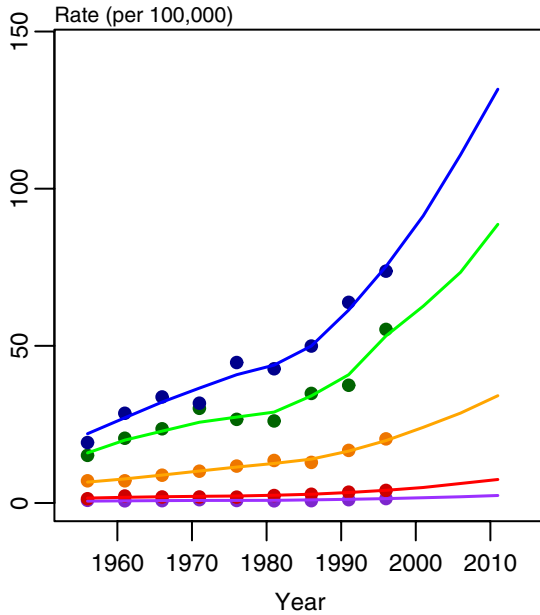
(a) Male incidence rates



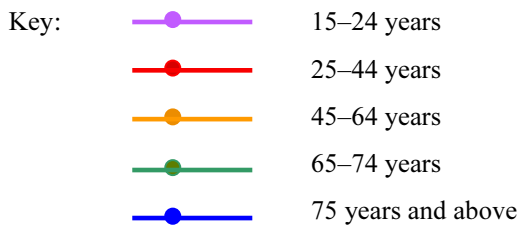
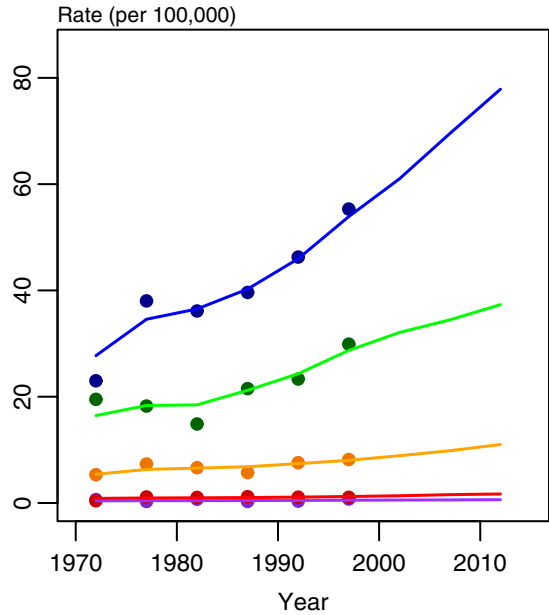
(b) Male mortality rates



(c) Female incidence rates

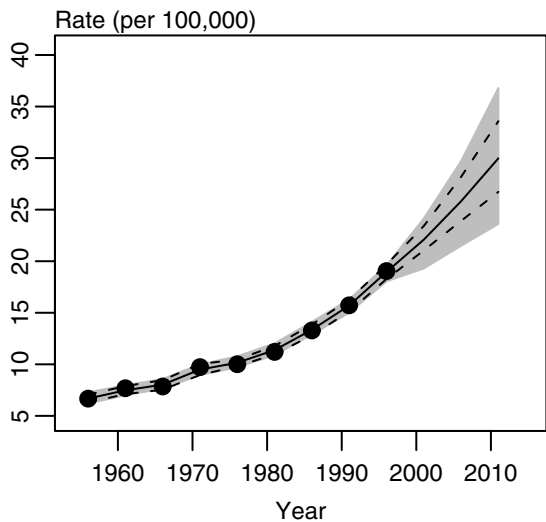


(d) Female mortality rates

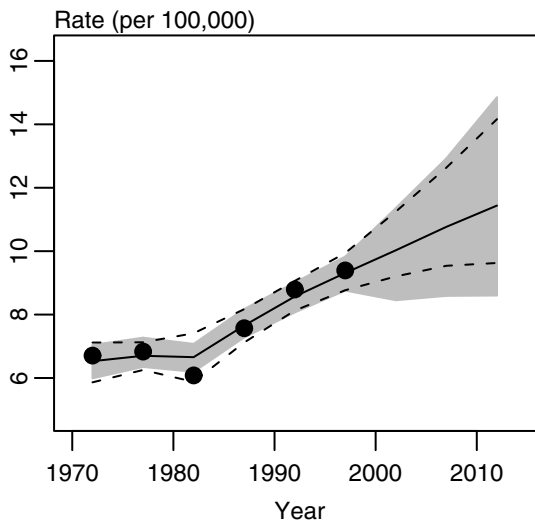


**Figure 26.6** Trends and projections of age standardised rates, non-Hodgkin's lymphoma

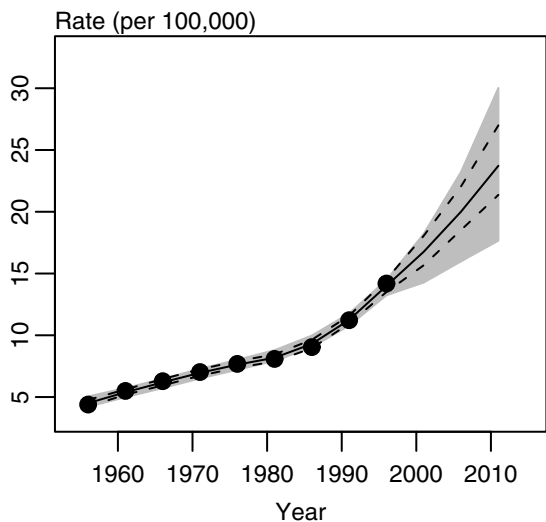
(a) Male incidence rates



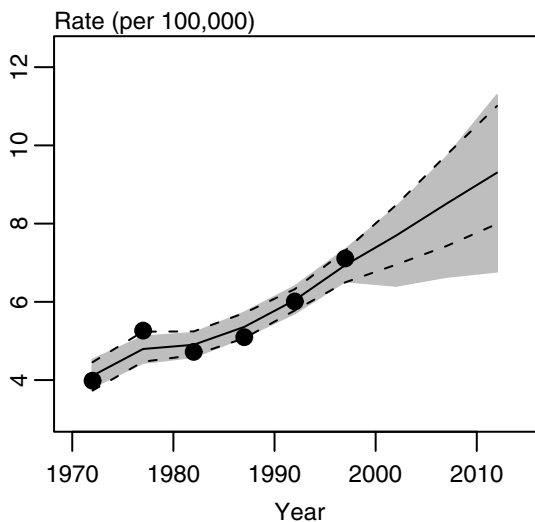
(b) Male mortality rates



(c) Female incidence rates



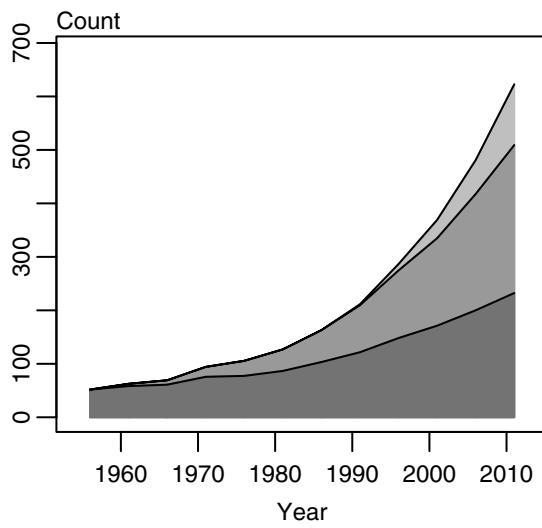
(d) Female mortality rates



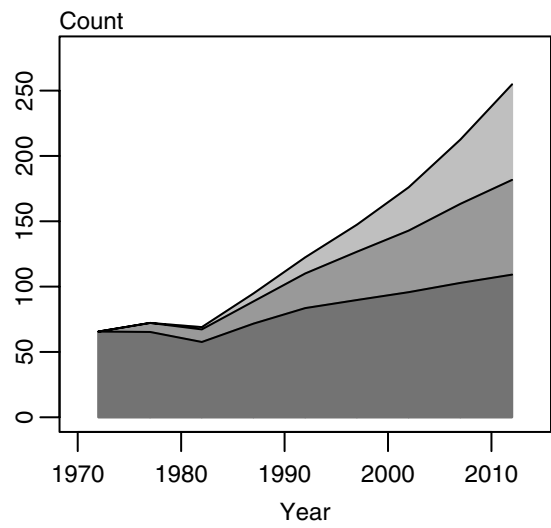
- Key:
- Observed
  - Fitted and projected
  - - Minimum and maximum estimates
  - 90% Bayesian credible interval

**Figure 26.7** Drivers of change in the cancer burden, non-Hodgkin's lymphoma

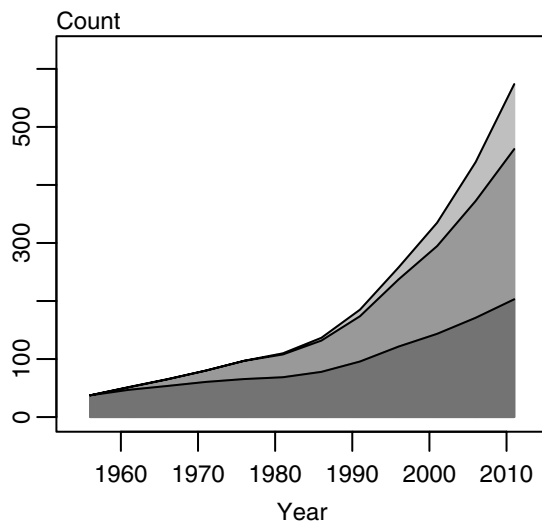
(a) Male registrations



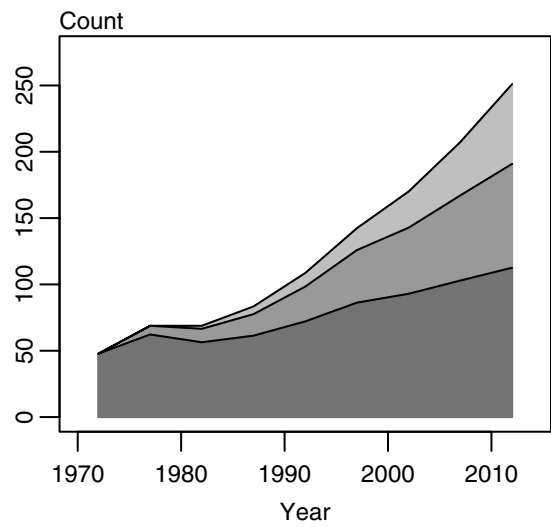
(b) Male deaths



(c) Female registrations



(d) Female deaths



Key:

- Risk effect
- Population size effect
- Population ageing effect

**Table 26.1** Key results, non-Hodgkin's lymphoma

## Males

	Incidence			Mortality		
	1996	2011 (CI)	change (%)	1997	2012 (CI)	change (%)
<i>Age standardised or age specific rate (per 100,000)</i>						
15+	19	30 (24 – 37)	57	9	11 (9 – 15)	22
15–44	5	8 (5 – 9)	53	1	1 (1 – 2)	-
45–64	28	44 (31 – 57)	59	11	14 (9 – 19)	22
65+	78	129 (97 – 175)	67	50	65 (45 – 97)	31
<i>Number of cases</i>						
15+	287	623 (450 – 817)	117	147	255 (169 – 367)	73
15–44	40	64 (40 – 78)	60	11	12 (6 – 16)	9
45–64	103	237 (167 – 303)	130	43	75 (46 – 103)	75
65+	143	322 (242 – 436)	125	93	167 (117 – 249)	80

## Females

	Incidence			Mortality		
	1996	2011 (CI)	change (%)	1997	2012 (CI)	change (%)
<i>Age standardised or age specific rate (per 100,000)</i>						
15+	14	24 (18 – 30)	67	7	9 (7 – 11)	31
15–44	3	6 (4 – 8)	-	1	1 (1 – 2)	-
45–64	20	34 (23 – 45)	67	8	11 (7 – 14)	34
65+	64	109 (77 – 144)	71	42	56 (38 – 73)	35
<i>Number of cases</i>						
15+	258	574 (397 – 754)	122	142	251 (165 – 328)	77
15–44	27	49 (31 – 63)	82	8	11 (7 – 16)	38
45–64	76	191 (131 – 248)	151	31	62 (39 – 81)	100
65+	155	335 (235 – 443)	116	103	178 (119 – 232)	73

CI = 90% Bayesian credible interval

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