11 Melanoma of the skin

11.1 Summary

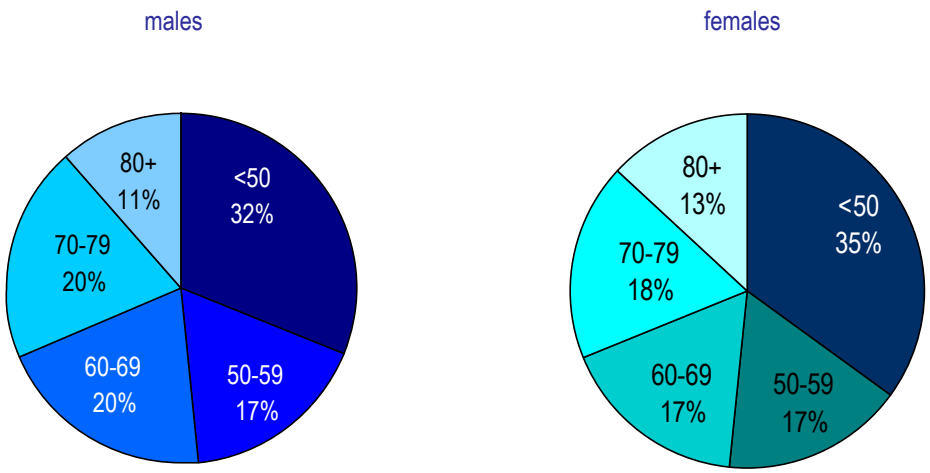
Melanoma of the skin is the ninth most common cancer in Ireland, accounting for 2.4% of all malignant neoplasia in men and 4.2% in women, if non-melanoma skin cancers are excluded (table 11.1). Each year, approximately 162 men and 266 women are diagnosed with melanoma. Incidence rates rose between 1994 and 2003, by approximately 2% annually in women and 4% in men.

Table 11.1 Summary information for melanoma skin cancer in Ireland, 1994-2003

	females	males
% of all new cancer cases	3.0%	1.7%
% of all new cancer cases excluding non-melanoma skin cancer	4.2%	2.4%
Average number of new cases per year	266	162
Average number of deaths per year	63	100
Age standardised incidence rate per 100,000 (European standard population)	14.2	9.8
Estimated annual percentage change in rate 1994-2003	2.3%	3.7%

The average age at diagnosis with melanoma is younger than for most other cancers. The age distribution is similar for men and women (figure 11.1). The majority of cases (69% of both men and women) were under 70 at the time of diagnosis while 32% of men and 35% of women were aged under 50. However, there was also a substantial proportion (13% of women and 11% of men) aged 80 and over.

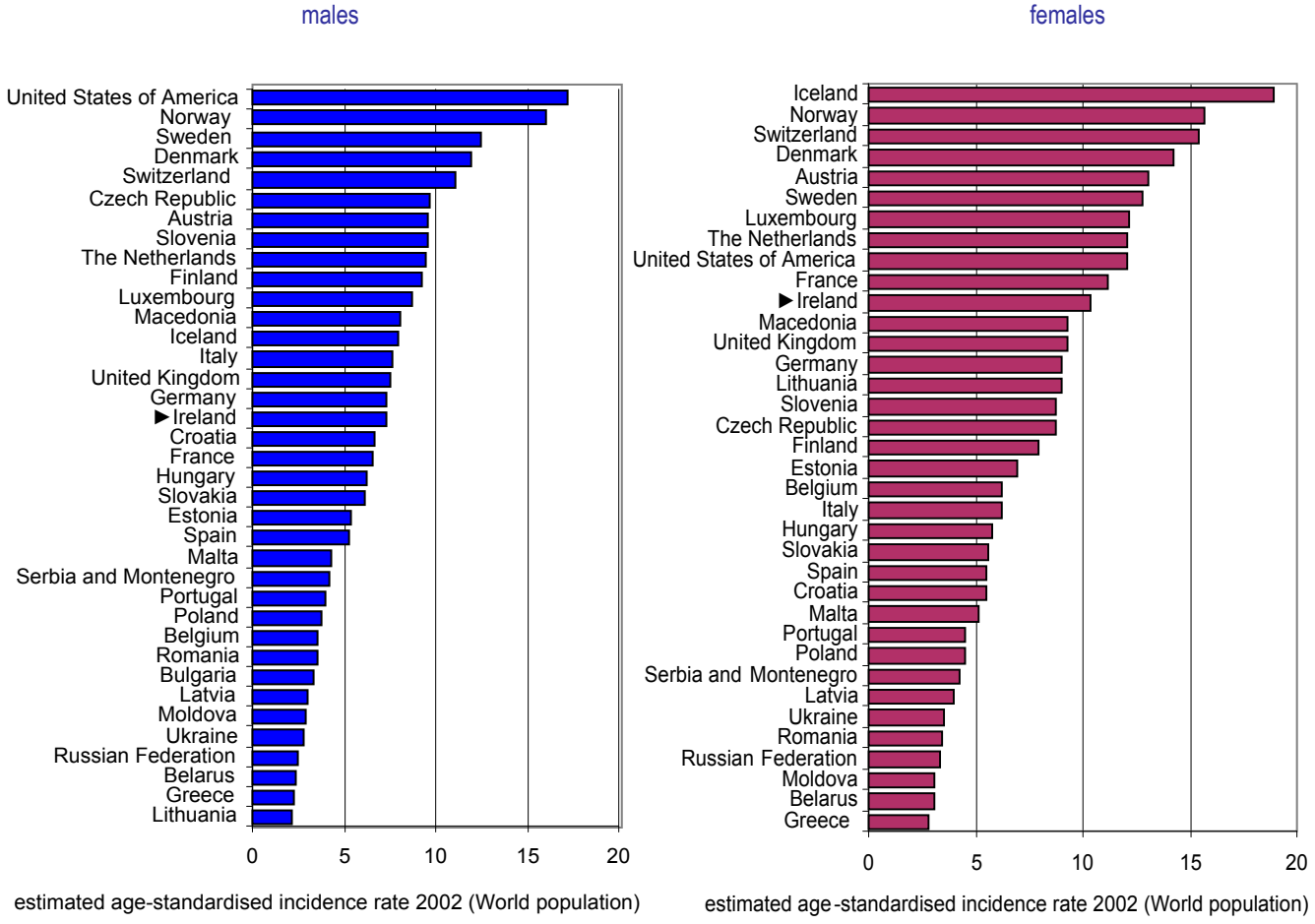
Figure 11.1 Age distribution of melanoma cases, 1994-2003, males and females



11.2 International variations in incidence

Melanoma incidence in men in Ireland is close to the mid-point of rates for Europe as a whole and is similar to that in the UK (figure 11.2). For women it is in the upper half of European rates, exceeds that for women in the UK by 40%, and is at a similar level to the rate in the USA. It is not clear why incidence in women in Ireland is higher than in the UK, but it is most likely that there are differences in exposure to risk factors for the disease between the countries.

Figure 11.2 Estimated incidence rate per 100,000 in 2002 for Europe and USA: melanoma of the skin



Source: GLOBOCAN 2002 (Ferlay et al, 2004)

11.3 Risk factors

Table 11.2 Risk factors for melanoma of the skin, by strength of evidence

	Increases risk	Decreases risk
Convincing or probable	Sun exposure (mainly recreational)[1-3]	
	Sunbed/sunlamp use[4]	
	History of sunburn[1-3]	
	Presence of benign sun damage in the skin[2]	
	Number of naevi[2,5,6]	
	Density of freckles or freckling as a child[2,7]	
	Skin, hair and eye colour[1,2,7]	
	Ability to tan[2]	
	Family history of melanoma[7,8]	
	High socio-economic status[9]	
Possible		Oral contraceptives[10]

[1] International Agency for Research on Cancer, 2001; [2] Armstrong and Kricker, 2001; [3] Gandini et al, 2005b; [4] Gallagher et al, 2005; [5] risk raised for high numbers of either common or atypical naevi or both; [6] Gandini et al, 2005a; [7] Gandini et al, 2005c; [8] melanoma in one or more first degree relatives; [9] Faggiano et al, 1997; [10] Karagas et al, 2002

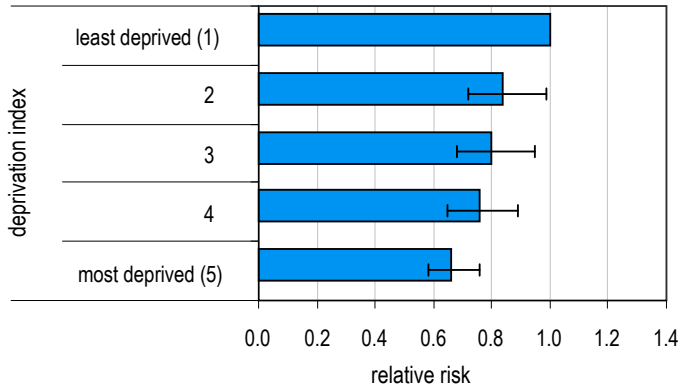
The main cause of melanoma of the skin is exposure to ultraviolet (UV) radiation, the primary source of which is sunlight. Intermittent, or recreational, sun exposure is the most important risk factor (table 11.2). A history of sunburn, often considered to be a marker of high levels of intermittent sun exposure, is associated with raised risk, as is presence of benign sun damage (solar keratoses) in the skin. Recent evidence confirms that exposure to artificial UV radiation, through use of sunbeds or sunlamps, also increases risk. Constitutional factors act together with UV exposure to influence the chance of an individual developing melanoma. Risk is increased in those with more naevi (moles), a high density of freckles (or who had freckling as a child), light hair, skin or eye colour, and reduced ability to tan.

Melanoma risk is higher in those of higher socio-economic status and it has been suggested that this may be due to greater recreational sun exposure among more affluent groups.

Individuals with first degree relatives who have had melanoma have an increased risk of developing it themselves. The genetic basis for this risk is currently being explored in genome-wide association studies; these are endeavouring to identify the genetic variants associated with melanoma *per se*, and with eye, hair and skin colour and ability to tan (Easton and Eeles, 2008).

11.4 Electoral district characteristics and cancer incidence

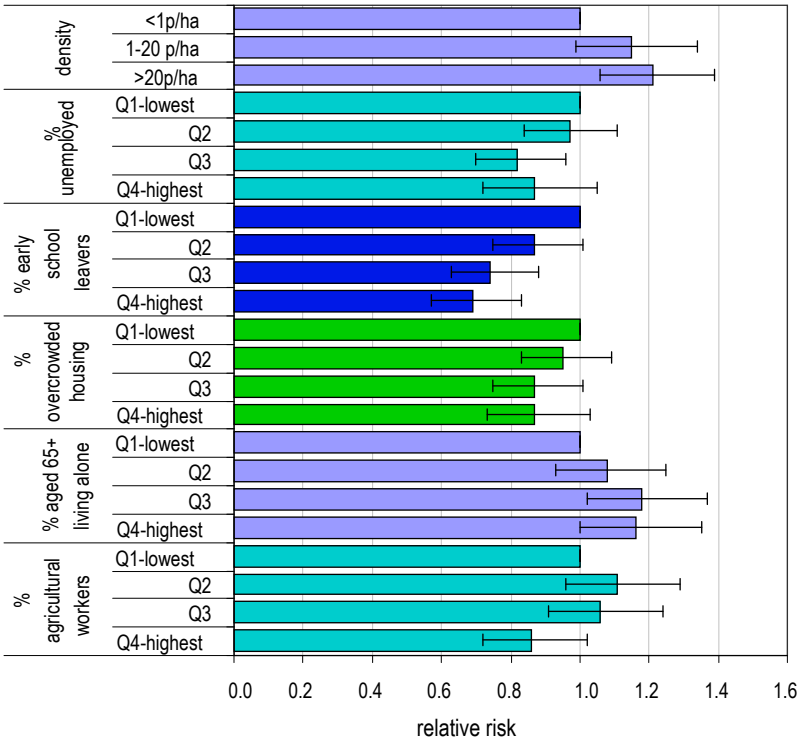
Figure 11.3 Adjusted relative risks of melanoma of the skin by deprivation index: males



Adjusted for population density

There was a strong trend of decreasing risk of melanoma in men with increasing deprivation (figure 11.3). Incidence in the most deprived areas was one-third lower than incidence in the least deprived areas (RR=0.66, 95% CI 0.58-0.76).

Figure 11.4 Adjusted relative risks of melanoma of the skin by area characteristics: males



All variables mutually adjusted except % of agricultural workers (not adjusted for density)

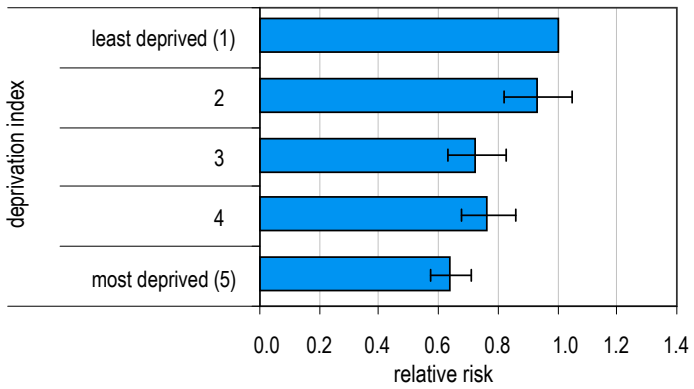
The incidence of melanoma in men was significantly higher in urban areas (>20p/ha) than in rural areas (<1p/ha) (figure 11.4; RR=1.21, 95% CI 1.06-1.39).

Areas with a higher proportion of agricultural workers had a slightly lower incidence, but this was not statistically significant.

Areas with a higher proportion of early school leavers were associated with a significantly lower risk. Areas with a higher rate of unemployment and of overcrowded housing were also associated with lower risk, however these associations were weak.

The risk of melanoma was higher in areas with a higher proportion of people aged 65 and over living alone.

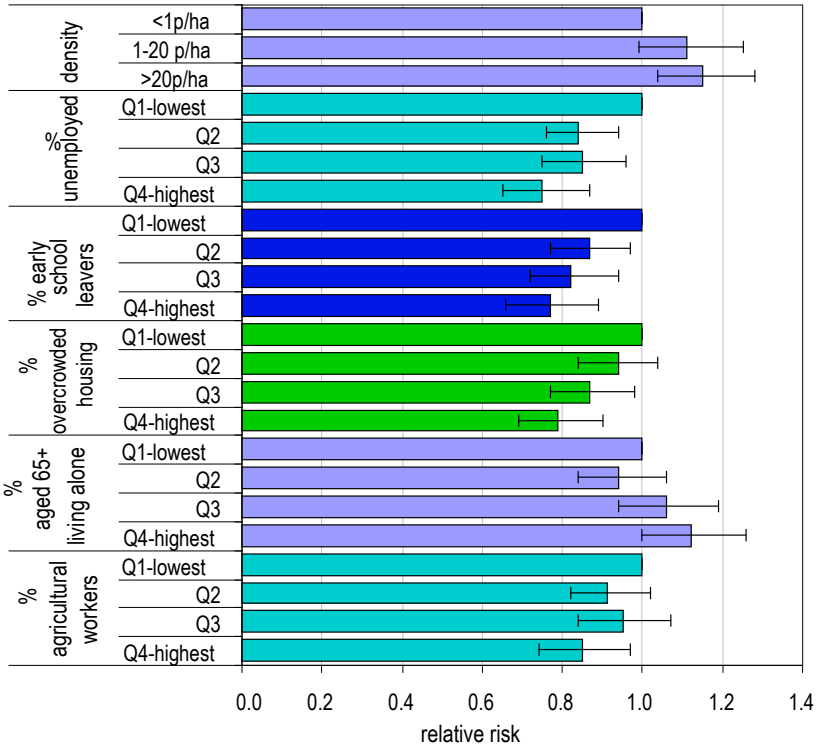
Figure 11.5 Adjusted relative risks of melanoma of the skin by deprivation index: females



As for men, melanoma risk tended to fall with increasing deprivation, and the most deprived areas had an incidence that was one-third lower than the least deprived areas (RR=0.64, 95% CI 0.57-0.71; figure 11.5).

Adjusted for population density

Figure 11.6 Adjusted relative risks of melanoma of the skin by area characteristics: females



More densely populated areas had a higher incidence of melanoma. The relative risk in the most densely, compared to the least densely, populated areas was 1.15 (95% CI 1.04-1.28; figure 11.6).

Melanoma incidence was significantly lower in areas with high unemployment and a higher proportion of early school leavers, overcrowded housing and more agricultural workers.

Risk was higher in areas with a higher proportion of persons aged 65 and over living alone.

All variables mutually adjusted except % of agricultural workers (not adjusted for density)

Socio-economic variation

Deprivation and urban/rural residence were both strongly related to melanoma incidence, but in contrast to other cancers, where these factors had similar effects, for melanoma the effects were in opposition. There was a strong relationship, for both men and women, between affluence, as measured in various ways, and higher melanoma incidence. This confirms the evidence from the literature that melanoma in Ireland is currently mainly due to recreational, rather than occupational, UV exposure. However, better surveillance and over-diagnosis of lesions

with low malignant potential, in populations with more health awareness and greater access to medical services, may also be a factor.

11.5 Mapping and geographical variation

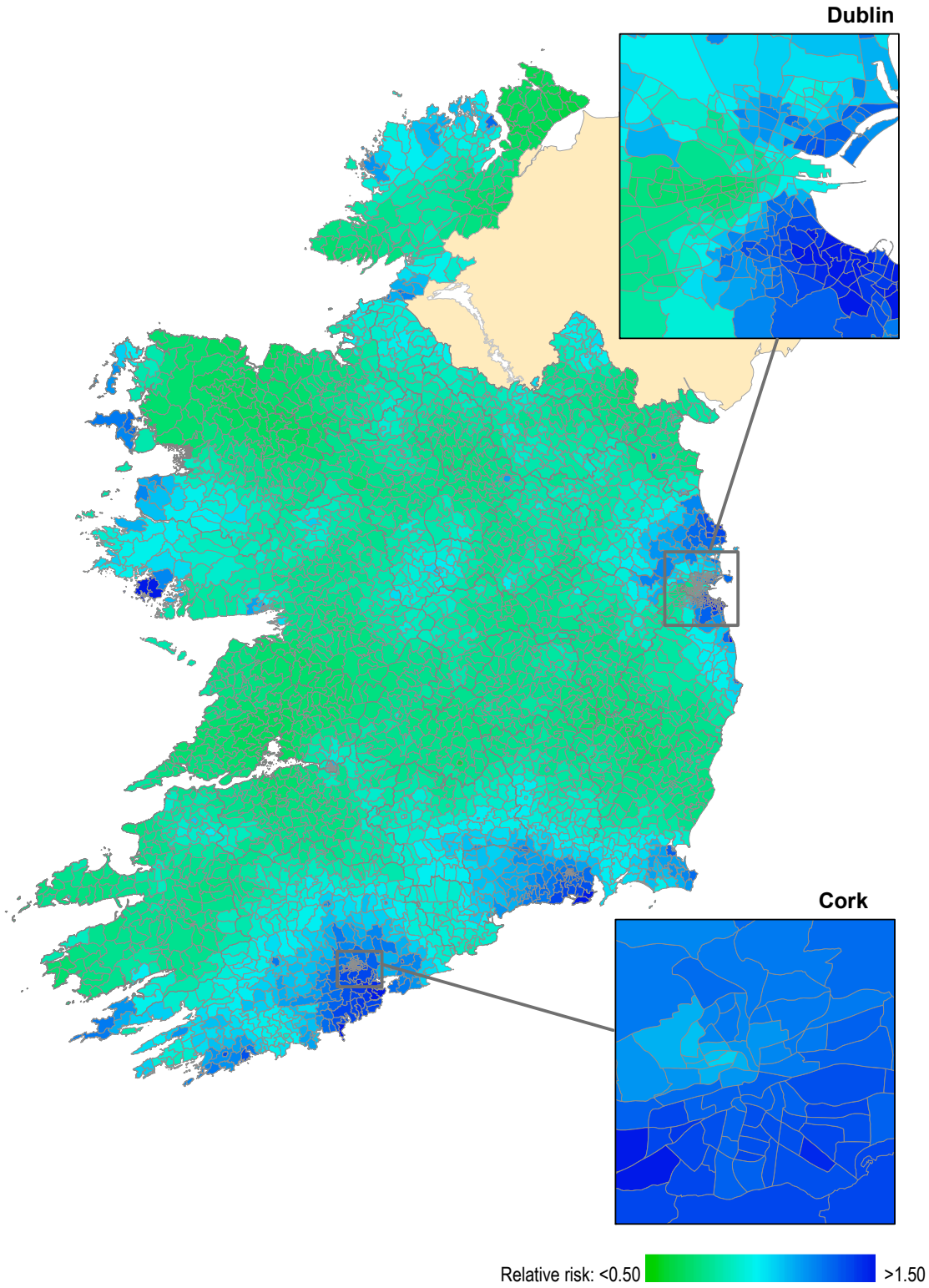
Geographical variation

The geographical distribution of melanoma was quite similar for males and females (maps 11.2-11.3) and there was some resemblance to the geographical pattern of non-melanoma skin cancer (maps 4.1-4.3).

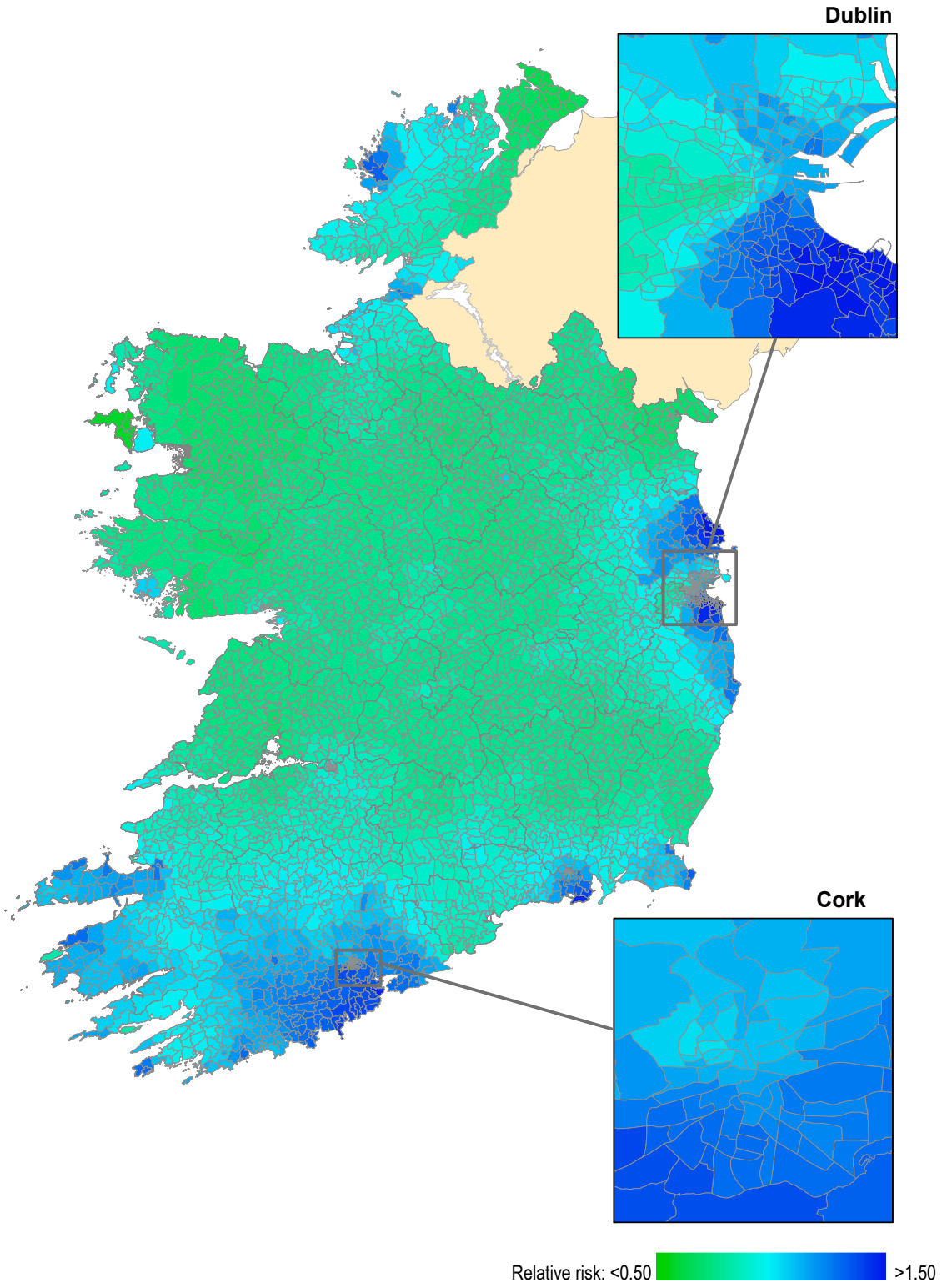
In both sexes, while there were areas of higher incidence in west Cork, to the north of Dublin and along the west coast in Donegal, incidence was highest around the major urban centres of Dublin and Cork, around Waterford and in south Wexford. Among men, there were also some patches of higher incidence in the west, on the coast of counties Galway and. Mayo. For women, the area of higher incidence around Dublin was more dispersed than for men. Within Dublin itself, the highest incidence areas tended to be more concentrated in the south of the city, whereas in Cork, incidence was high in almost the entire city, particularly for men.

Some similarities to the map of household income from the SLÁN survey (Appendix 1) were apparent. In the greater Dublin area, there was some concordance between areas with higher melanoma incidence and areas of higher income; this was less obvious, although still present, in Cork.

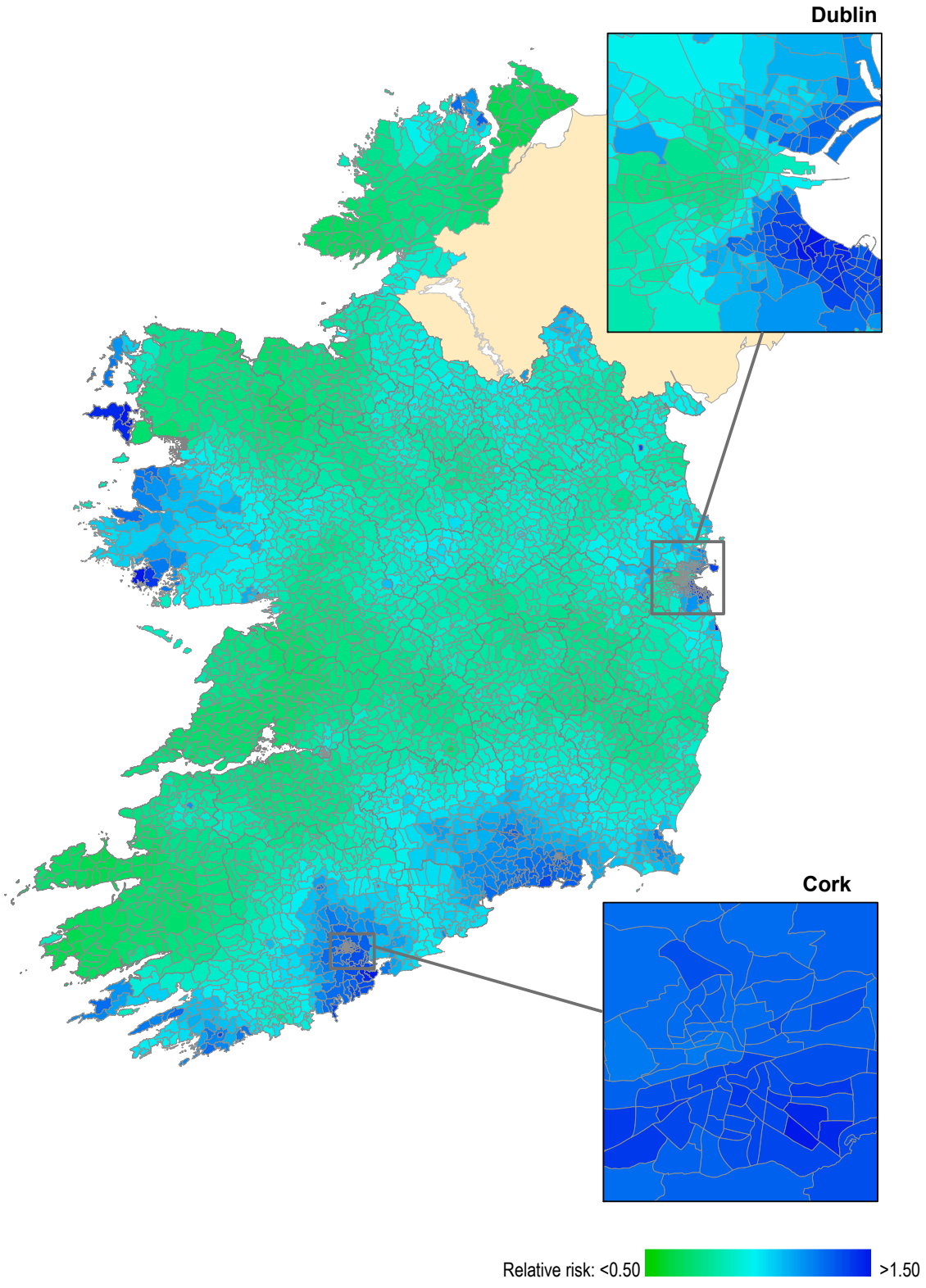
Map 11.1 Melanoma of the skin, smoothed relative risks: both sexes



Map 11.2 Melanoma of the skin, smoothed relative risks: males



Map 11.3 Melanoma of the skin, smoothed relative risks: females



12 Head and neck cancer

12.1 Summary

Head and neck cancers are the 11th most common cancer in Ireland, accounting for 2.8% of all cancers in men and 1.1% in women, when non-melanoma skin cancer is excluded (table 12.1). Each year, approximately 276 men and 101 women are diagnosed with a tumour in the head and neck. During 1994-2003, incidence decreased by 2.5% per annum in men and rose by slightly over 1% per annum in women.

Table 12.1 Summary information for head and neck cancer in Ireland, 1994-2003

	females	males
% of all new cancer cases	0.8%	2.0%
% of all new cancer cases excluding non-melanoma skin cancer	1.1%	2.8%
Average number of new cases per year	101	276
Average number of deaths per year (ICD9 140-148)	96	37
Age standardised incidence rate per 100,000 (European standard population)	5.3	17.4
Estimated annual percentage change in rate 1994-2003	1.2%	-2.5%

Head and neck cancer is a collective term for a range of cancers encompassing more than 15 major sites and over 30 specific sub-sites (table 12.2). In both sexes, the largest number are cancers of the larynx (36% in men and 20% in women), and cancers of the tongue (15% in men and 17% in women). Lip cancers have been excluded from the analysis, as cancers of the skin of lip (usually grouped with skin cancers) and cancers of the lip (grouped with head and neck cancers) are often difficult to distinguish in practice, making data on cancer of the lip relatively unreliable. Cancers of the lip also have more in common, aetiologically, with non-melanoma skin cancer than with other cancers of the head and neck.

The age distribution of head and neck cancer was different for males and females (figure 12.1). Two-thirds of cases in men, but just over half in women, were aged under 70 at diagnosis, while the proportion of women diagnosed at 80 or over was nearly twice that of men (19% vs 10%). However, because of the much higher number of men with these cancers, the absolute number of men affected was higher than that of women at every age.