

2. Introduction

2.1. Report for 1994 to 1998

Since 1996, the National Cancer Registry has produced an annual report, based on a single year's data. Reports on the years 1994 to 1997 have already appeared, as has a joint report on 1994 to 1996 with the Northern Ireland Cancer Registry.¹ This year, we have decided to use the completion of five years of data as an occasion to produce a summary report for 1994 to 1998. The intent and structure of this report is somewhat different from its predecessors. The range of cancer sites covered in detail has been reduced while the depth of analysis has been increased. In place of site-specific chapters, the current report has chapters devoted to specific topics – summary statistics, age distribution, time trends, geographical variation, treatment and survival. As in previous reports, extensive tables in the appendix provide information on cancer sites not covered in the main text.

The report also contains a brief summary, which is available as a separate document. Both report and summary are available in PDF format on our web site at www.ncr.ie. An extract of the dataset used in producing this report is also freely available at the same web address.

2.2. Structure of the report

2.2.1. Cancers included

Unlike previous reports, which have been based on annual data, this report presents aggregate data from 1994 to 1998. Because of the greater depth of analysis allowed by higher case numbers, the number of individual cancer sites reported on in detail has been reduced to ten:

1. Colon
2. Rectum/anus
3. Breast
4. Lung
5. Prostate
6. Stomach
7. Lymphoma
8. Bladder
9. Leukaemia
10. Melanoma of skin.

Data on “all cancer sites combined” and for “all cancer sites excluding non-melanoma skin” have been given for all age groups and also for children under 15.

The cancer sites chosen are those which had the largest average number of cases during the 1994 to 1998 period, and, in general, are presented in descending order of incidence in each chapter. Under the heading of colorectal cancer, separate data have been given in most cases on cancers of the colon and anorectum, and for lymphoma, separate figures have been given in some instances for non-Hodgkin's lymphoma.

2.2.2. Chapters

Data have been analysed under six headings

1. Summary statistics
2. Age distribution
3. Time trends
4. Geographical patterns
5. Treatment
6. Survival

Summary statistics

Annual numbers of cases, cases as percentages of all cancer cases, crude rates (annual number of cases divided by total Irish population), cumulative risks (average “lifetime” risks to age 74) and age-standardized rates (corrected to standard world and European age-structures) have been presented. Where appropriate, 95% confidence limits have been provided for rate estimates.

Age distribution

This chapter describes numbers of cases and deaths in each five year age band from 0 to 85+ for the cancers described in section 2.2.1. Age-specific incidence and mortality rates, median ages of incidence and death and the percentage of patients over and under 65 years of age are also presented.

Time trends

This chapter describes time trends in incidence and mortality from 1994 to 1998 for the cancers listed in section 2.2.1. Estimates of annual percentage change in rate, with confidence intervals, are also given for each cancer.

Geographical patterns

This chapter maps and compares cancer incidence in Ireland with that in Northern Ireland, England, Scotland and Wales, as well as with the 1996 estimated EU average. Some comparisons and maps are also provided showing cancer incidence within Ireland at health board level.

Treatment

The analysis of treatment consists of descriptive statistics (mainly cross tabulations) to identify current treatment patterns and trends across time and by health board of residence. Logistic regression analysis has been used to adjust for the potential effects of age at diagnosis, gender and stage on time and geographic trends of cancer treatment. Statistically significant odds ratios and their 95% confidence intervals are also presented.

Survival

This chapter presents a survival analysis of the major cancers. Two measures of survival are presented – crude survival, which describes the proportion of patients still alive at a specified time after diagnosis – and relative survival, a comparison of the survival of the selected patients with that of the general population. All analyses are presented separately for males and females, and consideration given to the stage of cancer at diagnosis and patient age.

2.3. Data used in the report

Cancer incidence figures for 1994 to 1998 are based on data collected by the Registry from January 1st, 1994 to March 31st, 2000. Mortality information has been extracted by the Registry from copies of death certificates made available to us by the Central Statistics Office (CSO) up to June 1st, 2001.

Census data for 1996 were also provided by the CSO.² Cancer incidence data for Scotland, England, Wales and Northern Ireland were extracted from recent published reports (see individual chapters for references). European data were taken from the EUCAN estimates of the European Network of Cancer Registries.³ Other data used are acknowledged as appropriate in the text.

It will be noted that case numbers in this report are not always the same as those given in our series of previous annual reports. There are two main reasons for this:

1. Cancer registration is, of its nature, a dynamic process. Cases are added, and sometimes deleted, on the basis of new information which may not come to light for many years after the original diagnosis. Totals of cases for a particular year can never be regarded as final and definitive.
2. Some patients are diagnosed as having more than one cancer during a lifetime. The National Cancer Registry registers each cancer separately if it seems to us, on the basis of the evidence, that these are two distinct cancers. All previous reports have used this policy. However, the International Agency for Research of Cancer (IARC) has recommended⁴ that multiple primary cancers in the same patient should only be reported as separate cancers in certain well-defined circumstances. In all other cases, one or other of the cancers should be disregarded in counts of cancer numbers. For this report, these IARC recommendations have been applied to the data, with the effect of reducing the apparent number of registered cancers by 5% (see section A2.2).

2.3.1. Case definitions

Summary statistics, age distribution, time trends and geographical patterns

The data presented in Chapters 5 to 8 are based on complete registration of invasive and in situ neoplasms, and tumours of uncertain behaviour, for persons normally resident in the Republic of Ireland. Benign tumours of intracranial or intraspinal tissues, but not other sites, are also registered by the National Cancer Registry and presented here, as appropriate (Table 2.1). The latter group are recorded by the National Cancer Registry as they have greater clinical significance (higher fatality rates) than other benign tumours. Tumours of uncertain behaviour are those for which benign or malignant status could not be confirmed.

Table 2.1 Behaviour of cancers

behaviour	number of cases	% of total
invasive	85475	88.1%
in situ	9259	9.5%
uncertain	1516	1.6%
benign	745	0.8%
all cases	96995	

The major emphasis in this report is on malignant (invasive) cancers, as these account for the vast majority of neoplasm-related deaths. Non-malignant conditions have been excluded from text, tables and figures, except where this has been specifically noted.

Both cases and deaths are classified according to the site of the primary cancer; sites of secondary tumours have not been considered. Where only a secondary site was known, the cancer was registered and reported as “primary site unknown”.

The cancer sites/combinations used have been defined by the first three characters of the ICD 10 “site” codes, e.g. C50 represents all malignant cancers of breast (C50.0 to C50.9).⁵ For deaths, mortality data presented here are based on cause of death as notified on death certificates. The codes used in this report have been derived by translation of the ICD 9 codes allocated by the Central Statistics Office to ICD 10, using (with minor modifications) a conversion program supplied by the International Agency for Research on Cancer.⁶

For incident cases, registry data were initially coded to sites defined by the second edition of the International Classification of Diseases for Oncology⁷, before translation to ICD-10 codes, using the conversion program mentioned above.

Treatment

Data on nine cancer sites was used for treatment analysis. In the case of patients who had more than one cancer, the record with the earlier date of diagnosis was retained, leaving a total of 39681 cases. A further 311 patients were excluded for various reasons (see section A2.1.2 and task A2.3), leaving 39370 cases for analysis.

Survival

Of the 39370 incident cancers summarised in Table A2.3, all deaths prior to 31st Dec. 1999 were defined as deaths, while all patients dying since that date or whose death was not recorded were “censored” (i.e. considered as alive) on 31st Dec. 1999 (see Section A2.1.3). After exclusions, 38643 records were analysable.

