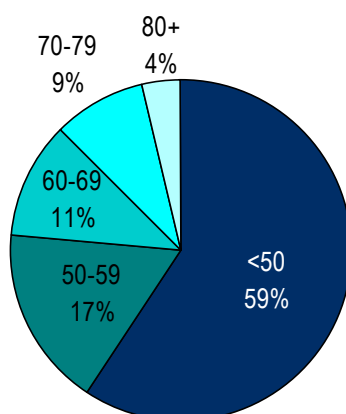# 14 Cervix uteri cancer

14.1 Summary

Cancer of the cervix uteri is the ninth most common cancer in women in Ireland, accounting for 2.1% of all malignant neoplasms in women, when non-melanoma skin cancers are excluded (table 14.1). Each year, approximately 183 women are diagnosed with cervical cancer. During 1994-2003, incidence rates remained stable over time.

Table 14.1 Summary information for cervical cancer in Ireland, 1994-2003

% of all new cancer cases	2.0%
% of all new cancer cases excluding non-melanoma skin cancer	2.1%
Average number of new cases per year	183
Average number of deaths per year	73
Age standardised incidence rate per 100,000 (European standard population)	10.3
Estimated annual percentage change in rate 1994-2003	-0.4%

Cancer of the uterine cervix is predominantly a disease of younger women (figure 14.1). Over half are aged under 50 at diagnosis and three-quarters under 60. Of the remainder, 11% are aged 60-69 at diagnosis, 9% aged 70-69 and 4% are 80 and older.
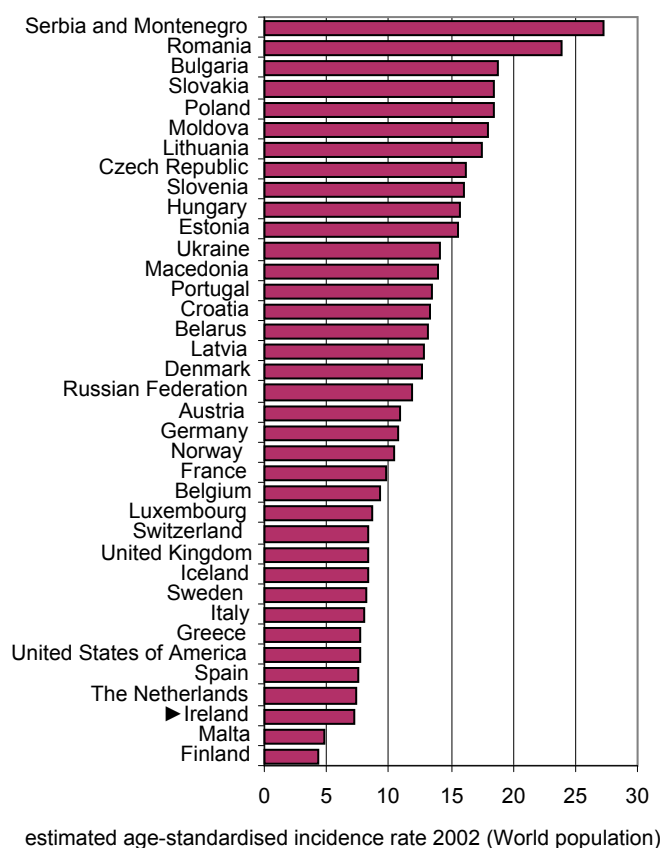
Figure 14.1 Age distribution of cases of cancer of the uterine cervix, 1994-2003

14.2 International variations in incidence

There is a very wide range of variation in cervical cancer incidence across Europe (figure 14.2). International variations are difficult to interpret, as they are influenced by intensity of screening as well as exposure to known risk factors; effective cervical cancer screening can reduce the incidence of the disease in the population. The estimated incidence in Ireland in 2002 was one of the lowest rates in Europe, despite the absence of a population-based screening programme at that time.

Figure 14.2 Estimated incidence rate per 100,000 in 2002 for Europe and USA: cervical cancer

estimated age-standardised incidence rate 2002 (World population)

Source: GLOBOCAN 2002 (Ferlay et al, 2004)

14.3   Risk factors

Table 14.2 Risk factors for cancer of the uterine cervix, by strength of evidence

	Increases risk	Decreases risk
Convincing or probable	Infection with "high-risk" types of genital human papilloma viruses (HPV)[1,2]	
	Tobacco smoking[3,4,]	
	Combined oestrogen-progestogen oral contraceptives[4,5]	
	High parity[4]	
	Low socio-economic status[6]	

[1] "high-risk" HPV types include 16, 18, 31, 33, 35, 39, 45, 51, 56, 58, 59, 66; [2] International Agency for Research on Cancer, 2007a; [3] International Agency for Research on Cancer, 2004b; [4] Castellsagué and Muñoz, 2003; [5] International Agency for Research on Cancer, 2007b; [6] Faggiano et al, 1997
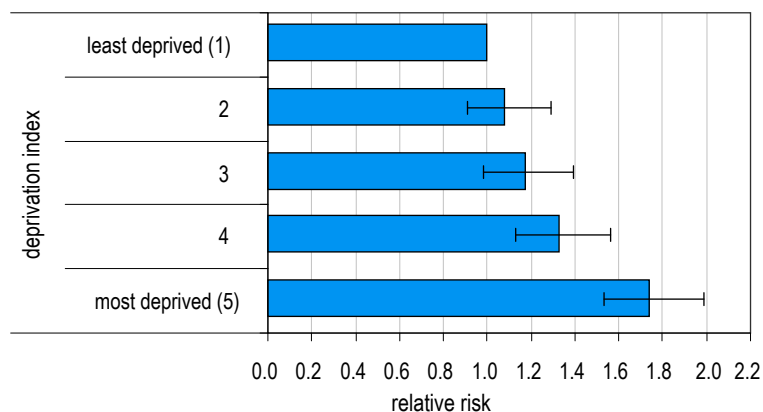
Numerous strains of human papilloma viruses (HPV) infect the genital squamous epithelia. Some strains (known as "low-risk") cause genital warts while other strains (known as "high-risk") cause cervical cancer (International Agency for Research on Cancer, 2007a). The association between cervical cancer and these high-risk types of HPV infection is so strong that HPV is considered to be a necessary cause of the disease (Bosch et al, 2002). Infection with high-risk HPV is very common, and most women who have been sexually active will be infected at some time during their lifetime (Bosch et al, 2008). In Ireland, studies of women attending for cervical smears have reported that prevalence of high-risk types is approximately 20% (Keegan et al, 2007, McInerney et al, 2008). In most women, infection causes no symptoms and clears naturally within a few months. However, some women become re-infected and the virus persists; it is susceptibility to persistent infections which is thought to increase risk of developing cervical lesions. The factor most consistently associated with risk of genital HPV infection is number of sexual partners (Winer and Koutsky, 2004).

 Numerous studies have reported that smoking increases risk of cervical cancer, and recent studies show that the effect of smoking is not diminished by adjusting for HPV infection. These findings have led the International Agency for Research on Cancer to conclude that there is a causal relationship between smoking and squamous cell carcinoma of the cervix (International Agency for Research on Cancer, 2004b).

Risk of cervical cancer is raised in women who have used combined oestrogen-progestogen oral contraceptives and also increases with increasing parity. Risk is also raised in women of lower socio-economic status. While partly a function of variations in exposure to risk factors, this also reflects social class differences in access to cervical smear tests and/or participation in organised screening programmes (Segnan, 1997).
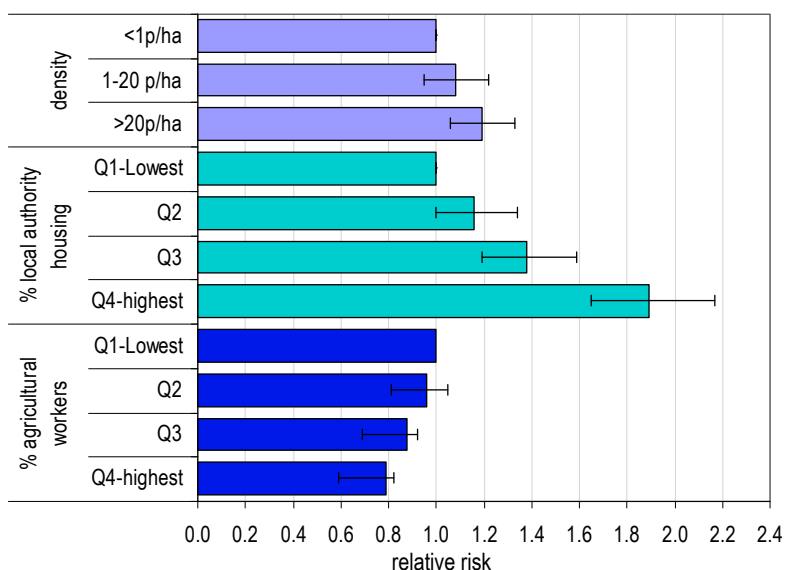
14.4 Electoral district characteristics and cancer incidence

Figure 14.3 Adjusted relative risks of cervical cancer by deprivation index: females

Adjusted for population density

There was a strong and significant relationship between deprivation and cervical cancer incidence (figure 14.3). The incidence rate in the most deprived areas was more than 70% higher than in the most affluent (RR=1.74, 95% CI 1.53-1.99)

Figure 14.4 Adjusted relative risks of cervical cancer by area characteristics: females

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

There was an association between cervical cancer and population density, but this was relatively modest (figure 14.4); risk was around 20% higher in the most populated, compared to the least populated, areas (RR=1.20, 95% CI 1.06-1.33).

Of the other socio-demographic variables studied, local authority housing was associated with cervical cancer risk. The areas with the highest proportion of local authority housing had an incidence rate almost 90% greater than those with the least local authority housing.

Socio-economic variation

The strong relationship between deprivation (and other markers of socio-economic status, such as proportion of local authority housing) and cervical cancer observed here is consistent with studies in many other countries. It is likely to be due to several reasons, including variations in exposure to risk factors (notably high-risk HPV infections and smoking), variations in exposure to risk factors for HPV (such as number of sexual partners) and differences in access to, or uptake of, smear tests. These explanations probably also account for the more modest relationship between population density and cervical cancer incidence.

14.5   Mapping and geographical variation

Geographical variation

The areas of highest incidence of cervical cancer were concentrated in and around Dublin and in a broad band down the eastern side of the country from Dublin, through Kildare and Wicklow, to Wexford (map 14.1). There was another less concentrated band of areas of higher incidence running through the middle of the country, from north to south. Lower incidence was observed in the southwest, in counties Cork and Kerry, as well as in Donegal in the northwest. In Dublin and Cork, the highest incidence areas were in the north of both cities, corresponding to areas with higher deprivation and higher densities of local authority housing.

In comparing the distribution of cervical cancer with that of poverty (measured by income) from the SLÁN survey (Appendix 1), there was some correspondence between the areas of high incidence and those of high poverty in the east and midlands, but not in the west. There was no clear relationship to smoking prevalence (Appendix 1), however, some similarities with lung cancer incidence in women were observed (map 7.3).

Map 14.1 Cancer of the uterine cervix, smoothed relative risks: females

Relative risk: <0.50   >1.50