Survival of Cancer Patients in Finland 1955–1994

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Introduction: The study of survival of cancer patients is essential for monitoring the effectiveness of cancer control. The previous monograph describing cancer patient survival in Finland was published by the Finnish Cancer Registry in 1981 and covered patients diagnosed in 1953–1974. This new supplement assesses cancer patient survival up to the year 1995. *Material and methods:* The study includes over 560000 tumours registered at the Finnish Cancer Registry with a date of diagnosis between 1955 and 1994. Patients were followed up to the end of 1995. Trends in relative survival rates are studied over four 10-year diagnostic periods from 1955 to 1994. In addition, detailed results are presented for patients diagnosed during 1985–1994, including relative survival rates tabulated by stage, sex, and age. Additional sections describe differences in cancer patient survival according to social class and region of residence and a comparison of cancer patient survival in Finland to other European countries. *Results:* Patient survival improved over time for almost all anatomical sites. The main exception is in cancer of the cervix uteri, where patient survival has decreased slightly from 1965–1974 to 1985–1994 due to the selective prevention of less aggressive tumours through cytologic screening. Very few differences in patient survival are observed between males and females. A substantial improvement in survival can be seen for childhood cancers. *Conclusion:* The increasing survival rates reflect improvements that have taken place in various areas of cancer control, from health education and early diagnosis to treatment and aftercare. This study provides valuable reference information for both clinicians and health administrators, as well as a baseline for more detailed studies of patient survival for individual anatomical sites.

1 INTRODUCTION

A major function of the Finnish Cancer Registry is to publish national cancer statistics in order to provide a framework for assessing and controlling the impact of cancer. Incidence rates, which provide the single most important measure of the cancer burden, are published annually, the most recent publication describing incidence for the 1995 calendar year (1). Trends in incidence rates primarily reflect trends in risk factors in the population, although they can be affected to a lesser degree by improvements in diagnostic facilities. Improvements in diagnostic and treatment facilities are, however, best assessed through the monitoring of patient survival, defined as the elapsed time between diagnosis and death.

In addition to its use for assessing improvements in diagnostic and treatment processes, information on cancer patient survival is also of interest to clinicians concerned with the prognosis of individual patients. A detailed description of cancer patient survival in Finland was last published in 1981 (2). In the current publication we provide information on trends in survival for patients diagnosed from 1955–1994, along with a detailed description of survival for patients diagnosed in the period 1985–1994. Additional sections describe differences in cancer patient survival according to social class and region of residence and a comparison of cancer patient survival in Finland to other European countries.

2 THE FINNISH CANCER REGISTRY

The Finnish Cancer Registry is population-based and covers the whole of Finland (population 5.1 million). The Registry was established in 1952, with 1953 being the first calendar year with complete registration. The Registry obtains information from many different sources: hospitals and other institutions with inpatient beds, physicians working outside hospitals, dentists, and pathological and cytological laboratories. The Finnish Cancer Registry also receives copies of all death certificates where cancer is mentioned. Notification of new cancer cases to the Cancer Registry is mandatory by law. If the reported information

is deficient or contradictory, requests are sent to informants in order to ensure accuracy in the following areas: patient details, the primary site of the tumour, and the date of diagnosis.

The diseases registered at the Finnish Cancer Registry include, in addition to all clearly malignant neoplasms, carcinoma in situ lesions (except those of the skin), all neoplasms of the intracranial space and spinal canal irrespective of their malignancy, benign papillomas of the urinary organs, semimalignant tumours of the ovary, basal cell carcinomas of the skin, and cases of polycythaemia vera and myelofibrosis. Many patients with these lesions were, however, excluded from the present survival analysis. The composition of the material is described on a site-by-site basis together with the site-specific results.

Various check-ups have shown that the coverage of the Cancer Registry file is almost complete with respect to cancer cases diagnosed in the Finnish population (3, 4) (see the following section on data quality). All independent primary neoplasms in the same person are registered separately. When evaluating whether a new tumour is an independent cancer or a recurrence, attention is focused on, among other aspects, the time interval between the tumours, histology, and knowledge of the general behaviour of each cancer type. In principle, multiple metachronous tumours in the same organ (e.g. in the colon or skin) are registered separately, especially when they have different histologies. However, each case is evaluated individually and a primary site code 'multiple cancer' is also available for some organs. The International Classification of Diseases Volume 7 (ICD-7) is used at the Finnish Cancer Registry. Further details of the registry can be found in the annual incidence publications (1).

3 DATA QUALITY

The data maintained by the Finnish Cancer Registry are among the highest quality data of any population-based cancer registry in the world. The existence of unique personal identification numbers in Finland since 1967 is of major benefit to cancer registration. This number makes the identification of individuals simple and reliable, and obviates duplication. It is especially important in survival analysis, where it is essential to follow up each patient to determine vital status (i.e. alive, dead, emigrated). Patients registered at the Finnish Cancer Registry are identified in the national population register in order to ascertain vital status, and the date of death or emigration is recorded where applicable. Living patients are followed up through regular record linkage with the annual death files of Statistics Finland. Information is obtained on deaths due to all causes among the patients registered at the Finnish Cancer Registry.

Completeness and validity are both desirable properties of cancer registry data. Completeness is measured by the proportion of all incident cases in the population covered by the registry that are included in the registry database. Studies have shown that the Finnish Cancer Registry achieves close to 100% completeness (3). Low percentages of death certificate only (DCO) and death certificate initiated (DCI) cases are indicative of a high level of completeness. Occasionally, a death certificate is received containing information on a tumour not previously known to the registry. In this situation, registry staff, in a process known as follow-back or retrospective follow-up, contact the patient's physician or health care institution in an attempt to ascertain the true date of diagnosis and additional details of the disease. If the true date of diagnosis is ascertained, then it is recorded on the registry database. Such cases are commonly called death certificate initiated (DCI) or death certificate notified (DCN) cases. If it is not possible to ascertain the true date of diagnosis, then the date of diagnosis is deemed to be the same as the date of death, resulting in zero survival time, and the case is classified as a death certificate only (DCO) case. The percentage of DCO cases is low (0.8% across all sites for cases diagnosed 1985–1994) in the Finnish data (Tables 2 and 3).

Validity refers to the proportion of cases recorded in the data as having a given attribute (e.g. diagnosed site) that truly have this attribute. A high percentage of microscopically (histologically and/or cytologically) verified cases, as occurs in Finland (Tables 2 and 3), generally indicates high validity of the diagnosed site recorded on the registry database. The validity of vital status information is critical to the estimation of patient survival. Survival estimates will be biased upwards if the cancer registry is unaware of patients who have died or emigrated. Follow-up is extremely efficient in Finland due to the existence of personal identification numbers. The files of the cancer registry are matched annually with the annual list of deaths using the personal identification number as the key, a process which has been carried out by computer since 1975. Approximately every 5 years, the cancer registry data file is actively matched with the central population register (a register of all people currently alive and living in Finland) as an additional check on the vital status of the patients. Such checks against the central population register have shown that, since computerized matching began in 1975, only a small proportion (0.05%) of deaths are missed when the annual matching is performed (5). Data from the Finnish Cancer Registry are used extensively for research, both by registry staff and external research units, which further enhances the quality of the Finnish data.

4 MATERIAL

The basic material for the analysis of patient survival consisted of all tumours recorded at the Finnish Cancer Registry with a date of diagnosis in the years 1955–1994. Follow-up for deaths was to December 31, 1995. Summary information for each of the primary sites studied is given in Tables 1–3. Each category, defined by primary site, included all malignant tumours irrespective of their histology; for example, lymphomas and sarcomas were analysed in connection with the primary sites in question, except for some sites where their exclusion is specifically noted.

Table 1

Number of cases (n) included in the analysis and average age at diagnosis, stratified by site and calendar period of diagnosis

Site	1955–1964		1965–1974		1975–1984		1985–1994	
	n	Age	n	Age	n	Age	n	Age
Lip	1 626	60	1 470	63	1 545	66	1 529	70
Tongue	316	61	334	63	492	64	618	63
Salivary glands	288	55	299	57	423	61	478	61
Oral cavity	306	61	319	64	435	64	677	65
Pharynx	527	59	639	60	774	63	843	63
Oesophagus	2 718	67	2 333	69	2 063	71	2 027	71
Stomach	16 188	65	13 505	67	11 994	68	10 481	69
Small intestine	258	58	318	59	496	61	772	64
Colon, carcinoma	2 767	64	4 305	66	6 771	68	9 415	70
Rectum, carcinoma	2 442	65	3 983	66	5 535	68	6 688	70
Liver	489	63	771	63	1 449	67	2 035	69
Gallbladder	513	65	1 175	68	2 201	70	2 539	72
Pancreas	2 410	64	3 761	66	5 158	69	6 405	70
Nose, sinuses	398	60	388	61	349	64	351	65
Larynx	1 323	57	1 611	60	1 331	63	1 200	64
Lung	12 540	61	18 700	64	21 705	66	20 492	67
Pleura, mesothelioma	15	53	65	57	197	62	390	64
Breast	7 181	57	10 927	59	16 246	61	25 202	61
Cervix uteri								
Invasive carcinoma	3 699	52	3 513	55	2 080	60	1 464	61
Carcinoma in situ	679	45	2 635	43	1 674	40	1 918	39
Corpus uteri, carcinoma	2 148	59	3 034	61	4 086	63	5 030	66
Ovary	2 076	56	2 789	58	3 403	61	4 126	62
Prostate	2 734	70	5 176	71	9 265	72	14 709	73
Testis	184	42	312	37	450	38	700	38
Kidney	1 356	56	2 384	59	3 733	62	6 066	64
Bladder (malignant)	1 432	65	2 722	66	4 562	68	6 515	70
Skin, melanoma	893	51	1 679	54	3 098	55	4 816	57
Skin, non-melanoma								
Squamous cell carcinoma	1 197	64	1 664	68	2 651	72	4 949	75
Basal cell carcinoma	6 021	63	12 245	65	22 862	67	37 419	68
Eye	346	47	410	53	488	55	567	56
Brain & spinal cord								
Meningioma	300	48	560	51	1 209	55	1 502	57
Malignant	789	37	1 165	37	1 799	41	2 467	44
Sympathetic nervous system	81	13	94	12	103	8	116	11
Thyroid gland	695	56	1 181	54	2 074	53	2 771	52
Bone	696	44	563	42	525	43	409	42
Soft tissue	640	48	845	51	974	55	1 230	57
Non-Hodgkin's lymphoma								
Nodal	924	53	1 539	58	2 602	60	4 356	62
Extra-nodal	552	53	652	59	1 190	62	2 014	64
Hodgkin's disease	866	42	1 141	44	1 197	46	1 178	43
Multiple myeloma	541	61	1 230	65	1 929	68	2 335	70
Leukaemia	2 519	46	3 415	52	4 262	57	4 139	57
All sites[a]	76 184	60	99 806	62	129 045	65	161 134	66

[a] Excludes carcinoma in situ of the cervix uteri, papilloma of the urinary organs, and basal cell carcinoma of the skin.

Table 2

Data quality indicators for cases diagnosed in 1955–1994

Site	Annual no. of cases[a]	Percent micro-scopically verified[b]	Percent DCO[c]	Percent autopsy[d]
Lip	154	97	0.4	0.0
Tongue	44	98	0.7	0.1
Salivary glands	37	96	1.7	0.2
Oral cavity	43	98	0.7	0.0
Pharynx	70	96	1.8	0.6
Oesophagus	247	71	5.4	1.7
Stomach	1 447	66	6.5	2.4
Small intestine	50	92	4.1	6.2
Colon, carcinoma	593	86	2.4	2.6
Rectum, carcinoma	464	91	1.5	1.1
Liver	144	91	3.4	16.8
Gallbladder	173	89	1.8	8.7
Pancreas	478	70	3.2	6.9
Nose, sinuses	38	96	1.1	0.3
Larynx	137	97	0.8	0.6
Lung, trachea	1 907	84	2.7	3.7
Pleura, mesothelioma	17	100	0.1	7.0
Breast	1 454	97	0.5	0.1
Cervix uteri				
Invasive carcinoma	274	98	0.4	0.4
Carcinoma in situ	165	100	0.0	0.0
Corpus uteri, carcinoma	353	98	0.7	0.6
Ovary	311	93	1.2	1.7
Prostate	797	91	1.4	2.3
Testis	40	98	0.5	0.2
Kidney	362	89	2.0	7.5
Bladder (malignant)	375	95	0.9	1.1
Skin, melanoma	254	99	0.3	0.2
Skin, non-melanoma				
Squamous cell carcinoma	253	100	0.0	0.0
Basal cell carcinoma	1 889	100	0.0	0.0
Eye	45	87	1.0	0.2
Brain & spinal cord				
Malignant	163	100	1.0	6.7
Meningioma	101	100	2.4	12.7
Sympathetic nervous system	10	100	1.4	2.1
Thyroid gland	170	97	0.8	3.5
Bone	58	86	3.3	0.8
Soft tissue	92	98	0.7	1.8
Non-Hodgkin's lymphoma				
Nodal	240	98	1.2	3.9
Extra-nodal[e]	109	100	0.1	2.5
Hodgkin's disease	112	98	1.3	3.0
Multiple myeloma	154	78	4.0	2.2
Leukaemia	378	89	4.9	2.7
All sites[f]	12 229	90	2.0	2.7

[a] Average annual number of cases (before exclusions).
[b] Percentage of the included cases which were microscopically verified.
[c] Percentage excluded due to diagnosis based on death certificate only.
[d] Percentage excluded due to diagnosis based on autopsy information only.
[e] Also included in the figures for the individual site of origin.
[f] Excludes carcinoma in situ of the cervix uteri, papilloma of the urinary organs, and basal cell carcinoma of the skin.

Lymphomas not originating in the lymph nodes were also analysed as a separate group, in addition to being included in the site of origin. Carcinoma in situ lesions were excluded, except those of the cervix uteri, which were analysed separately, as were basal cell carcinomas of the skin. These tumours were not included in the analysis for

Table 3

Data quality indicators for cases diagnosed 1985–1994

Site	Annual no. of cases[a]	Percent micro-scopically verified[b]	Percent DCO[c]	Percent autopsy[d]
Lip	153	100	0.0	0.0
Tongue	62	99	0.6	0.0
Salivary glands	48	99	0.6	0.2
Oral cavity	68	99	0.1	0.0
Pharynx	85	99	0.4	0.8
Oesophagus	211	93	1.4	2.5
Stomach	1 089	94	0.8	2.9
Small intestine	82	97	1.0	5.0
Colon, carcinoma	974	94	0.7	2.5
Rectum, carcinoma	680	97	0.5	1.2
Liver	241	93	1.6	14.1
Gallbladder	273	86	1.4	5.5
Pancreas	693	75	2.0	5.6
Nose, sinuses	35	99	0.0	0.3
Larynx	122	99	0.2	1.1
Lung, trachea	2 171	90	1.3	4.3
Pleura, mesothelioma	40	100	0.0	3.5
Breast	2 528	99	0.2	0.1
Cervix uteri				
Invasive carcinoma	148	99	0.2	1.1
Carcinoma in situ	192	100	0.0	0.0
Corpus uteri, carcinoma	508	99	0.3	0.6
Ovary	421	96	0.5	1.5
Prostate	1 506	97	0.5	1.9
Testis	70	100	0.0	0.0
Kidney	653	91	1.2	5.8
Bladder (malignant)	659	99	0.2	0.8
Skin, melanoma	484	100	0.2	0.3
Skin, non-melanoma				
Squamous cell carcinoma	495	100	0.0	0.0
Basal cell carcinoma	3 742	100	0.0	0.0
Eye	57	65	0.4	0.2
Brain & spinal cord				
Malignant	257	100	0.6	3.3
Meningioma	169	99	1.7	9.6
Sympathetic nervous system	12	100	0.0	0.9
Thyroid gland	287	99	0.2	3.2
Bone	42	97	0.7	1.2
Soft tissue	125	99	0.2	1.0
Non-Hodgkin's lymphoma				
Nodal	457	98	0.7	3.9
Extra-nodal[e]	207	100	0.0	2.5
Hodgkin's disease	121	100	0.3	2.6
Multiple myeloma	246	79	2.9	2.0
Leukaemia	440	97	3.3	2.5
All sites[f]	16 660	95	0.8	2.5

[a] Average annual number of cases (before exclusions).
[b] Percentage of the included cases which were microscopically verified.
[c] Percentage excluded due to diagnosis based on death certificate only.
[d] Percentage excluded due to diagnosis based on autopsy information only.
[e] Also included in the figures for the individual site of origin.
[f] Excludes carcinoma in situ of the cervix uteri, papilloma of the urinary organs, and basal cell carcinoma of the skin.

all sites combined. Papillomas of the urinary organs were not included in any of the analyses. Further details of the composition of the material (inclusions and exclusions) for each primary site can be found in the section where site-specific results are presented.

The following general exclusions were made:

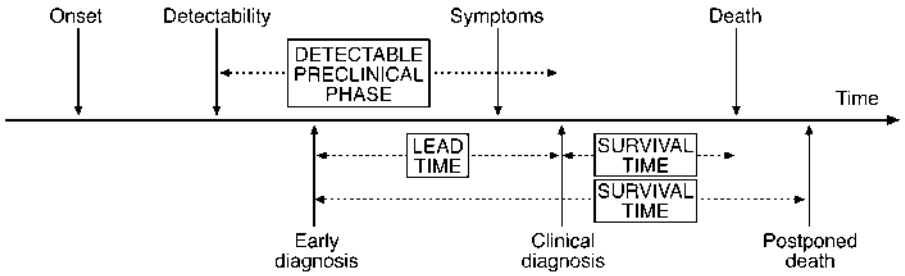

Fig. 1. Natural history of chronic illnesses.

1. Patients for whom the diagnosis of cancer was first made at autopsy (real zero survival).
2. Patients for whom the death certificate was the only source of information, that is, the exact date of diagnosis was unknown to the registry (technically zero survival). The percentages of cases excluded are shown in Tables 2 and 3.

Multiple primary neoplasms in the same person were analysed as independent tumours. For example, if a patient was first diagnosed with breast cancer and subsequently diagnosed with colon cancer, both tumours are included in the respective site-specific analysis, and both tumours are also included in the analysis for all sites combined. The date of diagnosis of the specific tumour is used to calculate survival time, so the survival time following the diagnosis of colon cancer is shorter than that following the diagnosis of breast cancer (since the breast cancer was diagnosed first).

In total, 624590 tumours with a date of diagnosis between 1955 and 1994 are registered at the Finnish Cancer Registry. Of these, 584602 occurred in one of the anatomical sites analysed in the present study. In total, 23871 of these cases were excluded due to the diagnosis either being made at autopsy (13885 cases, 2.4%) or based on death certificate only (9986 cases, 1.7%). Of the remaining cases, 78546 were basal cell carcinomas of the skin and 6906 were in situ carcinomas of the cervix uteri, which were analysed as separate entities in the present study, but not included in the analysis for all sites combined.

5 METHODS FOR ESTIMATING PATIENT SURVIVAL

The survival time for a cancer patient is defined as the elapsed time between diagnosis and death (Fig. 1). The estimation of patient survival is complicated by the facts that some patients die of causes unrelated to the cancer of interest, or may still be alive at the time the analysis is performed. These observations, particularly the latter, are said to be censored, and the estimates of patient survival must account for them.

The most basic measure of patient survival is the observed survival rate after a given period of follow-up, commonly 5 years. Survival rates in the current publication are expressed as percentages. The 5-year observed survival rate, for example, gives the percentage of patients alive after 5 years of follow-up from the date of diagnosis. Not all deaths among a group of cancer patients will, however, be due to the primary cancer in question. Deaths from other causes lower the observed survival rate and preclude comparison of end results between groups experiencing different general mortality. This makes it impossible, for example, to compare observed survival rates between age groups, since an old patient is more likely to die of other causes than a young patient.

To avoid these problems of non-comparability, we have calculated relative survival rates (RSRs). The relative survival rate (r) is defined as the observed survival in the patient group (p) divided by the expected survival of a comparable group from the general population (p^*) (6). Standard notation is to write $r = p/p^*$. The expected survival rate, p^*, is estimated from nationwide population life tables stratified by age, sex, and calendar time (7). The method used to estimate expected survival controls for heterogeneous potential follow-up times among different patient groups (8, 9).

The cumulative relative survival rate represents the percentage of patients alive after i years of follow-up in the hypothetical situation where the cancer in question is the only possible cause of death. The validity of this interpretation is dependent on the accurate estimation of the expected survival rate and the assumption that non-cancer mortality is independent of cancer mortality (10). Estimates of the RSR greater than 100% are possible, and indicate that the patient group has experienced lower mortality than would be expected for a comparable group in the general population.

A relative survival rate equal to 100% indicates that during the specified interval, mortality in the patient group was equivalent to that of the general population. The attainment and maintenance of an interval-specific RSR of 100% indicates that there is no excess mortality due to

cancer and the patients are assumed to be 'cured'. Graphs of the annual interval-specific RSRs are presented for each site and can be used to ascertain 'statistical cure' (11).

The relative survival rates shown in this publication are not standardized by age or stage. In place of standardized results, we have opted to present detailed age- and stage-specific results, since these give a clearer picture of the association between patient survival and age and stage. Age-standardized relative survival rates are, however, presented for the gynaecological cancers (the sites where age standardization has the largest effect) and for all sites combined in the discussion section, where the issue of age standardization is further discussed.

The survival rates for males diagnosed with localized colon carcinoma are presented here to illustrate how the relative survival rate is estimated (Table 4). The 5-year observed survival rate (p) for these men decreases with increasing age. Among the men aged 75 years and over at diagnosis, 41.1% were still alive 5 years subsequent to diagnosis. For a group of men of similar age, but without a diagnosis of colon carcinoma, we would expect 52.0% to survive 5 years or more. That is, the 5-year expected survival rate (p^*) for the men diagnosed with cancer is 52.0%. The relative survival rate (r) is therefore calculated as $100 \times 41.1/52.0 = 79.0\%$. Therefore, 79.0% of these men would survive at least 5 years in the hypothetical situation where colon carcinoma was the only possible cause of death. Although the observed survival rates decrease with age, the relative survival rates remain relatively constant at around 80%. This indicates that the excess mortality due to a diagnosis of localized colon carcinoma is similar for all age groups.

Only relative survival rates are presented in this publication. This ensures that comparisons of cancer patient survival over time are not confounded by changes in mortality due to other causes and will reduce confounding due to changes in the age distribution of the patients. The use of relative survival rates also enables international comparisons to be made. It is recognized that the relative survival rate is a theoretical concept and not directly relevant to the clinician interested in the prognosis of an individual patient. However, even if observed survival rates were reported for each site, these would represent the average survival times for a patient group, from which the survival time of an individual patient could be quite different. We recommend that the relative survival rates be interpreted as measures reflecting the excess mortality due to a diagnosis of the cancer in question.

Table 4

Number of cases (n) and 5-year observed (p), expected (p) and relative (r) survival rates for localized colon carcinomas diagnosed among males in Finland during 1985–1994*

Age	n	p	p^*	r
30–44	84	80.5	98.0	82.1
45–59	257	79.5	93.6	84.9
60–74	731	62.8	79.3	79.2
75+	500	41.1	52.0	79.0

If observed survival rates are required, approximate observed survival rates can be calculated (for each sex and age group) by multiplying the age-, sex-, and cancer-specific relative survival rate by the corresponding age- and sex-specific expected survival rate calculated for all cancer sites combined, and then dividing this by 100. A table of age- and sex-specific expected survival rates for cases diagnosed in all sites during the period 1985–1994 is given for this purpose (Table 5). Although these rates are referred to as the 'expected survival rates for all cancer sites combined', it should be kept in mind that they are the expected survival rates for a *cancer-free* population with the same age and sex structure as the group diagnosed with cancer. The expected survival rates for all ages combined are not shown in Table 5, since these rates are dependent on the age distribution of each individual cancer site. The age-specific expected survival rates for each individual cancer site usually fall within 1 percentage point of the expected survival rates for all sites combined (see, for example, the expected survival rates for male colon cancer presented in

Table 5

Cumulative expected survival rates after 1, 5, and 10 years from diagnosis, Finnish males and females during 1985–1994

Age	Males			Females		
	1-year	5-year	10-year	1-year	5-year	10-year
0–14	100	100	100	100	100	100
15–29	100	99	98	100	100	99
30–44	100	98	96	100	99	98
45–59	99	93	84	100	98	94
60–74	96	80	57	98	89	73
75+	89	51	21	91	59	28

Table 6

Example of a results summary box, which is presented in the Results section for each cancer site. These results are for cancer of the liver

Summary 1985–1994	Males	Females
Average annual number of cases	127	114
Microscopically verified (%)	94	91
DCO cases (% excluded)	1.7	1.4
Autopsy cases (% excluded)	14.4	13.9
Mean age at diagnosis (years)	67	71
Main histological types (%)		
Hepatocellular carcinoma	57	39
None or unknown	19	22
Cholangiocarcinoma	13	23
Adenocarcinoma NOS	5	8
Carcinoma NOS	3	4
Relative survival rates (%)		
1-year	19	18
5-year	5	6
10-year	4	6

Table 4), except for the oldest age group, where slightly larger differences are possible.

For example, the 5-year relative survival rate for males aged 60–74 diagnosed with localized carcinoma of the colon during 1985–1994 is 79.2% (Tables 4 and 19). The 5-year expected survival rate for males aged 60–74 (based on the age distribution of cancer cases diagnosed at all sites) is 80.0% (Table 5). The approximate estimate of the 5-year observed survival rate is therefore $79.2 \times 80.0/100 = 63.4\%$, which is close to the true value of 62.8% (Table 4).

6 PRESENTATION OF RESULTS

6.1 Summary box

The summary box for each primary site presents summary information for cases diagnosed during 1985–1994. An example is presented here for cancer of the liver (Table 6). The average annual number of cases during 1985–1994 is given as the total number of incident cases during 1985–1994 (before any exclusions are made) divided by 10. The percentages of DCO and autopsy cases subsequently excluded from the analysis are also reported in the summary box. A 'DCO case' refers to a patient for whom the death certificate was the only source of information, that is, the exact date of diagnosis was unknown to the registry. An 'autopsy case' refers to a patient for whom the cancer was first diagnosed at autopsy. The total number of cases, including DCO and autopsy cases, is used as the denominator when calculating the percentage of cases verified microscopically (histologically or cytologically). Across all sites (excluding carcinoma in situ of the cervix uteri, papilloma of the urinary organs and basal cell carcinoma of the skin) for the period 1985–1994, the percentages of cases verified microscopically were as follows: 95% for the cases included in the analysis, 98% for the autopsy cases, and 40% for the DCO cases. The percentage of those microscopically verified among all cases (including DCO and autopsy cases) was 95%.

Mean age at diagnosis, distribution by histological type, and the relative survival rates are based on those patients included in the analysis. Relative frequencies of histological types based on the original pathology reports are given (ordered by descending frequency) in order to illustrate the composition of the material, not to show exact occurrences of the different types in Finland. The histological entities may not always be mutually exclusive (e.g. mucinous carcinoma, adenocarcinoma NOS, carcinoma NOS). The denominator includes those cases with unknown or uncertain histology. If the percentage of cases with unknown or uncertain histology is greater than 5% (as a general rule), then this percentage is also reported in the summary box, as in Table 6.

Cumulative relative survival rates are estimated at 1-, 5- and 10-year follow-ups for all ages combined. Age-, sex- and stage-specific estimates of the relative survival rate, including 95% confidence intervals for the 5-year rates, are presented in tabular format for each site.

6.2 Results in graphical format

Results are presented in graphical format where it is felt that this improves interpretability. Most of the figures show trends over time, although some figures show trends across age groups. When age is shown on the horizontal (x) axis, the lines are plotted using broken lines, whereas solid lines are used for all other figures. Not all figure types are shown for each site. Estimates based on less than 10 cases are not shown in the figures.

Separate figures are provided for males and females when survival rates differ between the sexes; otherwise only a single graph for both sexes combined is shown. The sites where separate figures are drawn for males and females include tongue, urinary bladder, skin melanoma, eye, thyroid gland, and all sites combined.

6.3 Results in tabular format

For each site, a table is presented showing the number of cases diagnosed during 1985–1994 along with associated relative survival rates (in percent) for each sex, stage, and 15-year age group. In order to provide information on the age distribution of the incident cases, the tables include information for all age groups, even when only a small number of cases is registered. Survival rates are not shown

when the number of cases diagnosed in the patient group was less than 10. In this situation, all survival rates and confidence intervals are reported as '·'. If the last remaining patient in a given age group is censored, for example, during the fourth year of follow-up then it is not possible to estimate the 5- or 10-year relative survival rates, and these figures are reported as '·'. The 10-year relative survival rates are shown as '·' when the standard error of the rate is greater than 25% of the rate, or if the standard error is greater than 50%.

Standard errors of the 5-year RSR are estimated using Greenwood's formula (6, 12) and used to construct 95% confidence intervals. Each 95% confidence interval (95% CI) is calculated as the estimated RSR $\pm$ 1.96 times the standard error of the estimate. In some situations, generally where the number of cases is small, this leads to confidence intervals containing implausible values for the RSR, i.e. values less than zero or greater than $100 \times 100/p^*$, where p^* is the expected survival rate in percent. When this occurred, the confidence interval was truncated by specifying the lower limit as zero or the upper limit as $100 \times 100/p^*$. The upper limit of the confidence interval is set at $100 \times 100/p^*$ because the observed survival rate can never be greater than 100, meaning the relative survival rate can never be greater than $100 \times 100/p^*$.

The confidence intervals are presented in order to provide an indication of the level of statistical uncertainty in the estimated 5-year relative survival rates. The confidence intervals do not, for example, represent the range of possible prognoses for an individual patient.

6.4 Interpretation of the results

We suggest that when studying the results, the summary box should be examined first in order to obtain an overview of the composition of the material and the relative survival rates. The average annual number of cases provides an indication of the precision of the estimated survival rates. The estimates based on 60 or fewer annual cases (600 or less during 1985–1994) will not be as precise as those based on 1000 or more annual cases (10000 or more during 1985–1994). When the estimates are based on a small number of cases, it is more likely that observed differences are due to random, rather than systematic, influences.

The graph of the annual relative survival rates should be the next figure studied. This figure highlights the pattern of excess mortality following a diagnosis of cancer. It shows, for example, whether the majority of the excess mortality occurs in the first 1 or 2 years following diagnosis (as is the case with cancer of the stomach), or if the excess mortality persists at a more constant level over a longer period (as is the case with cancers of the prostate and breast). When the number of cases is small, and especially when the excess mortality is also high, the estimates of the annual RSR for the later follow-up years will be based on very small numbers, so will be subject to random fluctuations. The 5-year relative survival rate is sometimes erroneously considered a 'cure rate', but excess mortality often exists after 5 years, indicating that this interpretation is erroneous.

The next item to be considered is the figure showing time trends in the 1-, 5- and 10-year relative survival rates. This figure gives an overview of the improvements that have occurred in patient survival over time. Trends in survival rates are rarely due to a single cause and must be interpreted with care. A discussion of the factors that may affect trends in patient survival is given in the discussion section.

The next item of interest is the figure showing the age-specific trends in the 5-year RSR (if such a figure is shown). This figure can be used to determine if specific age groups (for example, young children) have experienced a different trend in survival to the other age groups. The trends in the age-specific curves should be compared to the trend in the curve for all ages combined. If a different pattern exists, then this may indicate that changes in the age distribution of the patients have influenced the trend in the all-age RSR.

The next item of interest is the figure showing the stage-specific trends in the 5-year RSR (if such a figure is shown). This figure must be interpreted with care, since the composition of a stage group can change over time due to improvements in diagnostic techniques and changes in the definition of diagnostic entities (see the discussion of stage migration in the discussion section). It is, of course, also possible that improvements in treatment have led to more improvements in patient survival in one stage group (for example, localized stage) than in the other groups. The trends in the stage-specific curves should be compared to the trend in the curve for all stages combined. If a different pattern exists (for example, all stage-specific curves show an improvement in survival, but the all-stage curve is constant), this indicates that the stage-specific curves are subject to 'stage migration'.

The table of relative survival rates for cases diagnosed 1985–1994 is intended primarily as a reference source, but it does provide important information on the composition of the material such as the distribution of cases by age, sex and stage.

7 RESULTS

A summary of 5-year relative survival rates is shown in Table 7, followed by detailed site-specific results. The results for all sites are presented first, followed by the results for each site ordered by the ICD-7 code.

Cancer at all sites

Summary 1985–1994	Males	Females
Average annual number of cases	7 997	8 663
Microscopically verified (%)	95	95
DCO cases (% excluded)	2.9	2.1
Autopsy cases (% excluded)	0.8	0.8
Mean age at diagnosis (years)	67	65
Relative survival rates (%)		
1-year	65	75
5-year	43	58
10-year	36	55

Cancer at all sites refers here to all malignant neoplasms analysed separately in this monograph except the following rather benign, or at least less malignant, conditions which were excluded: carcinoma in situ of the cervix uteri, basal cell carcinoma of the skin, and papilloma of the bladder. 'All sites' also includes a number of cancers that were not analysed separately, such as cancers of the adrenal glands, ureter, urethra and external female genitalia, sarcomas of the corpus uteri and skin, non-carcinomas of the colon and rectum (although carcinoids of the colon were also studied separately in the main study), and cancers of ill-defined sites.

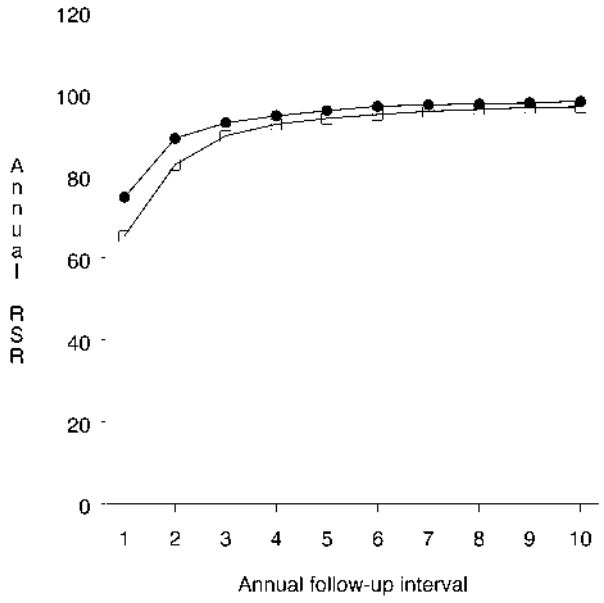

Fig. 2. Cancer at all sites 1985–1994. Annual (interval-specific) relative survival rates for males (□) and females (●).

Table 7

Five-year relative survival rates for each sex, cases diagnosed 1985–1994, in descending order according to the relative survival rate for both sexes combined

Site	Males	Females	Both
Lip	93	92	93
Skin, squamous cell carcinoma	90	92	91
Testis	88	·	88
Thyroid gland	83	88	87
Brain & spinal cord, meningioma	83	87	86
Corpus uteri, carcinoma	·	82	82
Skin, melanoma	78	84	81
Breast	·	80	80
Hodgkin's disease	77	79	78
Eye	79	75	77
Bladder	72	63	70
Sympathetic nervous system	69	69	69
Salivary glands	60	74	68
Prostate	64	·	64
Larynx	62	58	62
Bone	59	61	60
Cervix uteri, carcinoma	·	58	58
Soft tissue	56	57	57
Non-Hodgkin's lymphoma, extra-nodal	55	55	55
Oral cavity	47	60	53
Kidney	51	54	52
Tongue	46	58	52
ALL SITES	43	58	51
Colon, carcinoma	50	50	50
Rectum, carcinoma	48	48	48
Non-Hodgkin's lymphoma, nodal	47	47	47
Small intestine	43	42	43
Pharynx	36	49	41
Nose, sinuses	44	36	41
Leukaemia	40	38	39
Brain & spinal cord, malignant	39	38	38
Ovary	·	37	37
Multiple myeloma	30	28	29
Stomach	24	24	24
Lung	10	13	11
Oesophagus	8	10	8
Gallbladder	8	8	8
Liver	5	6	5
Pleura, mesothelioma	4	7	5
Pancreas	2	3	3

The 5-year RSR for all cancers diagnosed in 1985–1994 is 43% for males and 58% for females. The corresponding crude rates are 32% and 48%, respectively (Table 9). Due to the higher general mortality in the older age groups, the difference between the observed and relative survival rates increases with increasing age (Table 9).

Excess mortality due to cancer diminishes with time, but persists throughout the entire 10-year follow-up period (Fig. 2). A steady increase has taken place in the 1-, 5- and 10-year RSR, both in males and females (Fig. 3). The

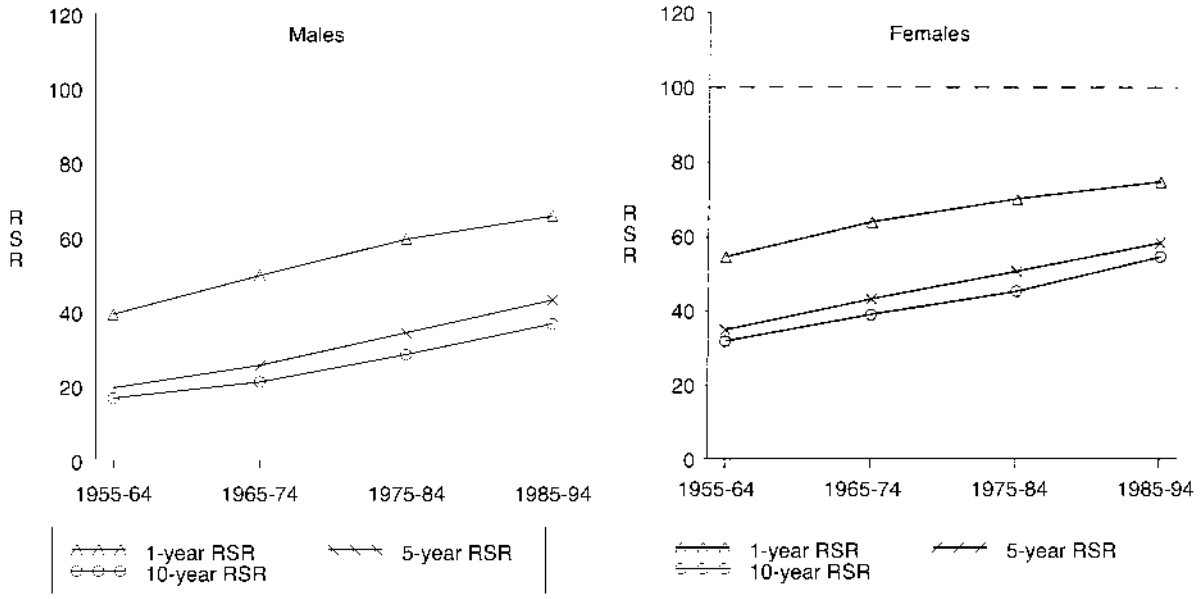

Fig. 3. Cancer at all sites 1955–1994. Relative survival rates by calendar period of diagnosis for males and females.

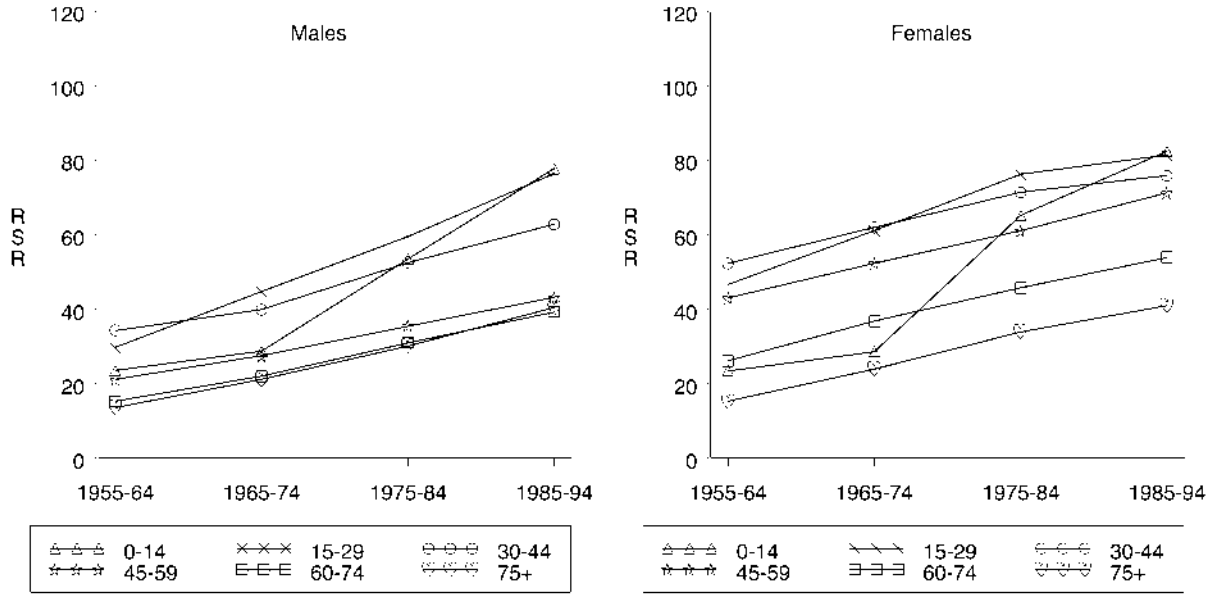

Fig. 4. Cancer at all sites 1955–1994. Five-year relative survival rates by age and calendar period of diagnosis for males and females.

increasing trends in the 5-year RSR are similar in all age groups, except in patients aged 0–14 years for whom the increase is much faster (Fig. 4). In 1985–1994 the oldest patients experience the lowest RSRs; almost no differences exist in males between the three oldest groups (Fig. 4, Table 8).

The trends with time in the 5-year RSR are similar for each stage (Fig. 5). All stage-specific RSRs for females are superior to those for males (Table 8). In males, the curve for all stages runs above the curve for regional metastases, whereas the opposite is true for females. This is due to differences in the stage distribution between the sexes.

Comment: The higher rates in females compared to males result from two different mechanisms. First, for some primary sites, the survival rates for females exceed those for males. Second, and more importantly, the most common cancer in females by far, cancer of the breast (5-year RSR 80%), is associated with a better survival rate than the most prominent cancers in males, those of the prostate (5-year RSR 64%) and lung (5-year RSR 10%).

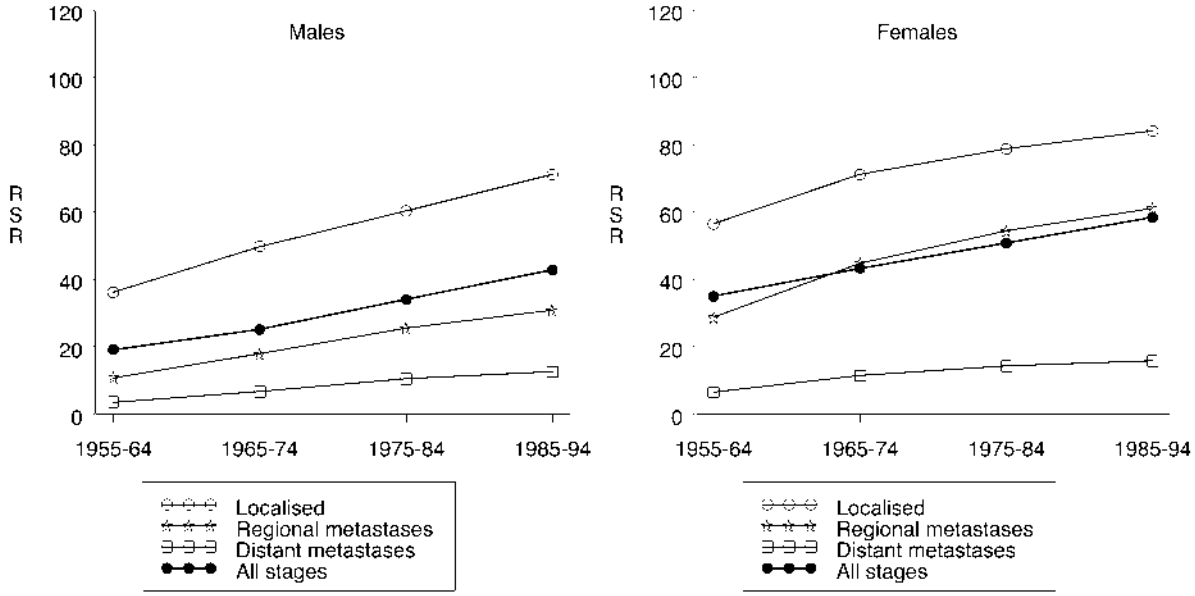

Fig. 5. Cancer at all sites 1955–1994. Five-year relative survival rates by stage and calendar period of diagnosis for males and females.

Table 8

Cancer at all sites 1985–1994. Number of cases (n) and cumulative relative survival rates at 1, 5, and 10 years subsequent to diagnosis, stratified by stage, age, and sex. For the 5-years rates, 95% confidence intervals (CI) are given

Stage	Age	Males					Females				
		n	1-year	5-year	95% CI	10-year	n	1-year	5-year	95% CI	10-year
Localized	0–14	176	100	90	84–95	90	120	96	90	84–96	84
	15–29	376	99	92	89–95	86	556	100	93	91–95	90
	30–44	1 425	97	87	85–89	80	3 739	99	91	90–92	85
	45–59	4 749	93	74	72–75	64	9 582	98	90	90–91	86
	60–74	13 417	89	69	67–70	57	12 899	95	82	81–83	76
	75+	8 539	88	67	65–70	57	9 616	88	72	70–74	67
	All	28 682	90	71	70–72	62	36 512	94	84	84–85	80
Regional metastases	0–14	25	92	69	48–89	69	24	96	92	80–100	92
	15–29	76	91	80	70–89	78	130	94	79	72–87	66
	30–44	298	86	57	51–63	54	1 584	97	66	63–69	47
	45–59	1 121	72	32	29–35	25	3 349	95	66	64–68	49
	60–74	2 315	65	24	22–27	18	3 727	88	58	56–60	44
	75+	868	64	27	22–33	29	2 293	80	50	47–53	29
	All	4 703	68	31	29–33	27	11 107	90	61	60–62	46
Distant metastases	0–14	320	88	71	66–77	68	296	92	77	72–83	76
	15–29	276	81	48	41–54	47	209	71	42	35–50	37
	30–44	1 006	52	23	21–26	19	1 018	63	29	26–32	22
	45–59	4 531	39	12	11–13	7	3 175	54	20	19–22	13
	60–74	11 863	36	10	9–10	4	8 573	41	14	13–14	9
	75+	6 576	34	11	9–12	5	7 481	26	8	7–9	4
	All	24 572	38	13	12–13	9	20 752	40	16	15–16	12
All[a]	0–14	590	92	78	74–81	76	494	93	82	79–86	80
	15–29	992	91	76	73–79	72	1 195	93	81	79–84	76
	30–44	3 555	80	63	61–65	58	7 249	93	76	75–77	67
	45–59	12 980	67	43	42–44	36	18 559	89	71	70–72	64
	60–74	35 730	64	39	39–40	31	30 308	74	54	53–55	48
	75+	23 160	62	40	39–41	33	26 322	59	41	40–42	36
	All	77 007	65	43	42–43	36	84 127	75	58	58–59	55

[a] 'All' includes all cases, including those with unknown stage.

Table 9

Cancer at all sites 1985–1994. Number of cases (n), observed survival rates (OSR), and relative survival rates (RSR) at 1, 5, and 10 years subsequent to diagnosis, stratified by stage, age, and sex

Stage	Age	Males							Females						
		n	1-year		5-year		10-year		n	1-year		5-year		10-year	
			OSR	RSR	OSR	RSR	OSR	RSR		OSR	RSR	OSR	RSR	OSR	RSR
Localized	0–14	176	99	100	90	90	90	90	120	96	96	90	90	84	84
	15–29	376	98	99	91	92	85	86	556	100	100	93	93	90	90
	30–44	1 425	97	97	85	87	77	80	3 739	99	99	91	91	84	85
	45–59	4 749	92	93	69	74	54	64	9 582	98	98	88	90	81	86
	60–74	13 417	86	89	55	69	32	57	12 899	93	95	74	82	56	76
	75+	8 539	78	88	35	67	12	57	9 616	80	88	43	72	19	67
	All	28 682	85	90	54	71	34	62	36 512	92	94	72	84	56	80
Regional metastases	0–14	25	92	92	68	69	68	69	24	96	96	91	92	91	92
	15–29	76	91	91	79	80	77	78	130	94	94	79	79	66	66
	30–44	298	85	86	56	57	52	54	1 584	97	97	65	66	47	47
	45–59	1 121	71	72	30	32	21	25	3 349	94	95	65	66	47	49
	60–74	2 315	62	65	20	24	11	18	3 727	87	88	52	58	33	44
	75+	868	57	64	15	27	7	29	2 293	74	80	32	50	9	29
	All	4 703	66	68	25	31	17	27	11 107	88	90	54	61	34	46
Distant metastases	0–14	320	88	88	71	71	68	68	296	92	92	77	77	76	76
	15–29	276	80	81	47	48	47	47	209	71	71	42	42	36	37
	30–44	1 006	51	52	23	23	18	19	1 018	63	63	29	29	22	22
	45–59	4 531	38	39	11	12	6	7	3 175	54	54	20	20	12	13
	60–4	11 863	35	36	8	10	3	4	8 573	40	41	12	14	7	9
	75+	6 576	30	34	6	11	1	5	7 481	24	26	5	8	1	4
	All	24 572	36	38	10	13	5	9	20 752	39	40	13	16	7	12
All[a]	0–14	590	92	92	78	78	76	76	494	93	93	82	82	80	80
	15–29	992	91	91	76	76	71	72	1 195	93	93	81	81	76	76
	30–44	3 555	80	80	62	63	55	58	7 249	93	93	75	76	66	67
	45–59	12 980	66	67	40	43	30	36	18 559	88	89	70	71	60	64
	60–74	35 730	62	64	31	39	17	31	30 308	73	74	48	54	35	48
	75+	23 160	55	62	21	40	7	33	26 322	54	59	24	41	10	36
	All	77 007	62	65	32	43	20	36	84 127	72	75	48	58	36	55

[a] 'All' includes all cases, including those with unknown stage.

Cancer of the lip

Summary 1985–1994	Males	Females
Average annual number of cases	116	37
Microscopically verified (%)	100	99
DCO cases (% excluded)	0.0	0.0
Autopsy cases (% excluded)	0.0	0.0
Mean age at diagnosis (years)	69	74
Main histological types (%)		
Squamous cell carcinoma	99	98
Relative survival rates (%)		
1-year	99	99
5-year	93	92
10-year	87	73

Cancers originating in the skin of the lip are excluded. Squamous cell carcinoma is by far the predominant histological type of lip cancer.

There is only slight excess mortality after diagnosis (Fig. 6). Thus, patients with lip cancer experience a good prognosis, and the 5-year RSRs have exceeded 90% for three decades (Fig. 7). No systematic pattern exists in the survival by age (Fig. 8).

Stage is an important prognostic factor; the 5-year RSR for patients with localized lip cancer is close to 100% (Fig. 9, Table 10).

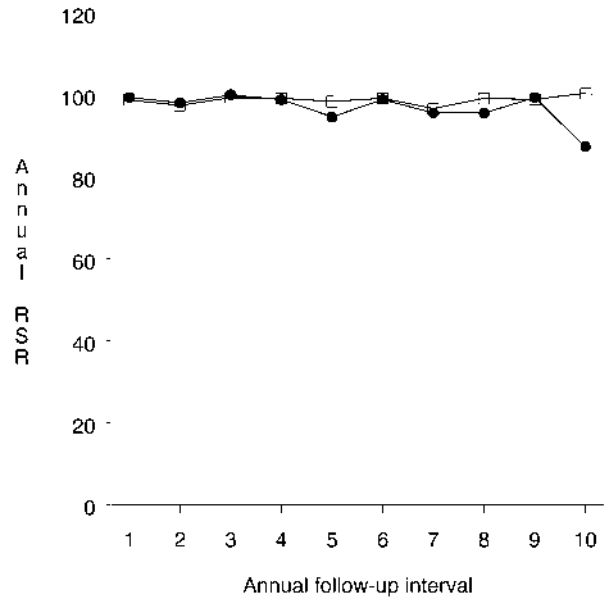

Fig. 6. Cancer of the lip 1985–1994. Annual (interval-specific) relative survival rates for males (□) and females (●).

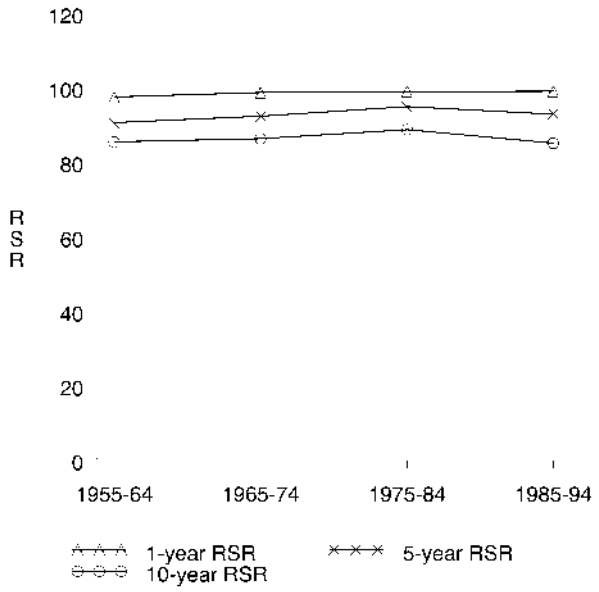

Fig. 7. Cancer of the lip, both sexes 1955–1994. Relative survival rates by calendar period of diagnosis.

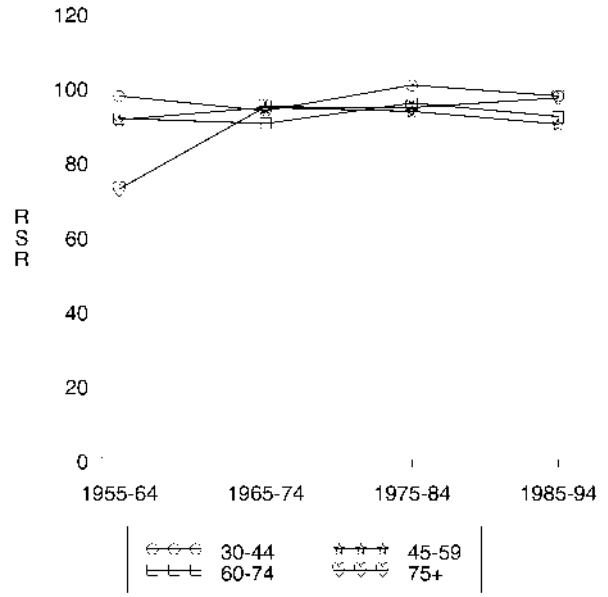

Fig. 8. Cancer of the lip, both sexes 1955–1994. Five-year relative survival rates by age and calendar period of diagnosis.

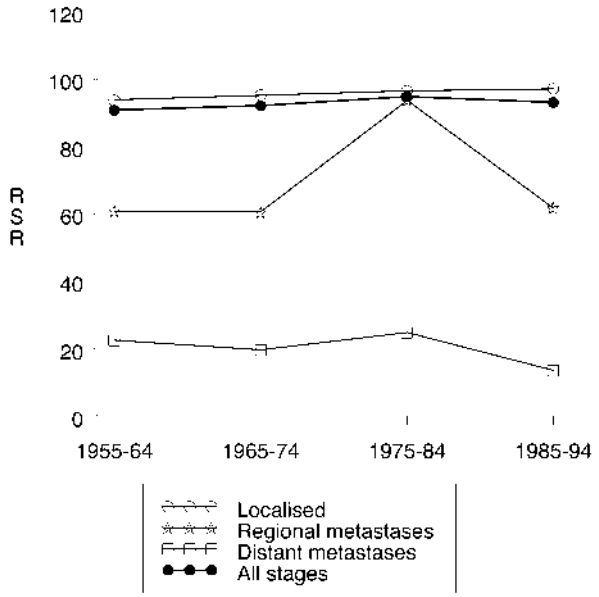

Fig. 9. Cancer of the lip, males 1955–1994. Five-year relative survival rates by stage and calendar period of diagnosis.

Table 10

Cancer of the lip 1985–1994. Number of cases (n) and cumulative relative survival rates at 1, 5, and 10 years subsequent to diagnosis, stratified by stage, age, and sex. For the 5-year rates, 95% confidence intervals (CI) are given

Stage	Age	Males					Females				
		n	1-year	5-year	95% CI	10-year	n	1-year	5-year	95% CI	10-year
Localized	0–14	0	·	·	·	·	0	·	·	·	·
	15–29	1	·	·	·	·	0	·	·	·	·
	30–44	17	100	95	82–102	99	4	·	·	·	·
	45–59	154	98	90	84–97	79	19	100	94	78–103	87
	60–74	496	100	97	92–102	97	125	99	95	86–104	95
	75+	278	101	106	92–119	105	141	101	92	76–108	·
	All	946	100	97	93–102	93	289	100	94	85–102	73
Regional metastases	0–14	0	·	·	·	·	0	·	·	·	·
	15–29	0	·	·	·	·	0	·	·	·	·
	30–44	1	·	·	·	·	0	·	·	·	·
	45–59	3	·	·	·	·	0	·	·	·	·
	60–74	15	104	66	32–99	·	2	·	·	·	·
	75+	2	·	·	·	·	1	·	·	·	·
	All	21	99	62	33–90	·	3	·	·	·	·
Distant metastases	0–14	0	·	·	·	·	0	·	·	·	·
	15–29	0	·	·	·	·	0	·	·	·	·
	30–44	0	·	·	·	·	0	·	·	·	·
	45–59	1	·	·	·	·	0	·	·	·	·
	60–74	5	·	·	·	·	0	·	·	·	·
	75+	5	·	·	·	·	0	·	·	·	·
	All	11	39	14	0–39	0	0	·	·	·	·
All[a]	0–14	0	·	·	·	·	0	·	·	·	·
	15–9	1	·	·	·	·	0	·	·	·	·
	30–44	20	100	96	85–102	99	6	·	·	·	·
	45–59	194	98	89	83–95	79	23	100	96	82–103	91
	60–74	598	99	92	87–97	89	157	97	92	83–100	98
	75+	348	99	101	89–112	102	182	101	90	75–105	·
	All	1161	99	93	89–97	87	368	99	92	84–99	73

[a] 'All' includes all cases, including those with unknown stage.
A '·' indicates that the value was either not estimable or the estimate lacked precision (see Section 6.3).

Cancer of the tongue

Summary 1985–1994	Males	Females
Average annual number of cases	33	29
Microscopically verified (%)	100	98
DCO cases (% excluded)	0.3	1.0
Autopsy cases (% excluded)	0.0	0.0
Mean age at diagnosis (years)	59	68
Main histological types (%)		
Squamous cell carcinoma	94	92
Lymphoma	3	3
Relative survival rates (%)		
1-year	80	80
5-year	46	58
10-year	31	60

Most cancers of the tongue are squamous cell carcinomas. From 1985–1994, the 5-year RSR is 46% for males and 58% for females. The excess mortality among patients with cancer of the tongue lasts for approximately 7 years (Fig. 10). In males, the 5-year RSR in 1985–1994 is higher than the 10-year rate, while in females the two rates are similar (Fig. 11). The oldest patients (aged 75+ years) have the lowest relative survival rates (Fig. 12, Table 11). The improvement in the RSR with time has only been modest (Fig. 11).

Patient survival is strongly associated with stage at diagnosis, and stage-specific survival differs between males and females (Fig. 13). Even in the group diagnosed with localized cancer of the tongue, the 5-year RSR in 1985–1994 is only 54% for males and 75% for females.

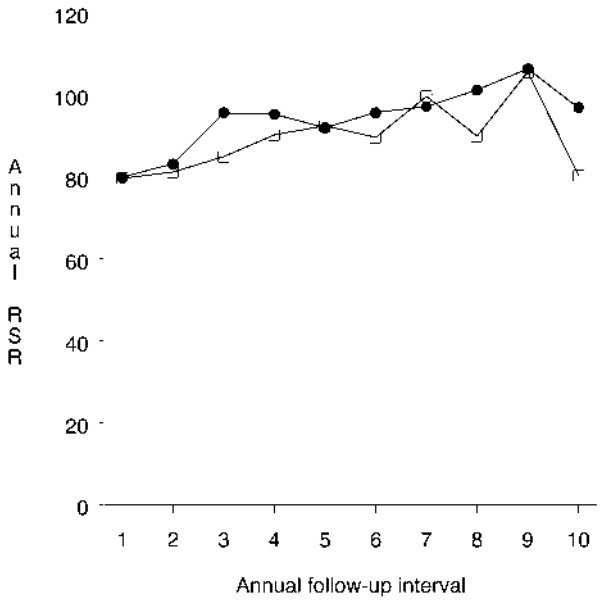

Fig. 10. Cancer of the tongue 1985–1994. Annual (interval-specific) relative survival rates for males (□) and females (●).

Cancer of the salivary glands

Summary 1985–1994	Males	Females
Average annual number of cases	23	25
Microscopically verified (%)	99	98
DCO cases (% excluded)	0.0	1.2
Autopsy cases (% excluded)	0.0	0.4
Mean age at diagnosis (years)	59	62
Main histological types (%)		
Adenoid cystic carcinoma	20	25
Mucoepidermoid/squamous cell carcinoma	21	23
Carcinoma NOS	12	13
Adenocarcinoma NOS	12	11
Lymphoma	12	10
Relative survival rates (%)		
1-year	85	90
5-year	60	74
10-year	55	78

Cancer of the salivary glands constitutes a variety of different morphological entities. Cancers originating in the small salivary glands of the oral mucosa are excluded (included in cancers of the oral cavity).

Analysing all types together, the 5-year RSR in 1985–1994 is 60% for males and 74% for females. Excess mortal-

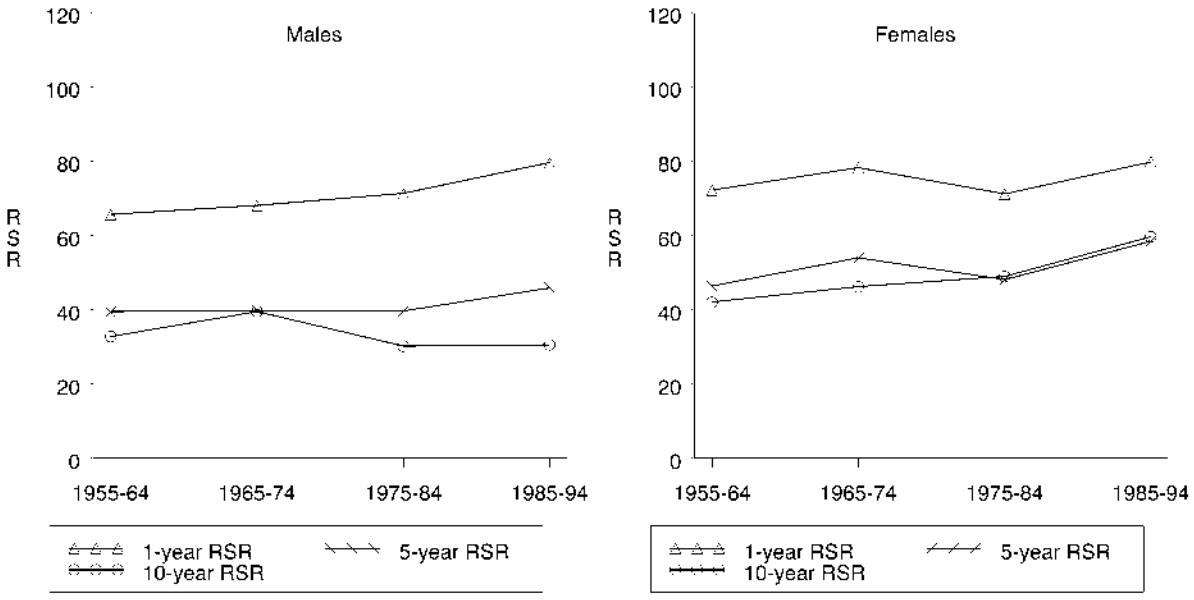

Fig. 11. Cancer of the tongue 1955–1994. Relative survival rates by calendar period of diagnosis for males and females.

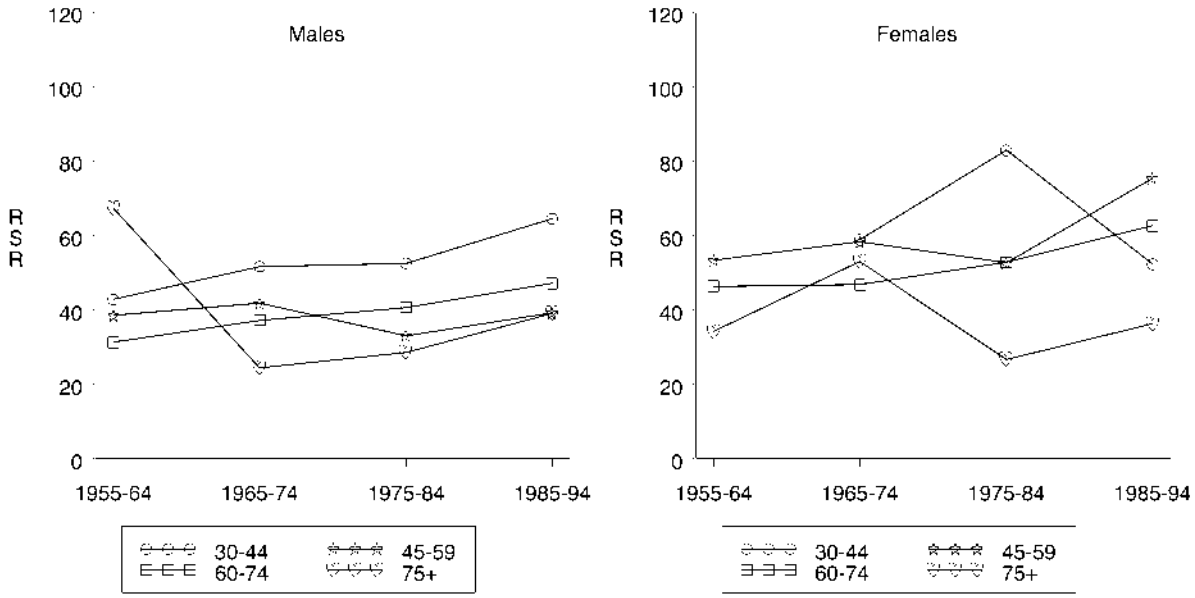

Fig. 12. Cancer of the tongue 1955–1994. Five-year relative survival rates by age and calendar period of diagnosis for males and females.

Table 11

Cancer of the tongue 1985–1994. Number of cases (n) and cumulative relative survival rates at 1, 5, and 10 years subsequent to diagnosis, stratified by stage, age, and sex. For 5-year rates, 95% confidence intervals (CI) are given

Stage	Males						Females				
	Age	n	1 year	5-year	95% CI	10-year	n	1-year	5-year	95% CI	10-year
Localized	0–14	0	·	·	·	·	0	·	·	·	·
	15–29	3	·	·	·	·	3	·	·	·	·
	30–44	21	91	64	41–88	·	11	100	68	36–100	·
	45–59	48	93	46	28–63	·	28	100	82	63–101	·
	60–74	39	96	67	44–90	·	68	97	78	64–93	80
	75+	20	95	38	0–76	0	53	75	59	32–86	·
	All	131	94	54	42–66	·	163	92	75	64–86	71
Regional metastases	0–14	0	·	·	·	·	0	·	·	·	·
	15–29	5	·	·	·	·	1	·	·	·	·
	30–44	8	·	·	·	·	5	·	·	·	·
	45–59	32	73	44	24–64	·	8	·	·	·	·
	60–74	32	77	43	22–64	·	21	77	38	14–62	·
	75+	12	47	40	0–88	·	20	39	12	0–35	·
	All	89	74	49	36–62	·	55	66	27	11–43	·
Distant metastases	0–14	0	·	·	·	·	0	·	·	·	·
	15–29	0	·	·	·	·	0	·	·	·	·
	30–44	3	·	·	·	·	0	·	·	·	·
	45–59	16	44	7	0–19	·	3	·	·	·	·
	60–74	12	43	0	·	·	10	31	11	0–33	·
	75+	5	·	·	·	·	7	·	·	·	·
	All	36	40	3	0–10	·	20	26	21	0–43	·
All[a]	0–14	0	·	·	·	·	0	·	·	·	·
	15–29	9	·	·	·	·	4	·	·	·	·
	30–44	37	89	64	47–82	·	17	94	52	25–80	·
	45–59	123	78	39	28–50	·	46	96	75	60–91	·
	60–74	109	81	47	35–60	39	120	87	63	51–74	64
	75+	52	72	39	15–63	·	101	59	36	20–53	·
	All	330	80	46	39–53	31	288	80	58	50–67	60

[a] 'All' includes all cases, including those with unknown stage.

A '·' indicates that the value was either not estimable or the estimate lacked precision (see Section 6.3).

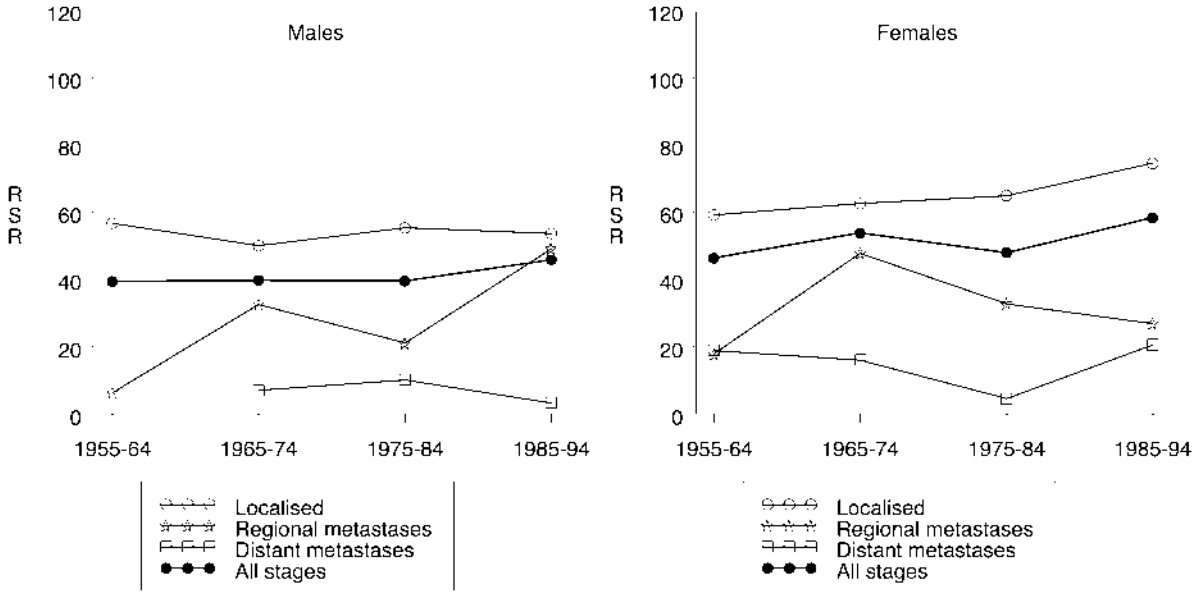

Fig. 13. Cancer of the tongue 1955–1994. Five-year relative survival rates by stage and calendar period of diagnosis for males and females.

ity is observable for 4 years after diagnosis (Fig. 14). The lack of excess mortality after 5 years during the last decade is reflected in the similar 5-year and 10-year RSRs (Fig. 15). Patients aged 75 years or more at diagnosis experience the lowest relative survival rates (Fig. 16).

Stage is a strong determinant of survival (Table 12).

Comment: The clinical and morphological evaluation of malignancy of pleomorphic adenomas ('mixed tumours') of the salivary glands and, consequently, their reporting to and coding practices at the Cancer Registry, have changed with time. This may exert an influence on the time trends of the estimated survival rates.

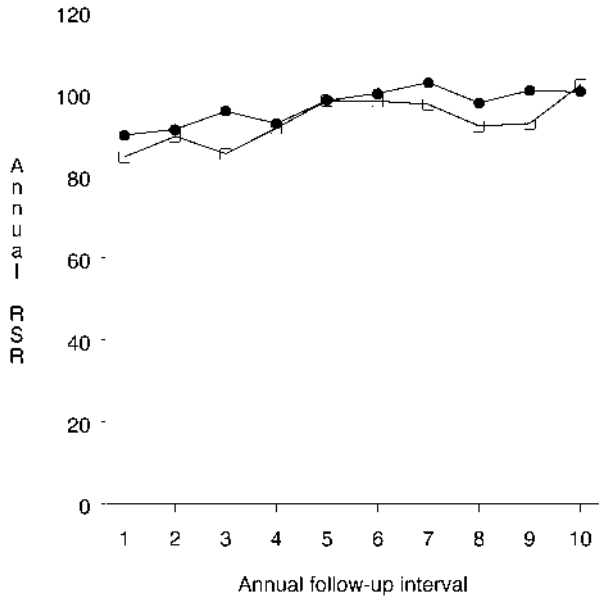

Fig. 14. Cancer of the salivary glands 1985–1994. Annual (interval-specific) relative survival rates for males (□) and females (●).

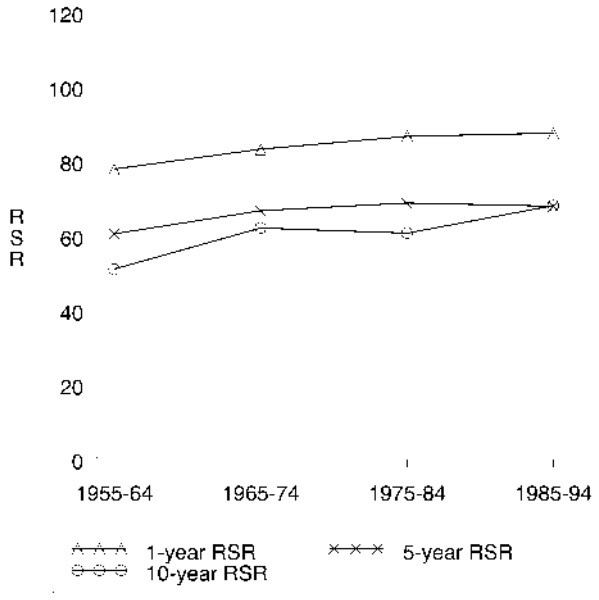

Fig. 15. Cancer of the salivary glands, both sexes 1955–1994. Relative survival rates by calendar period of diagnosis.

Table 12

Cancer of the salivary glands 1985–1994. Number of cases (n) and cumulative relative survival rates at 1, 5, and 10 years subsequent to diagnosis, stratified by stage, age, and sex. For 5-year rates, 95% confidence intervals (CI) are given

Stage	Age	Males					Females				
		n	1-year	5-year	95% CI	10-year	n	1-year	5-year	95% CI	10-year
Localized	0–14	0	·	·	·	·	1	·	·	·	·
	15–29	6	·	·	·	·	7	·	·	·	·
	30–44	18	100	94	80–102	86	20	100	89	74–101	90
	45–59	23	101	88	64–106	96	30	100	93	82–102	90
	60–74	30	93	89	68–110	·	50	96	89	75–102	82
	75+	10	105	105	14–196	·	25	87	50	19–81	·
	All	87	97	87	74–100	84	133	96	85	76–94	85
Regional metastases	0–14	0	·	·	·	·	0	·	·	·	·
	15–29	0	·	·	·	·	1	·	·	·	·
	30–44	6	·	·	·	·	1	·	·	·	·
	45–59	8	·	·	·	·	2	·	·	·	·
	60–74	11	85	29	0–64	0	10	102	49	11–87	·
	75+	9	·	·	·	·	11	97	80	29–130	·
	All	34	89	36	13–60	·	25	95	62	34–90	·
Distant metastases	0–14	0	·	·	·	·	0	·	·	·	·
	15–29	1	·	·	·	·	0	·	·	·	·
	30–44	1	·	·	·	·	3	·	·	·	·
	45–59	15	34	7	0–21	·	3	·	·	·	·
	60–74	9	·	·	·	·	6	·	·	·	·
	75+	9	·	·	·	·	10	43	0	0–0	·
	All	35	48	10	0–23	·	22	52	17	0–35	·
All[a]	0–14	1	·	·	·	·	1	·	·	·	·
	15–29	9	·	·	·	·	13	100	89	68–100	·
	30–44	34	100	84	70–98	80	31	100	90	78–101	91
	45–59	68	82	62	47–77	·	42	96	84	71–98	83
	60–74	76	86	61	45–77	·	89	92	76	64–88	72
	75+	43	71	24	0–50	0	71	76	46	27–65	·
	All	231	85	60	51–69	55	247	90	74	66–82	78

[a] 'All' includes all cases, including those with unknown stage.
A '·' indicates that the value was either not estimable or the estimate lacked precision (see Section 6.3).

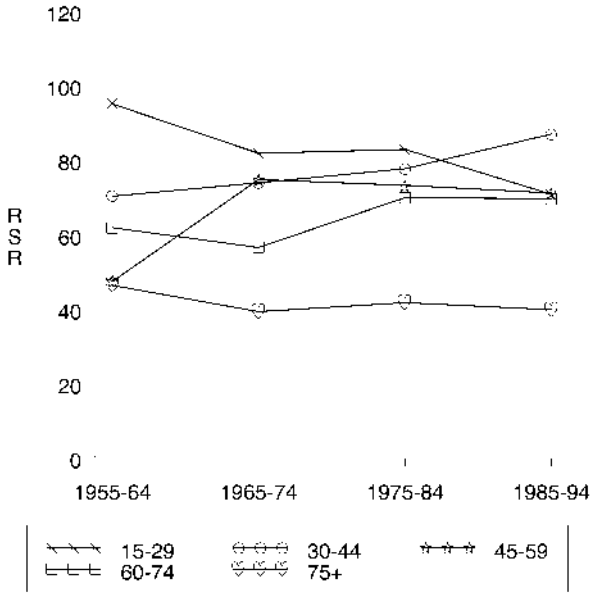

Fig. 16. Cancer of the salivary glands, both sexes 1955–1994. Five-year relative survival rates by age and calendar period of diagnosis.

Cancer of the oral cavity

Summary 1985–1994	Males	Females
Average annual number of cases	32	36
Microscopically verified (%)	99	99
DCO cases (% excluded)	0.0	0.3
Autopsy cases (% excluded)	0.0	0.0
Mean age at diagnosis (years)	62	68
Main histological types (%)		
Squamous cell carcinoma	83	79
Adenoid cystic carcinoma	6	5
Lymphoma	3	6
Relative survival rates (%)		
1-year	80	75
5-year	47	60
10-year	40	55

The largest morphological entity among cancers of the oral cavity is squamous cell carcinoma. The overall prognosis of patients with oral cancer is better for females than for males: the 5-year RSR in 1985–1994 is 60% for females and 47% for males. Marked excess mortality lasts for 4 or 5 years subsequent to diagnosis (Fig. 17). Patient survival does not change over time (Figs. 18 and 19). Patients in the oldest age group (75 + years) experience the lowest RSR, but otherwise no consistent age-survival pattern emerges (Fig. 19).

The survival of patients with oral cancer is largely determined by the stage of the tumour at diagnosis (Fig. 20). Even for patients diagnosed with localized disease, the 5-year RSRs are relatively low: 58% for males and 71% for females (Table 13).

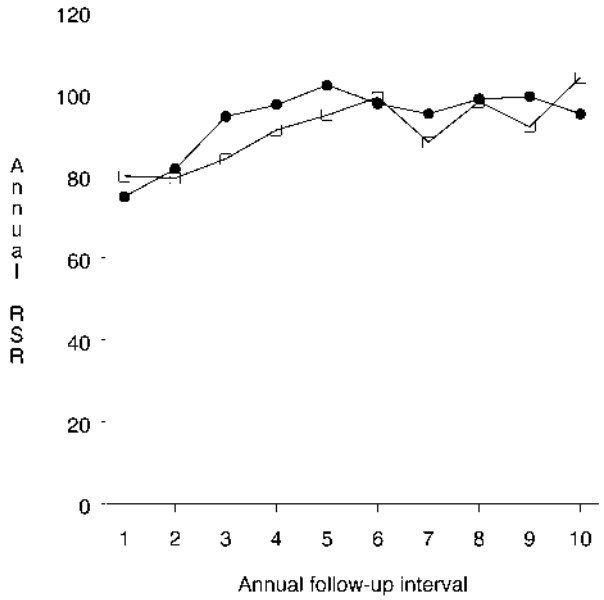

Fig. 17. Cancer of the oral cavity 1985–1994. Annual (interval-specific) relative survival rates for males (□) and females (●).

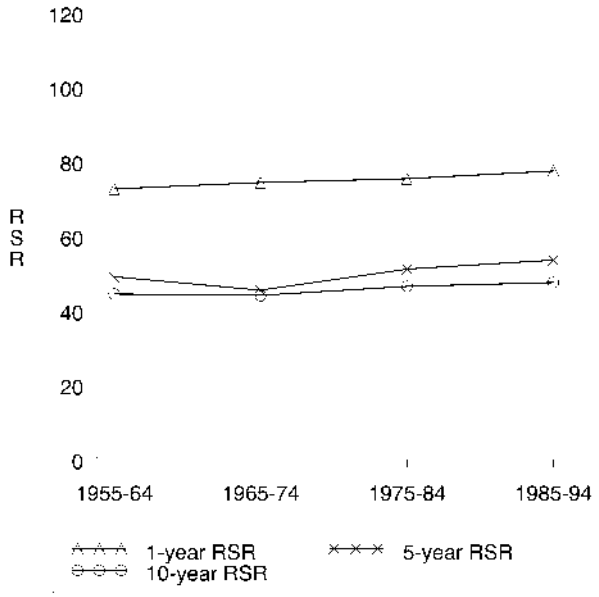

Fig. 18. Cancer of the oral cavity, both sexes 1955–1994. Relative survival rates by calendar period of diagnosis.

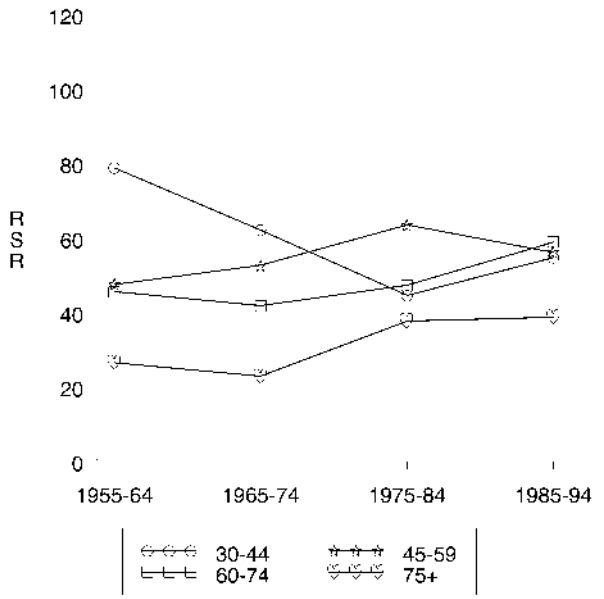

Fig. 19. Cancer of the oral cavity, both sexes 1955–1994. Five-year relative survival rates by age and calendar period of diagnosis.

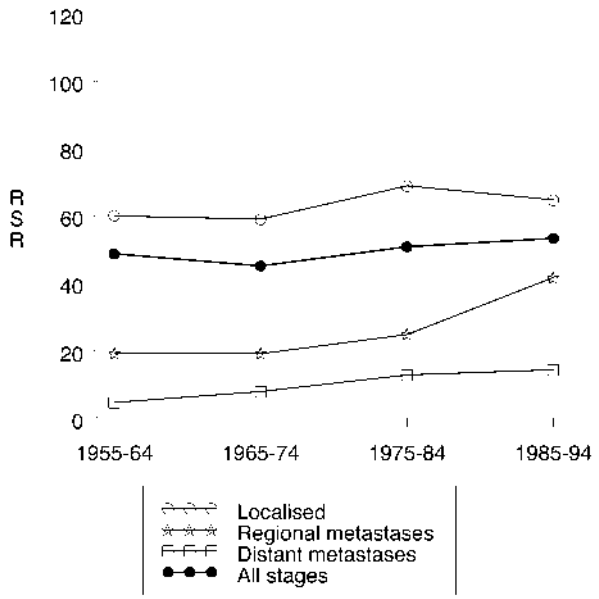

Fig. 20. Cancer of the oral cavity, both sexes 1955–1994. Five-year relative survival rates by stage and calendar period of diagnosis.

Table 13

Cancer of the oral cavity 1985–1994. Number of cases (n) and cumulative relative survival rates at 1, 5, and 10 years subsequent to diagnosis, stratified by stage, age, and sex. For the 5-year rates, 95% confidence intervals (CI) are given

Stage	Age	Males					Females				
		n	1-year	5-year	95% CI	10-year	n	1-year	5-year	95% CI	10-year
Localized	0–14	0	·	·	·	·	2	·	·	·	·
	15–29	3	·	·	·	·	2	·	·	·	·
	30–44	13	100	46	14–78	·	13	100	76	52–101	77
	45–59	50	95	68	52–83	57	35	95	74	58–90	72
	60–74	63	94	60	43–77	·	57	88	73	58–89	76
	75+	27	64	27	0–58	0	74	81	62	41–83	0
	All	156	90	58	47–69	46	183	88	71	61–81	61
Regional metastases	0–14	0	·	·	·	·	1	·	·	·	·
	15–29	0	·	·	·	·	1	·	·	·	·
	30–44	8	·	·	·	·	7	·	·	·	·
	45–59	22	64	22	2–43	·	10	80	51	19–83	·
	60–74	27	81	31	8–54	·	17	60	43	15–72	
	75+	9	·	·	·	·	15	65	54	15–94	
	All	66	80	38	24–53	·	51	67	45	28–62	43
Distant metastases	0–14	0	·	·	·	·	0	·	·	·	·
	15–29	1	·	·	·	·	0	·	·	·	·
	30–44	2	·	·	·	·	0	·	·	·	·
	45–59	12	59	22	0–49	·	2	·	·	·	·
	60–74	10	62	0	·	·	9	·	·	·	·
	75+	6	·	·	·	·	23	34	14	0–34	0
	All	31	57	15	0–30	·	34	32	15	0–30	·
All[a]	0–14	1	·	·	·	·	3	·	·	·	·
	15–29	4	·	·	·	·	4	·	·	·	·
	30–44	26	93	52	31–73	53	27	82	59	39–78	59
	45–59	106	80	49	38–61	42	59	87	67	54–80	66
	60–74	121	86	49	37–61	·	109	81	70	58–81	68
	75+	60	59	31	10–51	·	157	63	42	29–55	0
	All	318	80	47	40–55	40	359	75	60	52–67	55

[a] 'All' includes all cases, including those with unknown stage.
A '·' indicates that the value was either not estimable or the estimate lacked precision (see Section 6.3).

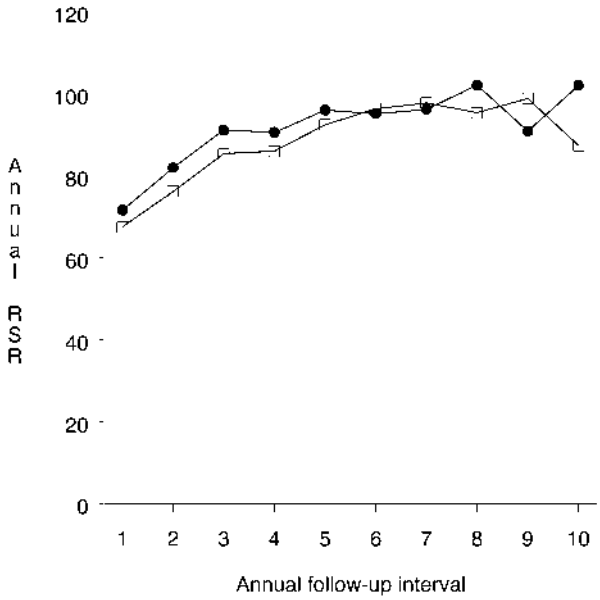

Fig. 21. Cancer of the pharynx 1985–1994. Annual (interval-specific) relative survival rates for males (□) and females (●).

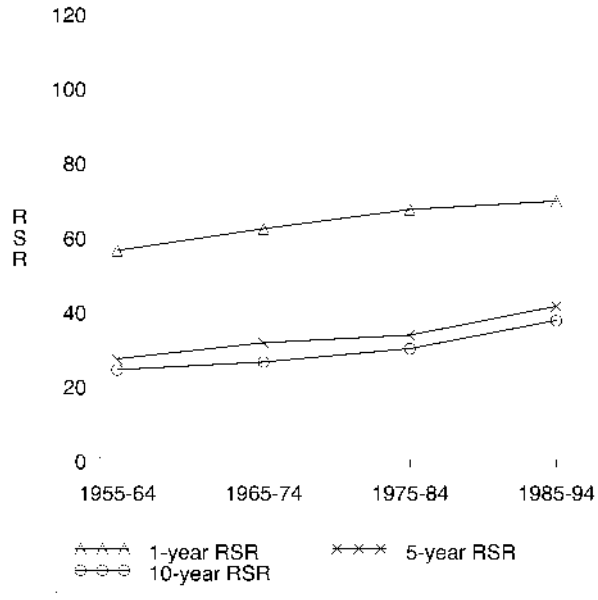

Fig. 22. Cancer of the pharynx, both sexes 1955–1994. Relative survival rates by calendar period of diagnosis.

Cancer of the pharynx

Summary 1985–1994	Males	Females
Average annual number of cases	54	32
Microscopically verified (%)	99	99
DCO cases (% excluded)	0.4	0.3
Autopsy cases (% excluded)	1.1	0.3
Mean age at diagnosis (years)	61	66
Main histological types (%)		
Squamous cell carcinoma	64	52
Lymphoma	25	40
Carcinoma NOS	7	3
Relative survival rates (%)		
1-year	68	72
5-year	36	49
10-year	30	47

Cancers of the nasopharynx, oropharynx, and hypopharynx are analysed as a single group. In addition to squamous cell carcinomas, lymphomas constitute an important morphological entity.

Cancer of the pharynx is associated with a rather unfavourable prognosis: the 5-year RSR in 1985–1994 is only 36% for males and 49% for females (Table 14). Consistent excess mortality lasts for some 7 years after diagnosis (Fig. 21). Only slight improvements in survival rates can be seen over time (Figs. 22 and 23). The RSRs are consistently higher for younger patients (Fig. 23).

The survival of patients diagnosed with localized cancer of the pharynx is low, at around 50% for both males and females (Fig. 24, Table 14).

Table 14

Cancer of the pharynx 1985–1994. Number of cases (n) and cumulative relative survival rates at 1, 5, and 10 years subsequent to diagnosis, stratified by stage, age, and sex. For the 5-year rates, 95% confidence intervals (CI) are given

Stage	Age	Males					Females				
		n	1-year	5-year	95% CI	10-year	n	1-year	5-year	95% CI	10-year
Localized	0–14	2	·	·	·	·	0	·	·	·	·
	15–29	3	·	·	·	·	3	·	·	·	·
	30–44	10	80	71	41–101	·	4	·	·	·	·
	45–59	27	86	55	31–79	62	13	93	69	41–96	72
	60–74	59	81	46	30–63	·	33	83	40	17–64	·
	75+	26	73	17	0–43	·	37	62	35	10–60	0
	All	127	81	50	39–62	·	90	78	51	37–65	44
Regional metastases	0–14	1	·	·	·	·	1	·	·	·	·
	15–29	2	·	·	·	·	3	·	·	·	·
	30–44	19	95	60	32–87	62	8	·	·	·	·
	45–59	55	73	46	30–63	·	16	75	40	13–67	·
	60–74	55	64	35	18–52	·	22	65	36	11–61	·
	75+	12	57	0	0–0	·	21	67	56	22–91	0
	All	144	72	42	31–52	·	71	74	49	34–65	·
Distant metastases	0–14	0	·	·	·	·	3	·	·	·	·
	15–29	3	·	·	·	·	1	·	·	·	·
	30–44	9	·	·	·	·	1	·	·	·	·
	45–59	43	59	17	5–29	·	7	·	·	·	·
	60–74	48	45	7	0–16	0	20	41	15	0–33	·
	75+	12	56	0	·	·	23	38	0	·	·
	All	115	53	12	5–19	·	55	48	20	6–33	·
All[a]	0–14	4	·	·	·	·	4	·	·	·	·
	15–29	10	90	70	41–100	71	9	·	·	·	·
	30–44	53	83	53	37–68	48	18	95	83	64–101	·
	45–59	152	73	39	30–48	39	53	83	57	42–73	60
	60–74	232	62	31	23–39	·	122	73	43	32–54	43
	75+	79	59	17	2–33	·	107	55	33	19–47	0
	All	530	68	36	31–41	30	313	72	49	42–56	47

[a] 'All' includes all cases, including those with unknown stage.

A '·' indicates that the value was either not estimable or the estimate lacked precision (see Section 6.3).

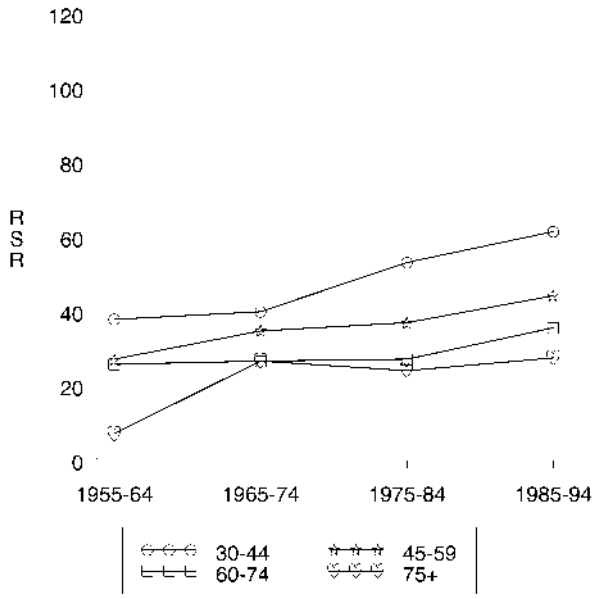

Fig. 23. Cancer of the pharynx, both sexes 1955–1994. Five-year relative survival rates by age and calendar period of diagnosis.

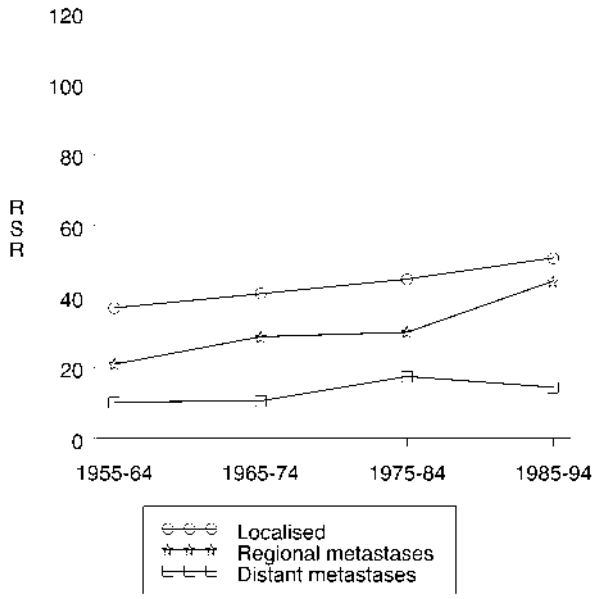

Fig. 24. Cancer of the pharynx, both sexes 1955–1994. Five-year relative survival rates by stage and calendar period of diagnosis.

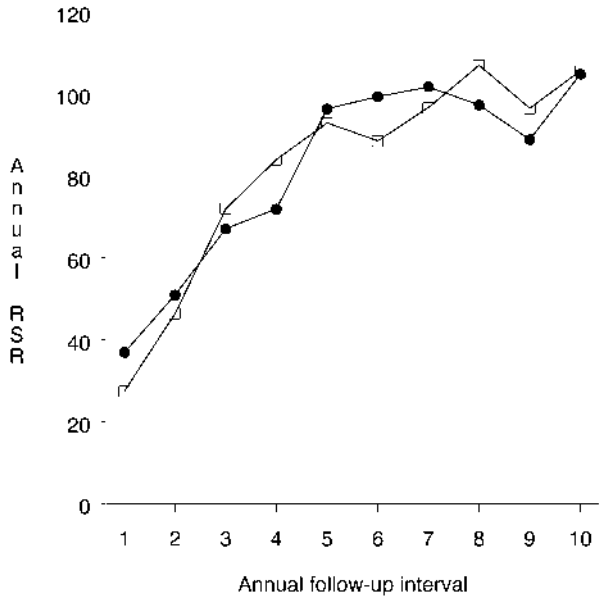

Fig. 25. Cancer of the oesophagus 1985–1994. Annual (interval-specific) relative survival rates for males (□) and females (●).

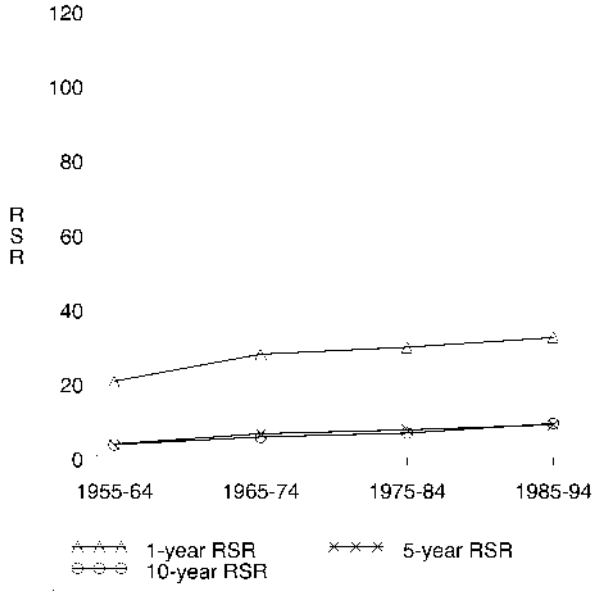

Fig. 26. Cancer of the oesophagus, both sexes 1955–1994. Relative survival rates by calendar period of diagnosis.

Cancer of the oesophagus

Summary 1985–1994	Males	Females
Average annual number of cases	110	101
Microscopically verified (%)	94	92
DCO cases (% excluded)	1.4	1.5
Autopsy cases (% excluded)	2.1	2.9
Mean age at diagnosis (years)	68	74
Main histological types (%)		
Squamous cell carcinoma	65	77
Adenocarcinoma	17	6
None or unknown	8	9
Carcinoma NOS	8	7
Relative survival rates (%)		
1-year	28	37
5-year	8	10
10-year	8	10

Cancer of the oesophagus includes squamous cell carcinomas of the cardiac region, whereas other tumours of the cardia are excluded (and included in cancers of the stomach). Squamous cell carcinoma is the prominent histological type, followed by adenocarcinoma.

Patients with cancer of the oesophagus have an unfavourable prognosis, the 5-year RSR being only 9% in 1985–1994. Excess mortality is high in the first follow-up year and continues for 5 or 6 years after diagnosis (Fig. 25). There is very little excess mortality after 6 years, leading to almost identical 5-year and 10-year RSRs (Fig. 26). The differences in the survival by age are fairly consistent, but rather small (Fig. 27, Table 15).

A slight increase in the 5-year survival rate is observable among patients with localized cancer, but no improvement whatsoever is seen for patients with metastatic disease (Fig. 28).

Table 15

Cancer of the oesophagus 1985–1994. Number of cases (n) and cumulative relative survival rates at 1, 5, and 10 years subsequent to diagnosis, stratified by stage, age, and sex. For the 5-year rates, 95% confidence intervals (CI) are given

Stage	Age	Males					Females				
		n	1-year	5-year	95% CI	10-year	n	1-year	5-year	95% CI	10-year
Localized	0–14	0	·	·	·	·	0	·	·	·	·
	15–29	0	·	·	·	·	0	·	·	·	·
	30–44	8	·	·	·	·	1	·	·	·	·
	45–59	43	54	26	11–40	·	20	70	42	18–66	·
	60–74	120	64	23	13–33	·	114	72	30	20–40	·
	75+	97	39	11	1–22	·	155	42	7	1–12	·
	All	268	54	22	15–29	23	290	57	20	15–26	19
Regional metastases	0–14	0	·	·	·	·	0	·	·	·	·
	15–29	0	·	·	·	·	0	·	·	·	·
	30–44	2	·	·	·	·	2	·	·	·	·
	45–59	29	38	0	·	·	10	50	0	·	·
	60–74	53	33	3	0–9	0	50	55	15	4–27	·
	75+	14	40	0	0–0	·	27	40	0	·	·
	All	98	35	1	0–4	0	89	50	9	2–16	·
Distant metastases	0–14	0	·	·	·	·	0	·	·	·	·
	15–29	0	·	·	·	·	0	·	·	·	·
	30–44	14	0	0	·	0	2	·	·	·	·
	45–59	94	16	0	0–0	·	29	28	0	·	·
	60–74	205	13	0	·	·	124	26	5	0–9	·
	75+	88	4	2	0–7	·	129	13	0	·	·
	All	401	11	1	0–2	·	284	21	3	0–5	·
All[a]	0–14	0	·	·	·	·	1	·	·	·	·
	15–29	0	·	·	·	·	1	·	·	·	·
	30–44	27	26	22	6–39	·	6	·	·	·	·
	45–59	211	29	7	3–11	·	72	42	14	5–23	·
	60–74	492	30	8	5–11	·	351	47	15	11–19	14
	75+	336	22	5	1–8	·	530	28	3	1–6	·
	All	1066	28	8	5–10	8	961	37	10	7–12	10

[a] 'All' includes all cases, including those with unknown stage.

A '·' indicates that the value was either not estimable or the estimate lacked precision (see Section 6.3).

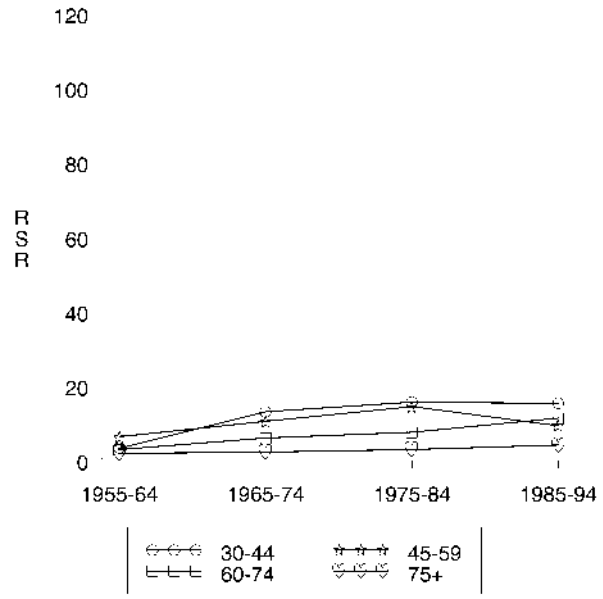

Fig. 27. Cancer of the oesophagus, both sexes 1955–1994. Five-year relative survival rates by age and calendar period of diagnosis.

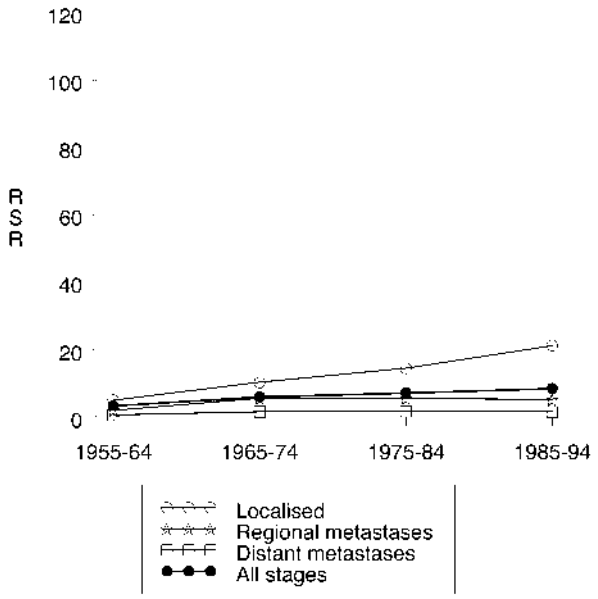

Fig. 28. Cancer of the oesophagus, both sexes 1955–1994. Five-year relative survival rates by stage and calendar period of diagnosis.

Cancer of the stomach

Summary 1985–1994	Males	Females
Average annual number of cases	567	521
Microscopically verified (%)	96	92
DCO cases (% excluded)	0.6	1.0
Autopsy cases (% excluded)	2.8	3.1
Mean age at diagnosis (years)	68	71
Main histological types (%)		
Adenocarcinoma NOS	59	47
Adenocarcinoma, diffuse type	15	19
Mucinous carcinoma	8	10
None or unknown	5	9
Carcinoma NOS	6	6
Relative survival rates (%)		
1-year	42	43
5-year	24	24
10-year	24	25

Cancer of the stomach includes tumours of the cardia, except squamous cell carcinomas, which are included in cancers of the oesophagus. Different types of adenocarcinoma are the predominant histological types of stomach cancer.

The 5-year RSR in 1985–1994 is only 24% (for both sexes). Excess mortality exists for 5 years (females) or 7 years (males) from diagnosis (Fig. 29). The 5-year and 10-year RSRs are identical (Fig. 30). Improvement in the RSR has taken place over time for all age groups (Fig. 31), but further examination reveals that these improvements have occurred only for localized cancers (Fig. 32). The youngest patients experience the best relative survival and the oldest patients the worst (Fig. 31, Table 16).

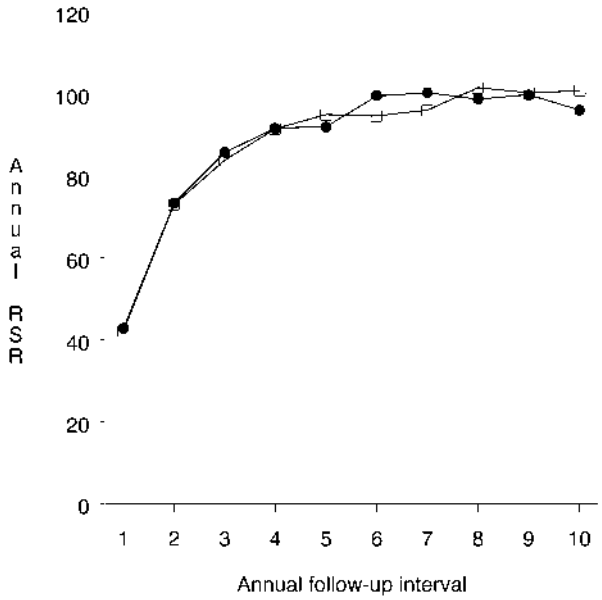

Fig. 29. Cancer of the stomach 1985–1994. Annual (interval-specific) relative survival rates for males (□) and females (●).

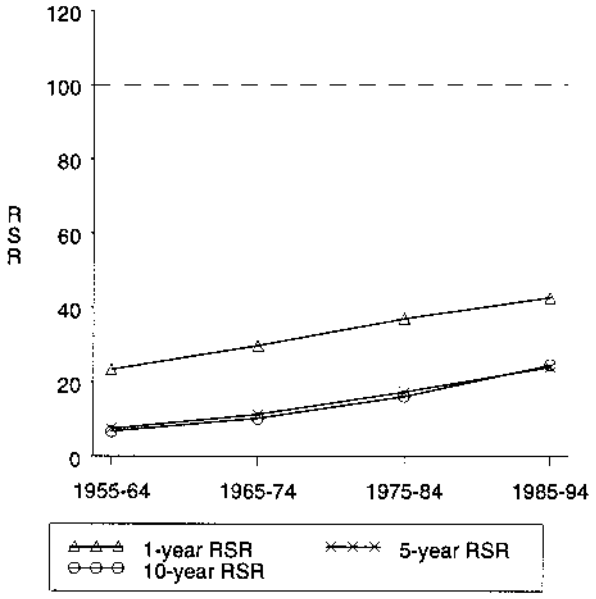

Fig. 30. Cancer of the stomach, both sexes 1955–1994. Relative survival rates by calendar period of diagnosis.

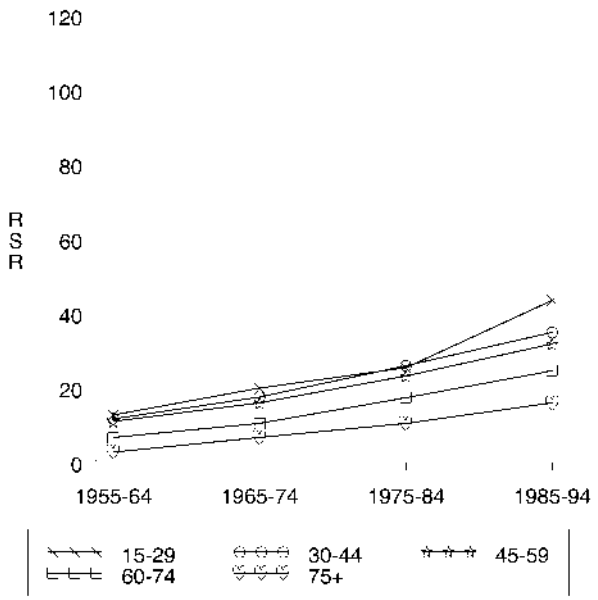

Fig. 31. Cancer of the stomach, both sexes 1955–1994. Five-year relative survival rates by age and calendar period of diagnosis.

Table 16

Cancer of the stomach 1985–1994. Number of cases (n) and cumulative relative survival rates at 1, 5, and 10 years subsequent to diagnosis, stratified by stage, age, and sex. For the 5-year rates, 95% confidence intervals (CI) are given

Stage	Age	Males					Females				
		n	1-year	5-year	95% CI	10-year	n	1-year	5-year	95% CI	10-year
Localized	0–14	1	·	·	·	·	0	·	·	·	·
	15–29	5	·	·	·	·	3	·	·	·	·
	30–44	79	98	80	70–91	78	61	94	71	58–84	72
	45–59	288	91	70	64–77	66	212	93	70	63–78	70
	60–74	612	79	58	53–64	54	487	84	63	57–69	62
	75+	399	64	45	36–54	56	536	68	45	38–52	
	All	1 384	79	61	57–64	60	1 299	80	60	56–63	62
Regional metastases	0–14	0	·	·	·	·	0	·	·	·	·
	15–29	1	·	·	·	·	4	·	·	·	·
	30–44	27	78	18	1–35	·	30	70	40	21–59	·
	45–59	140	64	26	18–35	23	74	69	21	11–32	·
	60–74	296	65	13	8–18	·	240	71	28	21–35	25
	75+	158	61	22	11–32	·	188	45	16	8–24	·
	All	622	64	19	15–23	18	536	62	25	20–29	18
Distant metastases	0–14	0	·	·	·	·	0	·	·	·	·
	15–29	5	·	·	·	·	14	29	0	·	·
	30–44	94	26	6	1–11	·	104	31	4	0–8	·
	45–59	420	21	4	1–6	·	234	26	3	1–6	·
	60–74	1 095	21	3	2–5	·	700	21	3	2–5	·
	75+	711	12	3	1–5	·	862	14	2	1–4	0
	All	2 325	18	3	3–4	·	1 914	19	3	2–4	·
All[a]	0–14	1	·	·	·	·	0	·	·	·	·
	15–29	15	67	60	35–86	61	24	50	32	13–52	·
	30–44	236	60	38	31–45	37	216	57	31	24–38	30
	45–59	997	52	31	27–34	29	624	60	33	29–37	31
	60–74	2 416	44	22	20–24	20	1 773	49	27	25–30	26
	75+	1 815	31	16	13–18	19	2 364	32	16	13–18	15
	All	5 480	42	24	22–25	24	5 001	43	24	23–26	25

[a] 'All' includes all cases, including those with unknown stage.

A '·' indicates that the value was either not estimable or the estimate lacked precision (see Section 6.3).

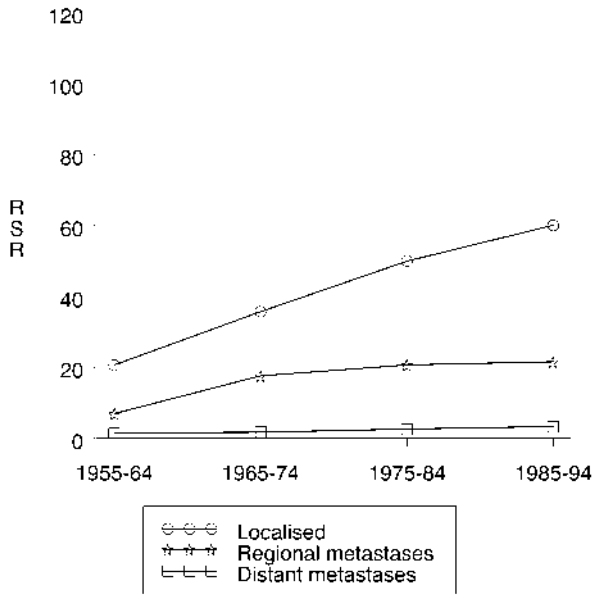

Fig. 32. Cancer of the stomach, both sexes 1955–1994. Five-year relative survival rates by stage and calendar period of diagnosis.

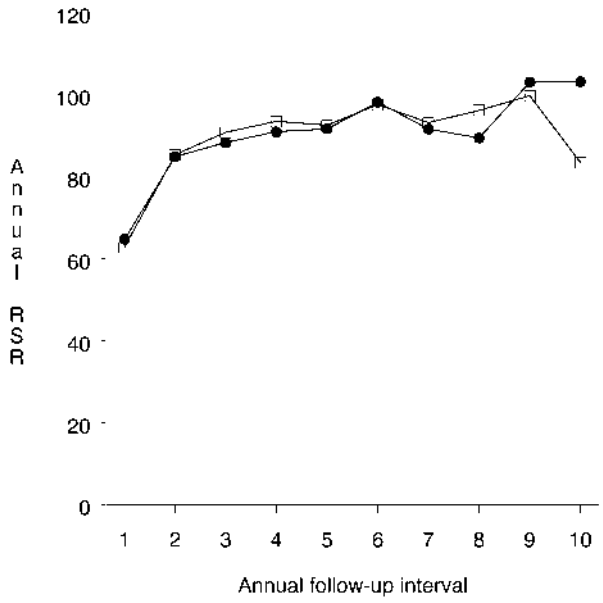

Fig. 33. Cancer of the small intestine 1985–1994. Annual (interval-specific) relative survival rates for males (□) and females (●).

Cancer of the small intestine

Summary 1985–1994	Males	Females
Average annual number of cases	41	41
Microscopically verified (%)	98	97
DCO cases (% excluded)	0.0	2.0
Autopsy cases (% excluded)	4.8	5.1
Mean age at diagnosis (years)	63	66
Main histological types (%)		
Carcinoid tumour	28	30
Adenocarcinoma	27	27
Lymphoma	24	24
Leiomyosarcoma	8	8
None or unknown	4	6
Relative survival rates (%)		
1-year	63	65
5-year	43	42
10-year	33	39

The three most common histological types of cancer of the small intestine are—with almost equal shares—carcinoid tumour, adenocarcinoma, and lymphoma. The overall 5-year RSR in 1985–1994 is 43% for males and 42% for females. Clear excess mortality continues for 8 years subsequent to diagnosis (Fig. 33). No or very little increase in the RSR has taken place since the mid-1960s (Fig. 34). In general, the older the patients, the lower their RSRs (Fig. 35, Table 17).

Patients with advanced cancer of the small intestine have poor survival rates, whereas almost no difference exists between localized cancers and those with regional metastases (Fig. 36).

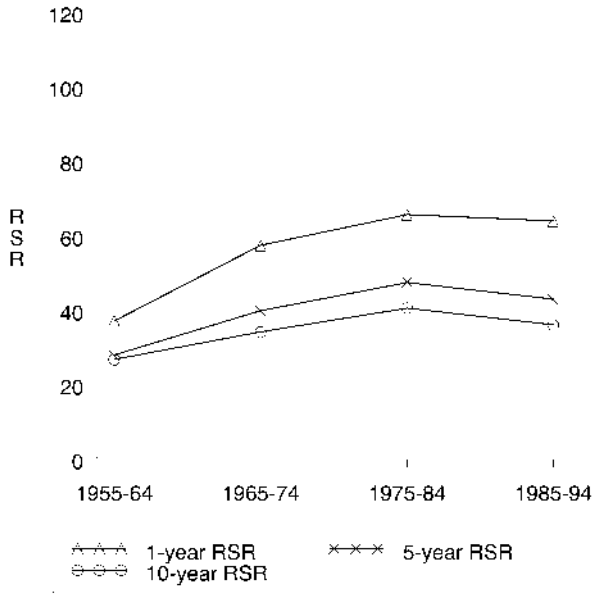

Fig. 34. Cancer of the small intestine, both sexes 1955–1994. Relative survival rates by calendar period of diagnosis.

Table 17

Cancer of the small intestine 1985–1994. Number of cases (n) and cumulative relative survival rates at 1, 5, and 10 years subsequent to diagnosis, stratified by stage, age, and sex. For the 5-year rates, 95% confidence intervals (CI) are given

Stage	Age	Males					Females				
		n	1-year	5-year	95% CI	10-year	n	1-year	5-year	95% CI	10-year
Localized	0–14	0	·	·	·	·	1	·	·	·	·
	15–29	3	·	·	·	·	0	·	·	·	·
	30–44	7	·	·	·	·	14	93	94	80–101	95
	45–59	19	90	72	48–95	·	20	95	73	50–96	75
	60–74	37	76	69	47–90	91	43	87	62	44–80	70
	75+	14	89	87	32–142	·	23	53	18	0–41	·
	All	80	85	74	59–88	·	101	83	63	50–75	69
Regional metastases	0–14	0	·	·	·	·	0	·	·	·	·
	15–29	2	·	·	·	·	1	·	·	·	·
	30–44	5	·	·	·	·	5	·	·	·	·
	45–59	13	78	51	18–84	·	14	100	37	9–66	·
	60–74	21	94	73	44–103	·	18	85	64	36–93	0
	75+	6	·	·	·	·	13	67	44	0–88	·
	All	47	83	63	45–82	59	51	87	56	39–73	·
Distant metastases	0–14	0	·	·	·	·	0	·	·	·	·
	15–29	2	·	·	·	·	3	·	·	·	·
	30–44	13	69	36	7–64	·	8	·	·	·	·
	45–59	33	58	21	3–38	·	20	85	27	4–49	·
	60–74	78	49	23	11–35	·	54	49	28	14–41	·
	75+	23	29	24	0–49	·	38	34	12	0–32	·
	All	149	51	24	15–33	·	123	53	22	13–32	·
All[a]	0–14	0	·	·	·	·	2	·	·	·	·
	15–29	7	·	·	·	·	4	·	·	·	·
	30–44	35	83	58	40–76	60	33	88	71	54–88	72
	45–59	94	68	43	31–54	·	67	87	45	31–59	40
	60–74	180	60	41	31–50	34	156	65	45	35–54	33
	75+	77	53	39	20–58	·	117	42	16	5–28	·
	All	393	63	43	37–50	33	379	65	42	36–49	39

[a] 'All' includes all cases, including those with unknown stage.
A '·' indicates that the value was either not estimable or the estimate lacked precision (see Section 6.3).

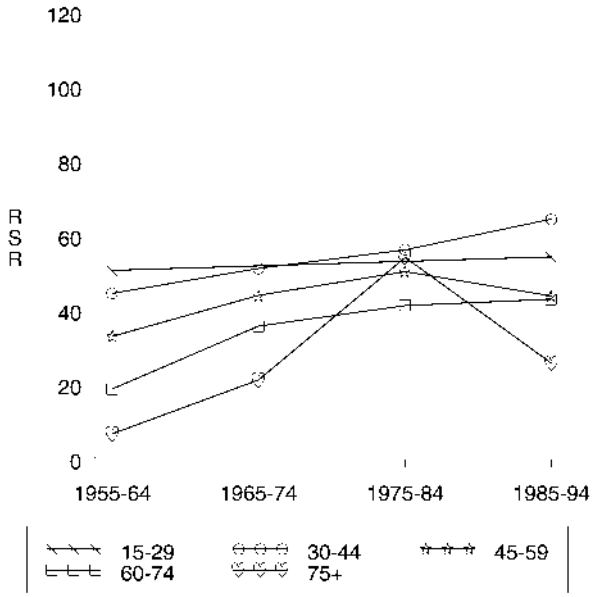

Fig. 35. Cancer of the small intestine, both sexes 1955–1994. Five-year relative survival rates by age and calendar period of diagnosis.

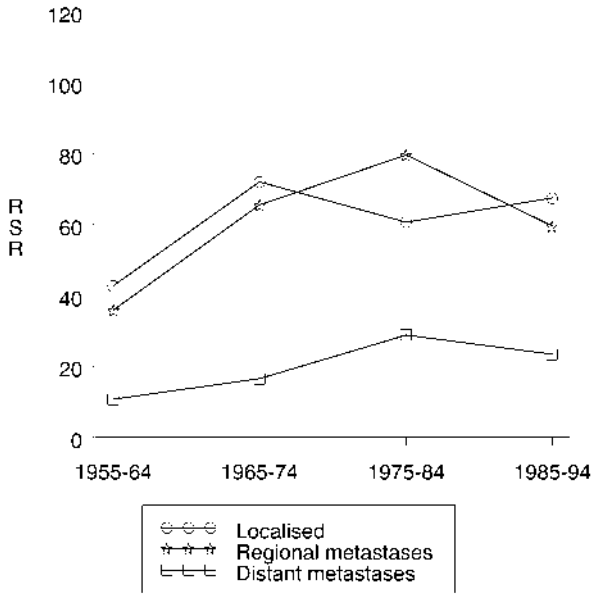

Fig. 36. Cancer of the small intestine, both sexes 1955–1994. Five-year relative survival rates by stage and calendar period of diagnosis.

Cancer of the colon

Summary 1985–1994	Carcinoma		Carcinoid	
	Males	Females	Males	Females
Average annual number of cases	403	570	16	30
Microscopically verified (%)	95	93	99	100
DCO cases (% excluded)	0.5	0.9	0.6	0.0
Autopsy cases (% excluded)	2.5	2.6	3.9	0.0
Mean age at diagnosis (years)	68	71	44	44
Main histological types (%)				
Adenocarcinoma	85	83		
None or unknown	6	8		
Mucinous carcinoma	6	6		
Carcinoma NOS	2	2		
Relative survival rates (%)				
1-year	70	68	92	95
5-year	50	50	87	92
10-year	46	46	93	95

Some 95% of all colon cancers are carcinomas. The rest are carcinoid tumours, lymphomas, and sarcomas. This analysis is restricted to patients with carcinoma of the colon (including cancers of unknown or uncertain histology) and those with carcinoid tumour of the colon.

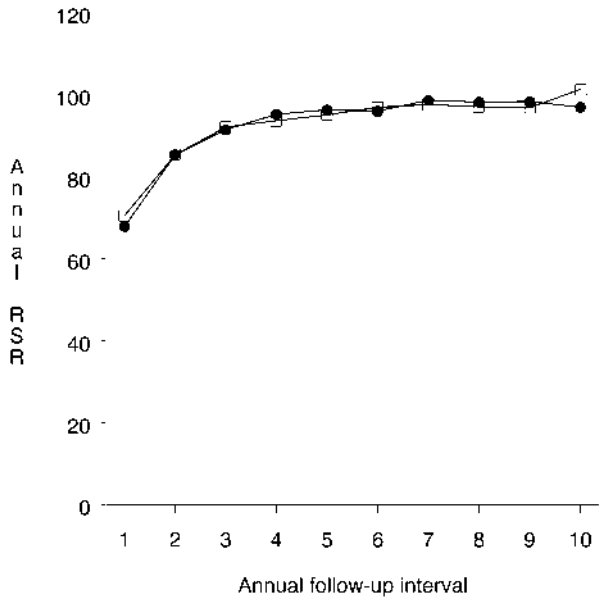

Fig. 37. Carcinoma of the colon 1985–1994. Annual (interval-specific) relative survival rates for males (□) and females (●).

Carcinoma of the colon. Carcinomas of the rectosigmoid junction are excluded (and included in rectal carcinomas), but carcinomas of the appendix are included. Adenocarcinoma constitutes the largest individual histological group among carcinomas. Survival is also analysed according to the following subsites of the colon: caecum and ascending colon, transverse colon, descending and sigmoid colon, and other (unspecified or multiple subsites).

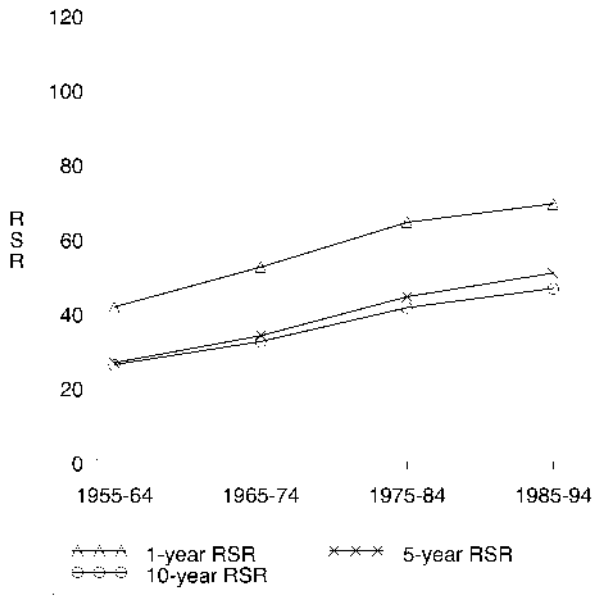

Fig. 38. Carcinoma of the colon, both sexes 1955–1994. Relative survival rates by calendar period of diagnosis.

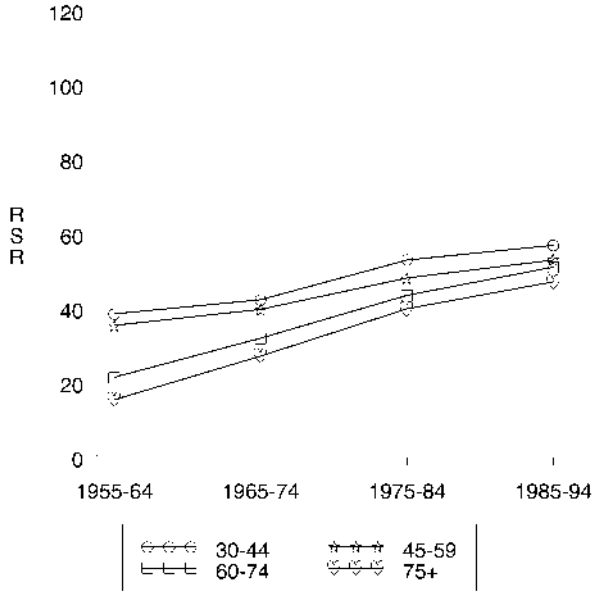

Fig. 39. Carcinoma of the colon, both sexes 1955–1994. Five-year relative survival rates by age and calendar period of diagnosis.

The 5-year RSR of patients with colon carcinoma in 1985–1994 is 50% for both males and females. Excess mortality following diagnosis continues for almost 10 years (Fig. 37). Survival rates have steadily increased since the mid-1950s (Fig. 38) and have done so for all ages; the differences in the 5-year RSR between age groups have diminished (Fig. 39). Improvement in patient survival can also be seen for each stage (Fig. 40), although the increase has been modest among patients with advanced cancer. The 5-year RSR for patients with localized colon carcinoma in 1985–1994 is as high as 80% in males and 83% in females (Table 19).

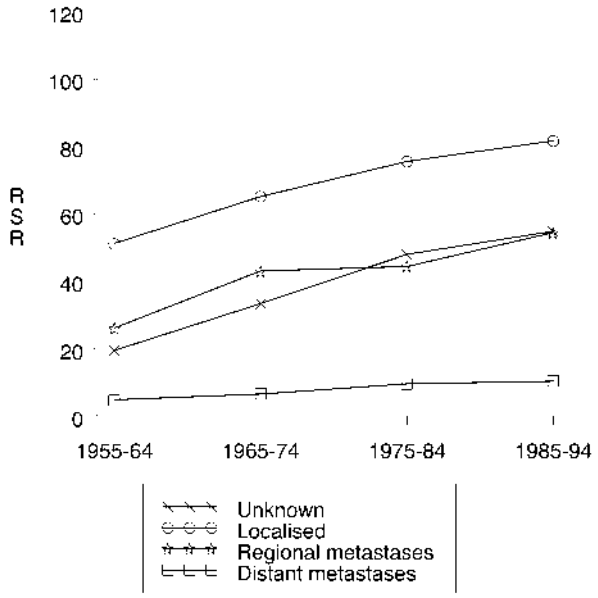

Fig. 40. Carcinoma of the colon, both sexes 1955–1994. Five-year relative survival rates by stage and calendar period of diagnosis.

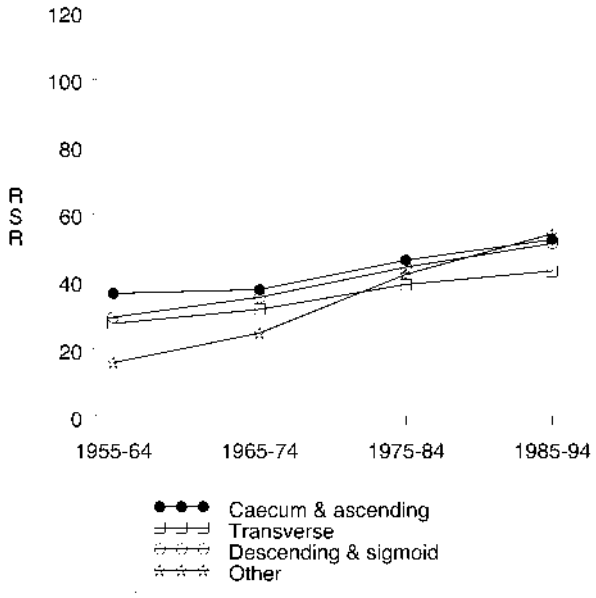

Fig. 41. Carcinoma of the colon, both sexes 1955–1994. Five-year relative survival rates by subsite and calendar period of diagnosis.

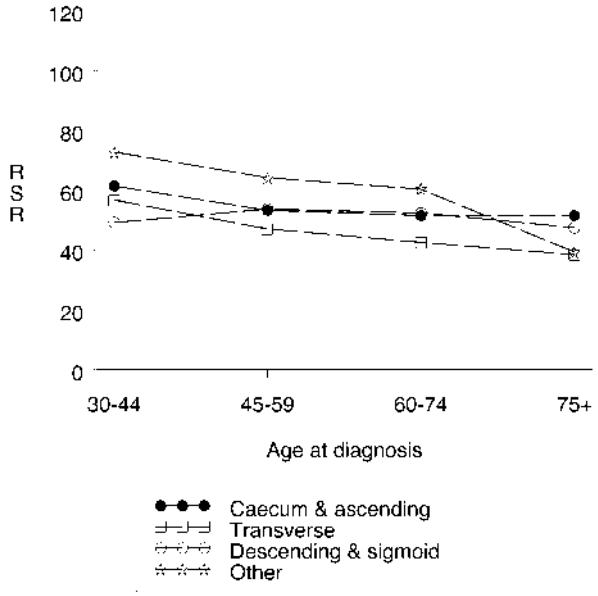

Fig. 42. Carcinoma of the colon, both sexes 1985–1994. Five-year relative survival rates by subsite and age at diagnosis.

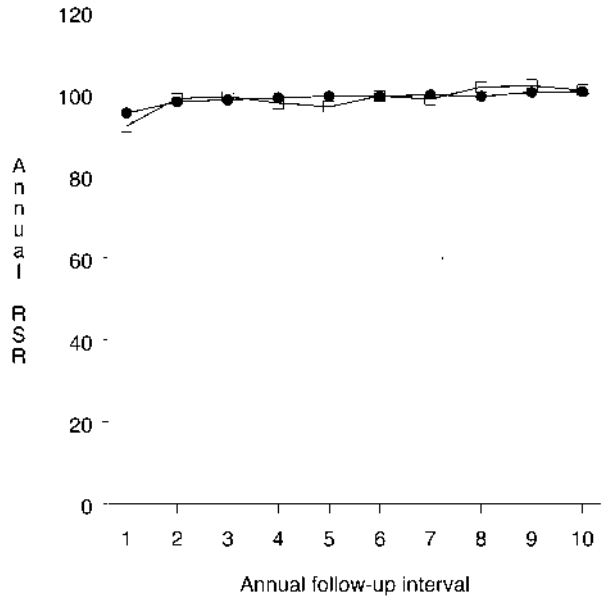

Fig. 43. Carcinoid tumour of the colon 1985–1994. Annual (interval-specific) relative survival rates for males (□) and females (●).

Table 18

Carcinoma of the colon, both sexes 1985–1994. Number of cases (n), 5-year cumulative relative survival rates, and 95% confidence intervals (CI) stratified by subsite and age

Age	Caecum & ascending			Transverse			Descending & sigmoid			Other		
	n	RSR	95% CI	n	RSR	95% CI	n	RSR	95% CI	n	RSR	95% CI
0–14	1	·	·	0	·	·	0	·	·	0	·	·
15–29	9	·	·	4	·	·	8	·	·	2	·	·
30–44	133	61	52–71	83	57	45–68	130	49	40–59	22	73	53–93
45–59	449	53	48–59	248	47	40–54	618	54	49–59	60	64	50–78
60–74	1 259	52	48–55	683	43	38–47	1 639	52	49–56	238	60	52–68
75+	1 505	52	47–56	663	38	32–45	1 360	48	43–52	301	39	30–49
All	3 356	52	50–55	1 681	43	40–46	3 755	51	49–54	623	54	48–60

Table 19

Carcinoma of the colon 1985–1994. Number of cases (n) and cumulative relative survival rates at 1, 5, and 10 years subsequent to diagnosis, stratified by stage, age, and sex. For the 5-year rates, 95% confidence intervals (CI) are given

Stage	Age	Males					Females				
		n	1-year	5-year	95% CI	10-year	n	1-year	5-year	95% CI	10-year
Localized	0–14	0	·	·	·	·	0	·	·	·	·
	15–29	2	·	·	·	·	4	·	·	·	·
	30–44	84	97	82	73–91	68	51	100	86	75–97	67
	45–59	257	98	85	79–91	84	297	97	80	74–85	75
	60–74	731	94	79	74–84	77	846	95	83	79–87	74
	75+	500	91	79	69–89	64	945	90	82	76–89	76
	All	1 574	94	80	77–84	76	2 143	93	83	80–86	75
Regional metastases	0–14	0	·	·	·	·	0	·	·	·	·
	15–29	2	·	·	·	·	1	·	·	·	·
	30–44	34	86	62	43–80	63	34	82	66	48–83	·
	45–59	114	90	55	44–66	55	94	85	59	47–70	57
	60–74	202	86	56	46–65	54	265	86	51	43–59	44
	75+	129	85	63	45–82	·	274	76	49	39–59	·
	All	481	86	57	51–64	55	668	82	53	47–58	42
Distant metastases	0–14	1	·	·	·	·	0	·	·	·	·
	15–29	3	·	·	·	·	5	·	·	·	·
	30–44	64	45	12	2–21	·	56	55	22	11–34	·
	45–59	251	45	12	7–16	·	180	52	13	8–19	·
	60–74	559	39	10	7–13	·	645	40	9	6–12	10
	75+	354	26	12	6–18	·	790	28	8	5–11	·
	All	1 232	37	11	9–13	·	1 676	36	10	8–12	8
All[a]	0–14	1	·	·	·	·	0	·	·	·	·
	15–29	10	70	60	28–91	·	13	77	36	8–63	·
	30–44	207	78	55	48–63	48	161	78	59	50–67	39
	45–59	715	75	50	46–55	47	660	82	55	51–60	51
	60–74	1 733	73	50	47–53	47	2 086	72	51	49–54	46
	75+	1 247	63	49	44–55	39	2 582	60	46	43–49	41
	All	3 913	70	50	48–53	46	5 502	68	50	48–52	46

[a] 'All' includes all cases, including those with unknown stage.
A '·' indicates that the value was either not estimable or the estimate lacked precision (see Section 6.3).

Only small differences in the 5-year RSR exist between the subsites in 1985–1994; carcinoma of the transverse colon is associated with the lowest rate (Table 18). The association between age and survival is weakest when the tumour is located in the descending colon (Fig. 42). During the last decade, the improvement in survival has been slower for patients with cancer of the transverse colon (Fig. 41).

Carcinoid tumour of the colon. Carcinoid tumours of the appendix and colon are included irrespective of their morphological or clinical malignancy. The prognosis is good; in 1985–1994 the 5-year RSR is as high as 87% in males and 92% in females. No excess mortality due to cancer exists after the second year of follow-up from diagnosis (Fig. 43). Patients with localized carcinoid tumours have an excellent chance of survival, the RSR being around 100% (Table 20). The RSR for patients with distant metastases is much higher in females (44%) than males (16%).

Carcinoma of the rectum

Summary 1985–1994	Males	Females
Average annual number of cases	341	339
Microscopically verified (%)	98	96
DCO cases (% excluded)	0.2	0.7
Autopsy cases (% excluded)	1.1	1.3
Mean age at diagnosis (years)	68	71
Main histological types (%)		
Adenocarcinoma	91	88
None or unknown	3	4
Mucinous carcinoma	2	2
Relative survival rates (%)		
1-year	77	76
5-year	48	48
10-year	42	44

Table 20

Carcinoid tumour of the colon 1985–1994. Number of cases (n) and cumulative relative survival rates at 1, 5, and 10 years subsequent to diagnosis, stratified by stage, age, and sex. For the 5-year rates, 95% confidence intervals (CI) are given

Stage	Age	Males					Females				
		n	1-year	5-year	95% CI	10-year	n	1-year	5-year	95% CI	10-year
Localized	0–14	8	·	·	·	·	15	100	100	·	100
	15–29	25	100	95	85–101	96	62	100	100	·	101
	30–44	23	100	102	·	105	50	100	101	·	102
	45–59	25	93	98	86–107	93	55	100	100	95–102	102
	60–74	8	·	·	·	·	19	102	103	88–111	97
	75+	5	·	·	·	·	7	·	·	·	·
	All	94	97	98	91–105	99	208	100	100	97–102	100
Regional metastases	0–14	0	·	·	·	·	0	·	·	·	·
	15–29	0	·	·	·	·	1	·	·	·	·
	30–44	0	·	·	·	·	0	·	·	·	·
	45–59	1	·	·	·	·	0	·	·	·	·
	60–74	1	·	·	·	·	5	·	·	·	·
	75+	0	·	·	·	·	4	·	·	·	·
	All	2	·	·	·	·	10	86	113	77–141	·
Distant metastases	0–14	0	·	·	·	·	0	·	·	·	·
	15–29	0	·	·	·	·	2	·	·	·	·
	30–44	3	·	·	·	·	1	·	·	·	·
	45–59	3	·	·	·	·	4	·	·	·	·
	60–74	5	·	·	·	·	18	85	46	19–73	·
	75+	6	·	·	·	·	11	39	29	0–66	·
	All	17	62	16	0–44	·	36	72	44	23–64	·
All[a]	0–14	10	100	100	·	101	17	100	100	·	100
	15–29	31	100	96	88–101	97	77	100	100	·	101
	30–44	32	97	95	86–102	98	66	100	98	94–101	99
	45–59	38	93	89	74–104	84	66	99	97	91–102	100
	60–74	25	95	66	37–95	·	49	91	75	58–91	66
	75+	12	37	58	11–106	·	24	59	43	10–77	·
	All	148	92	87	79–95	93	299	95	92	88–97	95

[a] 'All' includes all cases, including those with unknown stage.
A '·' indicates that the value was either not estimable or the estimate lacked precision (see Section 6.3).

In order to analyse survival in a prognostically meaningful group of patients, the analysis is restricted to carcinomas only (excluding e.g. lymphomas and carcinoid tumours). Cancers with unknown or uncertain histology are also included, as are carcinomas of the rectosigmoid junction and anus.

The 5-year RSR of patients with rectal carcinoma is 48% for both males and females, i.e. of the same order as that for colon carcinoma. Excess mortality is observable for 8 years from diagnosis (Fig. 44). The age dependence of the RSRs, the variation in the RSRs by stage, and the time trends in survival are similar to those for patients

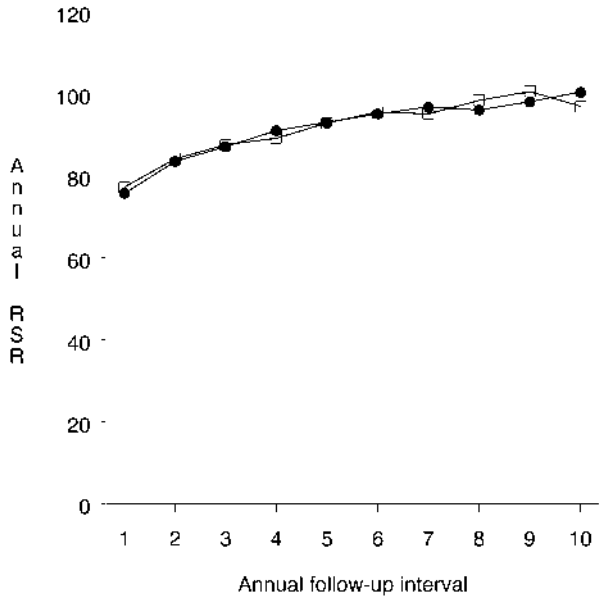

Fig. 44. Carcinoma of the rectum 1985–1994. Annual (interval-specific) relative survival rates for males (□) and females (●).

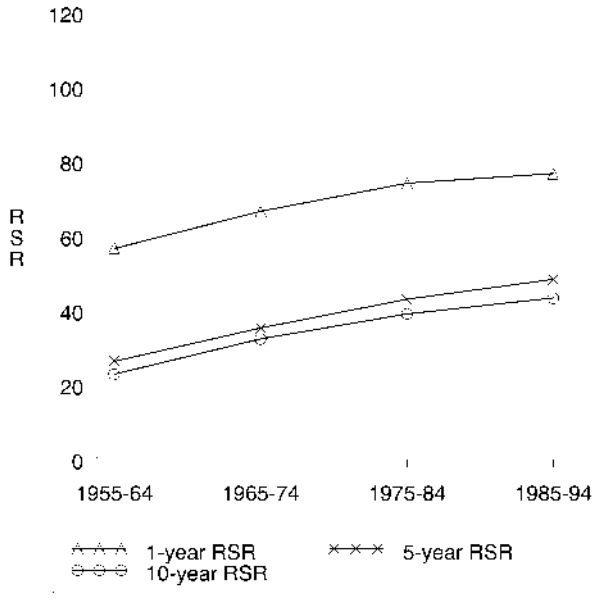

Fig. 45. Carcinoma of the rectum, both sexes 1955–1994. Relative survival rates by calendar period of diagnosis.

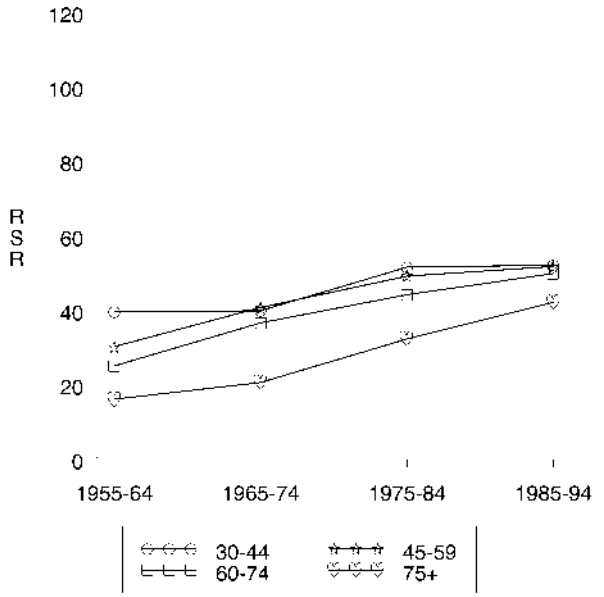

Fig. 46. Carcinoma of the rectum, both sexes 1955–1994. Five-year relative survival rates by age and calendar period of diagnosis.

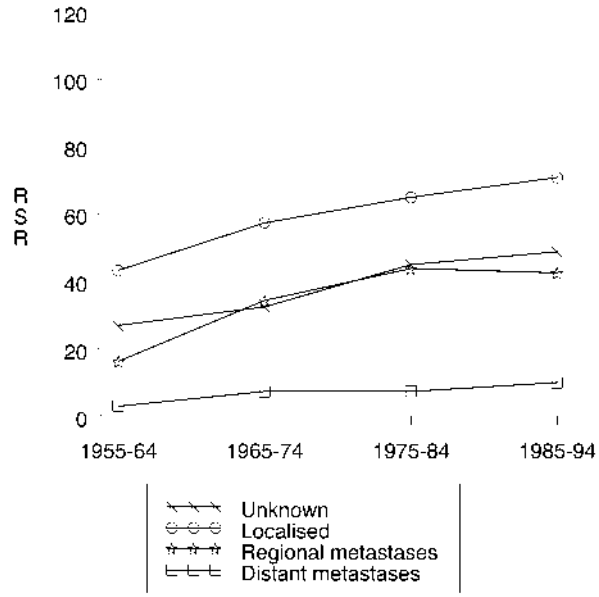

Fig. 47. Carcinoma of the rectum, both sexes 1955–1994. Five-year relative survival rates by stage and calendar period of diagnosis.

with colon carcinoma: younger patients have higher survival rates, stage is an important prognostic factor, and there is an increase in the 5-year RSR for all age groups (Figs. 45–47).

Stage is an important determinant of survival; patients with advanced carcinoma have a poor prognosis (Fig. 47, Table 21).

Cancer of the liver

Summary 1985–1994	Males	Females
Average annual number of cases	127	114
Microscopically verified (%)	94	91
DCO cases (% excluded)	1.7	1.4
Autopsy cases (% excluded)	14.4	13.9
Mean age at diagnosis (years)	67	71
Main histological types (%)		
Hepatocellular carcinoma	57	39
None or unknown	19	22
Cholangiocarcinoma	13	23
Adenocarcinoma NOS	5	8
Carcinoma NOS	3	4
Relative survival rates (%)		
1-year	19	18
5-year	5	6
10-year	4	6

Table 21

Carcinoma of the rectum 1985–1994. Number of cases (n) and cumulative relative survival rates at 1, 5, and 10 years subsequent to diagnosis, stratified by stage, age, and sex. For the 5-year rates, 95% confidence intervals (CI) are given

Stage	Age	Males					Females				
		n	1-year	5-year	95% CI	10-year	n	1-year	5-year	95% CI	10-year
Localized	0–14	0	·	·	·	·	0	·	·	·	·
	15–29	0	·				3	·	·	·	·
	30–44	39	100	75	58–92	·	46	98	71	54–87	72
	45–59	277	98	72	65–79	58	232	98	75	68–82	65
	60–74	787	94	71	66–76	67	637	96	73	69–78	63
	75+	503	87	71	61–80	74	599	88	63	56–70	55
	All	1 606	93	71	67–75	64	1517	93	71	67–74	63
Regional metastases	0–14	0	·	·	·	·	0	·	·	·	·
	15–29	1	·	·	·	·	1	·	·	·	·
	30–44	12	92	16	0–43	·	9	·	·	·	·
	45–59	66	92	39	25–54	·	78	91	52	38–65	·
	60–74	166	91	38	27–48	34	126	91	42	31–54	41
	75+	76	88	50	28–72	·	117	83	40	25–55	·
	All	321	90	39	32–47	36	331	89	45	38–53	40
Distant metastases	0–14	0	·	·	·	·	0	·	·	·	·
	15–29	3	·	·	·	·	0	·	·	·	·
	30–44	27	56	12	0–27	·	22	46	6	0–18	·
	45–59	154	55	13	7–19	·	107	55	11	4–18	·
	60–74	366	47	9	5–13	·	331	48	12	7–16	·
	75+	276	41	9	4–14	·	357	38	7	3–12	·
	All	826	47	10	7–13	9	817	45	10	7–13	·
All[a]	0–14	0	·	·	·	·	0	·	·	·	·
	15–29	5	·	·	·	·	4	·	·	·	·
	30–44	93	84	47	35–59	·	92	85	57	45–69	55
	45–59	589	83	49	44–54	38	478	85	55	50–60	45
	60–74	1 600	80	49	45–52	43	1 314	80	51	47–54	45
	75+	1 079	69	46	40–51	50	1 434	67	39	35–44	36
	All	3 366	77	48	46–51	42	3 322	76	48	46–51	44

[a] 'All' includes all cases, including those with unknown stage.

A '·' indicates that the value was either not estimable or the estimate lacked precision (see Section 6.3).

This category includes only primary cancers of the liver and intrahepatic bile ducts. This leads to a high proportion of histological confirmation (91–94%), since most cancers without histology are recorded as unspecified liver cancers (not known whether primary or secondary) and excluded from this analysis. Hepatocellular carcinoma and cholangiocarcinoma are the two most common specific histological types of liver cancer.

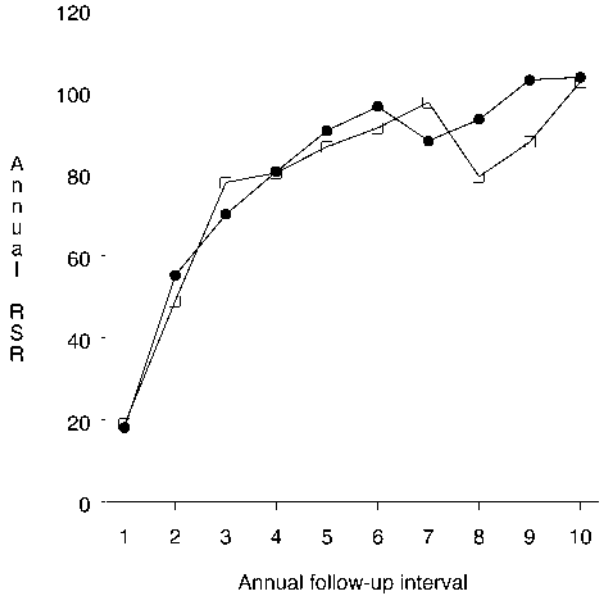

Fig. 48. Cancer of the liver 1985–1994. Annual (interval-specific) relative survival rates for males (□) and females (●).

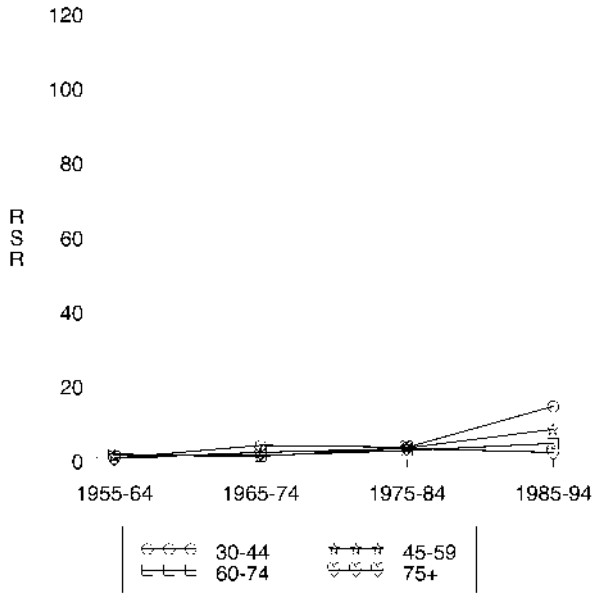

Fig. 49. Cancer of the liver, both sexes 1955–1994. Relative survival rates by age and calendar period of diagnosis.

Patients with liver cancer have an extremely poor prognosis, the 5-year RSR in 1985–1994 being only 5% for males and 6% for females, and as low as 16% (males) or 18% (females) among patients with localized cancer (Table 22). Patients diagnosed with metastasized liver cancer very rarely survive 5 years or more (Table 22). The excess mortality following a diagnosis of liver cancer continues for 8 or 9 years (Fig. 48). Only a very small improvement over time is observable in the survival of liver cancer patients (Fig. 49). The survival rates are lowest among the oldest patients (Table 22).

Comment: It is difficult to assess the nature (primary or secondary) and extent of many liver cancers. Although rather strict criteria have been followed at the Finnish Cancer Registry in terms of coding tumours as primary liver cancers, some problems remain for individual patients. This may affect the estimated survival rates, especially those calculated by stage.

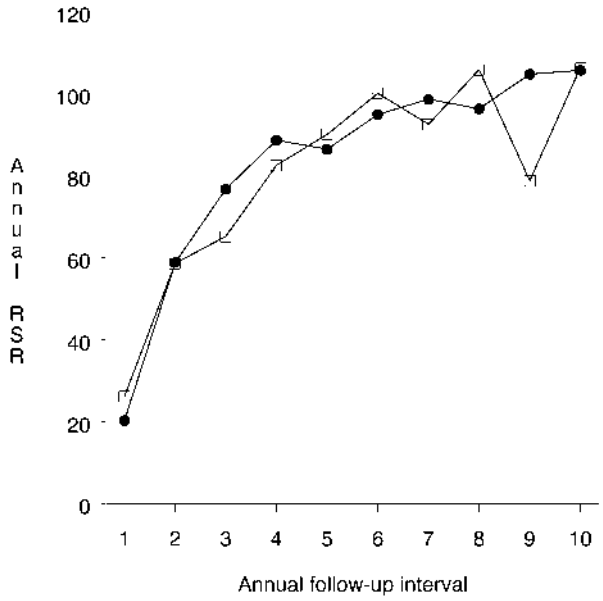

Fig. 50. Cancer of the gallbladder and bile ducts 1985–1994. Annual (interval-specific) relative survival rates for males (□) and females (●).

Table 22

Cancer of the liver 1985–1994. Number of cases (n) and cumulative relative survival rates at 1, 5, and 10 years subsequent to diagnosis, stratified by stage, age, and sex. For the 5-year rates, 95% confidence intervals (CI) are given

Stage	Age	Males					Females				
		n	1-year	5-year	95% CI	10-year	n	1-year	5-year	95% CI	10-year
Localized	0–14	8	·	·	·	·	6	·	·	·	·
	15–29	3	·	·	·	·	5	·	·	·	·
	30–44	9	·	·	·	·	7	·	·	·	·
	45–59	44	32	16	5–28	·	21	53	32	11–54	·
	60–74	133	34	11	4–17	·	84	35	15	6–23	·
	75+	93	30	6	0–14	·	96	21	3	0–9	0
	All	290	36	16	10–21	·	219	35	18	11–24	·
Regional metastases	0–14	0	·	·	·	·	0	·	·	·	·
	15–29	0	·	·	·	·	0	·	·	·	·
	30–44	1	·	·	·	·	1	·	·	·	·
	45–59	3	·	·	·	·	5	·	·	·	·
	60–74	10	21	0	·	·	7	·	·	·	·
	75+	5	·	·	·	·	6	·	·	·	·
	All	19	17	0	·	·	19	22	0	·	·
Distant metastases	0–14	1	·	·	·	·	0	·	·	·	·
	15–29	7	·	·	·	·	3	·	·	·	·
	30–44	23	31	12	0–26	·	14	14	0	·	·
	45–59	74	7	0	·	·	60	15	2	0–5	·
	60–74	217	11	0	0–0	·	162	10	1	0–3	·
	75+	110	6	2	0–5	·	162	5	0	·	·
	All	432	10	1	0–2	·	401	9	1	0–2	·
All[a]	0–14	9	·	·	·	·	6	·	·	·	·
	15–29	11	46	25	0–53	·	10	70	45	10–79	·
	30–44	41	37	12	1–23	·	26	31	15	1–30	·
	45–59	158	17	6	2–10	·	120	27	10	4–16	·
	60–74	524	18	3	1–5	·	378	19	5	3–8	·
	75+	326	16	3	0–6	·	426	12	1	0–2	0
	All	1 069	19	5	3–7	·	966	18	6	4–8	6

[a] 'All' includes all cases, including those with unknown stage.
A '·' indicates that the value was either not estimable or the estimate lacked precision (see Section 6.3).

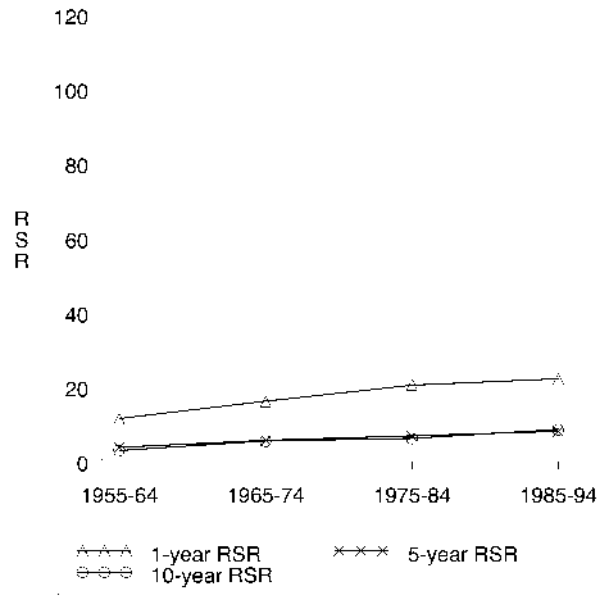

Fig. 51. Cancer of the gallbladder and bile ducts, both sexes 1955–1994. Relative survival rates by calendar period of diagnosis.

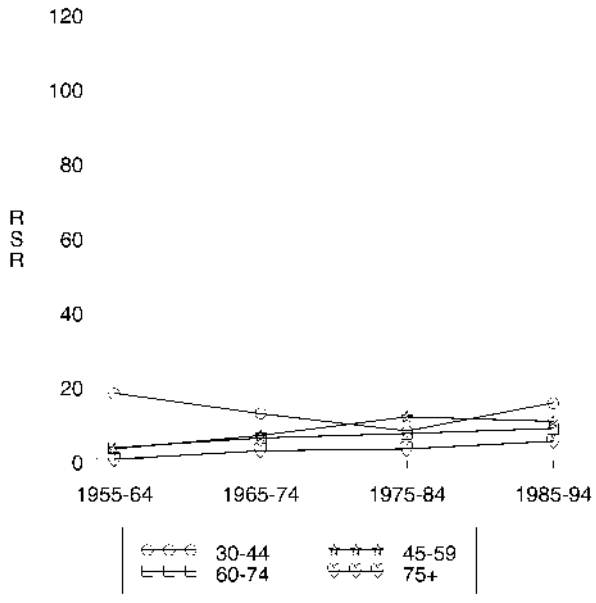

Fig. 52. Cancer of the gallbladder and bile ducts, both sexes 1955–1994. Five-year relative survival rates by age and calendar period of diagnosis.

Cancer of the gallbladder and bile ducts

Summary 1985–1994	Males	Females
Average annual number of cases	74	199
Microscopically verified (%)	85	87
DCO cases (% excluded)	1.8	1.3
Autopsy cases (% excluded)	5.2	5.7
Mean age at diagnosis (years)	69	73
Main histological types (%)		
Adenocarcinoma NOS	64	64
None or unknown	20	19
Carcinoma NOS	6	7
Cholangiocarcinoma	5	4
Relative survival rates (%)		
1-year	26	20
5-year	8	8
10-year	7	9

Cancers of the intrahepatic bile ducts are excluded (included in cancers of the liver). Cancers of the ampulla Vateri are included. There is a clear female preponderance in the numbers of cases.

Excess mortality exists for at least 7 years after diagnosis (Fig. 50). The prognosis of patients with cancer of the gallbladder and bile ducts is poor, and very little improvement in the rates over time is observable (Figs. 51 and 52). The variation by age in the 5-year RSR is small; in 1985–1994 the RSR is highest among the youngest age group (30–44 years) (Fig. 52).

Among patients with localized cancer, the 5-year RSR in 1985–1994 is 28% in males and 34% in females (Fig. 53, Table 23). The 5-year RSR for patients with advanced cancer is almost zero.

Table 23

Cancer of the gallbladder and bile ducts 1985–1994. Number of cases (n) and cumulative relative survival rates at 1, 5, and 10 years subsequent to diagnosis, stratified by stage, age, and sex. For the 5-year rates, 95% confidence intervals (CI) are given

Stage	Age	Males					Females				
		n	1-year	5-year	95% CI	10-year	n	1-year	5-year	95% CI	10-year
Localized	0–14	1	·	·	·	·	0	·	·	·	·
	15–29	0	·	·	·	·	1	·	·	·	·
	30–44	4	·	·	·	·	7	·	·	·	·
	45–59	31	68	14	0–31	·	34	92	47	28–67	49
	60–74	70	64	42	28–57	·	122	68	36	26–46	33
	75+	42	38	10	0–24	·	131	50	22	11–33	·
	All	148	58	28	18–38	·	295	64	34	27–41	36
Regional metastases	0–14	0	·	·	·	·	0	·	·	·	·
	15–29	0	·	·	·		0	·	·	·	·
	30–44	3	·	·	·	·	0	·	·	·	·
	45–59	9	·	·	·	·	8	·	·	·	·
	60–74	7	·	·	·	·	35	49	5	0–15	·
	75+	12	28	0	·	·	22	20	13	0–32	·
	All	31	41	6	0–17	·	65	40	7	0–16	·
Distant metastases	0–14	0	·	·	·	·	0	·	·	·	·
	15–29	1	·	·	·	·	2	·	·	·	·
	30–44	16	19	0	·	·	12	33	8	0–24	·
	45–59	52	27	0	0 0	·	120	13	1	0–3	·
	60–74	157	15	2	0–4	·	466	9	1	0–3	·
	75+	116	8	0	·	·	478	5	0	0–1	·
	All	342	15	1	0–3	·	1078	8	1	0–2	·
All[a]	0–14	1	·	·	·	·	0	·	·	·	·
	15–29	1	·	·	·	·	3	·	·	·	·
	30–44	26	35	11	0–24	·	22	50	20	1–39	·
	45–59	105	42	6	0–13	0	190	30	11	6–16	12
	60–74	303	28	11	7–15	·	756	22	7	5–10	7
	75+	250	15	2	0–5	·	882	15	6	3–8	·
	All	686	26	8	5–11	·	1853	20	8	6–9	9

[a] 'All' includes all cases, including those with unknown stage.
A '·' indicates that the value was either not estimable or the estimate lacked precision (see Section 6.3).

Cancer of the pancreas

Summary 1985–1994	Males	Females
Average annual number of cases	308	386
Microscopically verified (%)	78	72
DCO cases (% excluded)	1.8	2.2
Autopsy cases (% excluded)	5.8	5.5
Mean age at diagnosis (years)	67	73
Main histological types (%)		
Adenocarcinoma NOS	51	45
None or unknown	32	40
Carcinoma NOS	9	7
Ductal carcinoma	4	5
Relative survival rates (%)		
1-year	14	15
5-year	2	3
10-year	2	2

Malignant tumour of the islet cells and cancers of the periampullary region are included. The annual RSRs are very low during the first years of follow-up, and approach 100% after 8 years of follow-up (Fig. 54). Due to the high fatality of pancreatic cancer, very few patients survive 8 years or more, so the estimates of the annual RSRs for the later follow-up intervals lack precision. The prognosis of patients with pancreatic cancer is one of the worst among all cancers: the 5-year RSR in 1985–1994 is only 2% in males and 3% in females (Table 24). No apparent improvement in the rate over time has taken place (Fig. 55). The highest survival rates are seen among the few young patients with localized cancer (Fig. 56).

Comment: The survival rate is best among patients with cancer of the islet cells or periampullary cancer. Thus, carcinomas originating in other parts of the pancreas have a desperately poor prognosis.

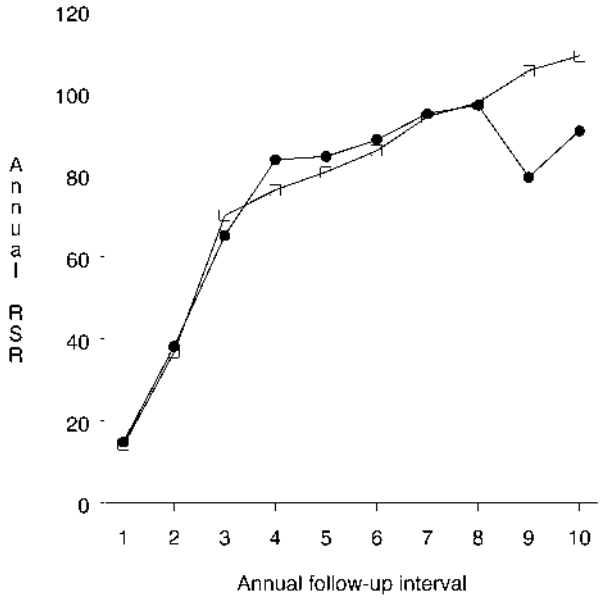

Fig. 54. Cancer of the pancreas 1985–1994. Annual (interval-specific) relative survival rates for males (□) and females (●).

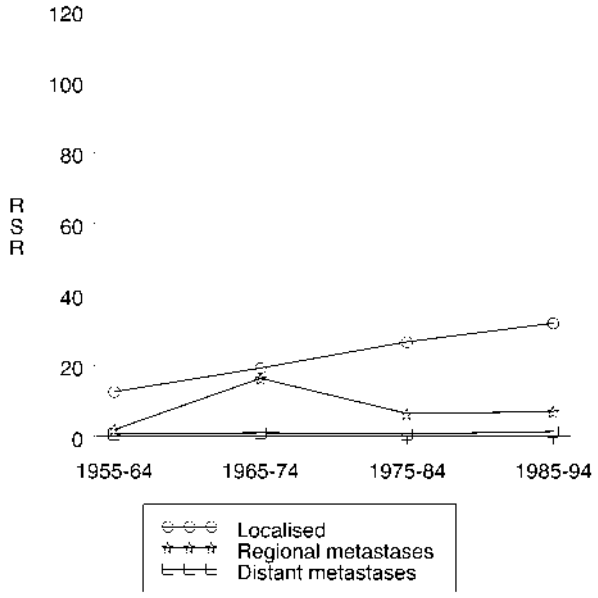

Fig. 53. Cancer of the gallbladder and bile ducts, both sexes 1955–1994. Five-year relative survival rates by stage and calendar period of diagnosis.

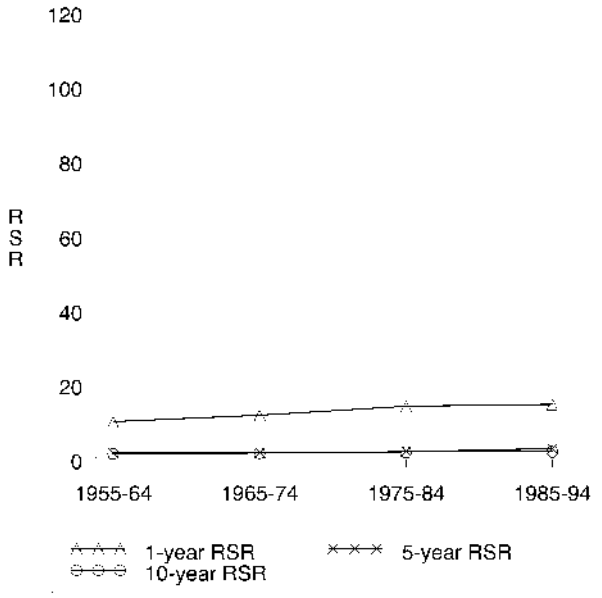

Fig. 55. Cancer of the pancreas, both sexes 1955–1994. Relative survival rates by calendar period of diagnosis.

Table 24

Cancer of the pancreas 1985–1994. Number of cases (n) and cumulative relative survival rates at 1, 5, and 10 years subsequent to diagnosis, stratified by stage, age, and sex. For the 5-year rates, 95% confidence intervals (CI) are given

Stage	Age	Males					Females				
		n	1-year	5-year	95% CI	10-year	n	1-year	5-year	95% CI	10-year
Localized	0–14	0	·	·	·	·	0	·	·	·	·
	15–29	0	·	·	·	·	2	·	·	·	·
	30–44	7	·	·	·	·	10	90	60	29–92	·
	45–59	59	60	19	7–30	·	39	62	29	13–46	·
	60–74	135	35	6	0–11	·	147	51	11	5–17	·
	75+	88	41	7	0–15	·	203	23	3	0–8	0
	All	289	43	10	6–15	·	401	40	13	8–17	·
Regional metastases	0–14	0	·	·	·	·	0	·	·	·	·
	15–29	0	·	·	·	·	1	·	·	·	·
	30–44	5	·	·	·	·	1	·	·	·	·
	45–59	33	64	11	0–22	0	14	36	0	·	·
	60–74	42	25	4	0–10	0	61	27	3	0–8	0
	75+	14	24	0	·	·	47	30	0	·	·
	All	94	37	6	0–12	0	124	29	5	0–9	·
Distant metastases	0–14	0	·	·	·	·	0	·	·	·	·
	15–29	4	·	·	·	·	0	·	·	·	·
	30–44	78	17	3	0–6	·	51	18	6	0–13	·
	45–59	397	12	0	0–0	·	252	14	3	1–5	·
	60–74	903	8	0	0–1	·	892	9	0	0–1	·
	75+	462	4	0	·	·	859	7	1	0–2	·
	All	1 844	8	1	0–1	·	2 054	9	1	1–2	·
All[a]	0–14	0	·	·	·	·	0	·	·	·	·
	15–29	4	·				3	·	·	·	·
	30–44	95	21	7	2–13	·	64	30	14	5–23	·
	45–59	579	22	4	2–5	·	354	21	6	3–8	6
	60–74	1 338	13	2	1–2	·	1 440	17	2	1–3	·
	75+	830	10	1	0–2	·	1 698	11	2	1–3	·
	All	2 846	14	2	2–3	2	3 559	15	3	2–4	·

[a] 'All' includes all cases, including those with unknown stage.
A '·' indicates that the value was either not estimable or the estimate lacked precision (see Section 6.3).

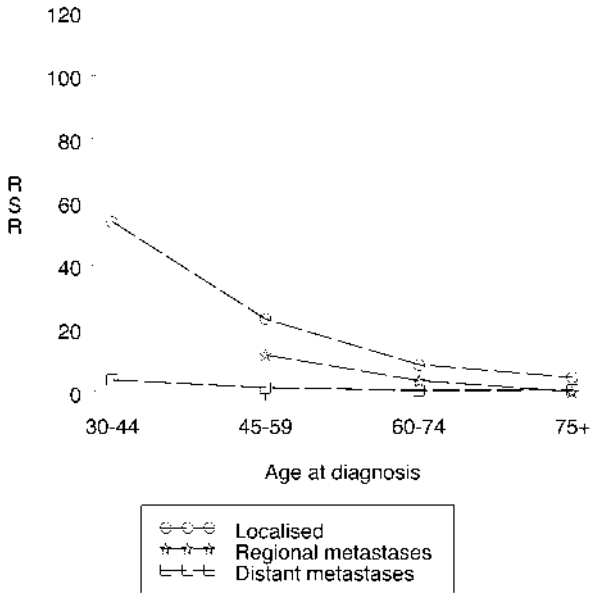

Fig. 56. Cancer of the pancreas, both sexes 1985–1994. Five-year relative survival rates by stage and age.

Cancer of the nose and sinuses

Summary 1985–1994	Males	Females
Average annual number of cases	20	16
Microscopically verified (%)	99	99
DCO cases (% excluded)	0.0	0.0
Autopsy cases (% excluded)	0.0	0.6
Mean age at diagnosis (years)	61	71
Main histological types (%)		
Squamous cell carcinoma	46	39
Lymphoma	12	15
Melanoma	8	10
Carcinoma NOS	6	9
Adenocarcinoma	6	7
Relative survival rates (%)		
1-year	77	79
5-year	44	36
10-year	36	28

The most common histological type of cancer in the nose and sinuses is squamous cell carcinoma, followed by lymphoma and melanoma. The overall 5-year RSR in 1985–1994 is 44% for males and 36% for females. A clear excess mortality after diagnosis lasts for some 5 to 6 years from diagnosis (Fig. 57). The incidence of cancer of the nose and sinuses is low compared to the other sites presented in this monograph, resulting in less precise estimates of the survival rates.

No improvement in the RSR over time is observable (Fig. 58). This holds true for all age groups and for all stages (Figs. 59 and 60). The oldest patients have the worst prognosis (Fig. 59, Table 25). There is a strong association between stage of the tumour at diagnosis and patient survival (Fig. 60).

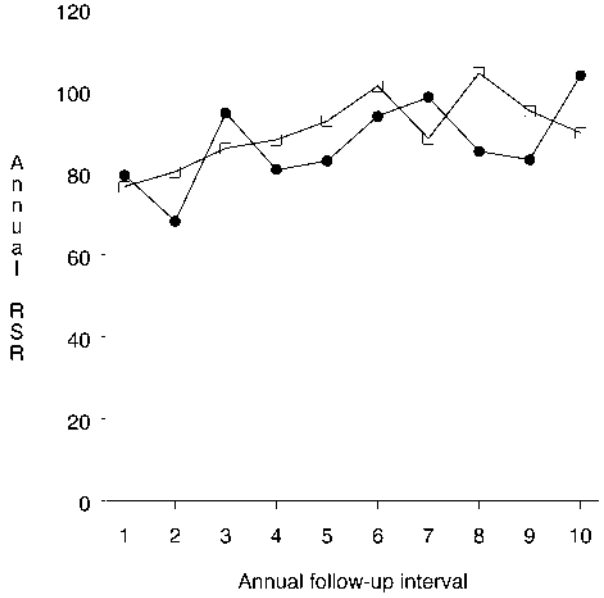

Fig. 57. Cancer of the nose and sinuses 1985–1994. Annual (interval-specific) relative survival rates for males (□) and females (●).

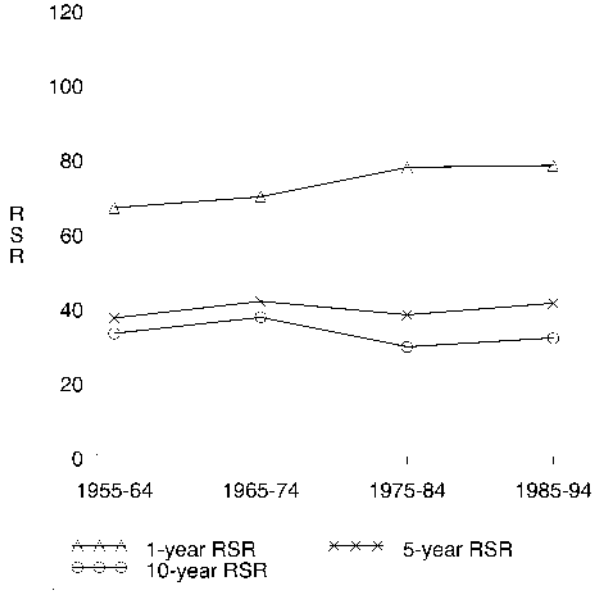

Fig. 58. Cancer of the nose and sinuses, both sexes 1955–1994. Relative survival rates by calendar period of diagnosis.

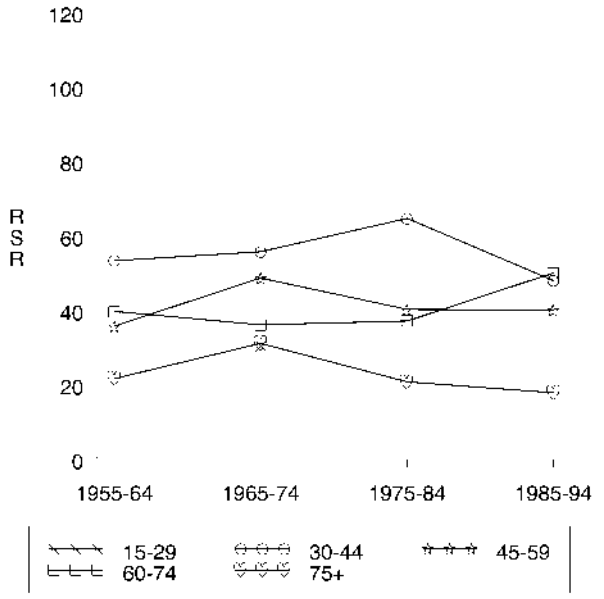

Fig. 59. Cancer of the nose and sinuses, both sexes 1955–1994. Five-year relative survival rates by age and calendar period of diagnosis.

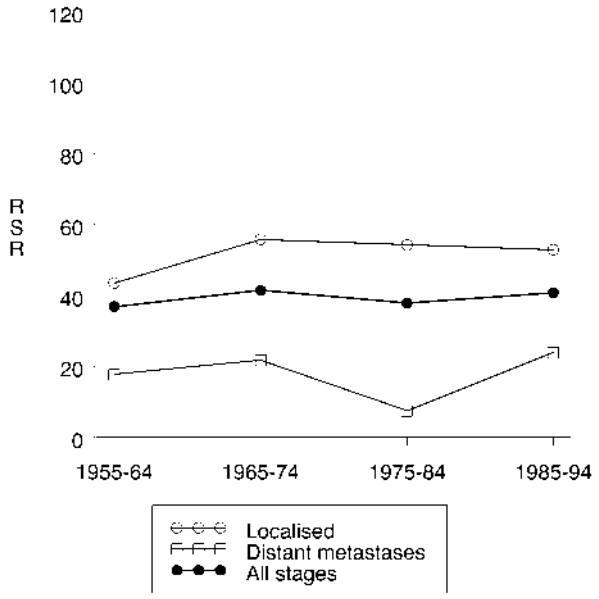

Fig. 60. Cancer of the nose and sinuses, both sexes 1955–1994. Five-year relative survival rates by stage and calendar period of diagnosis.

Table 25

Cancer of the nose and sinuses 1985–1994. Number of cases (n) and cumulative relative survival rates at 1, 5, and 10 years subsequent to diagnosis, stratified by stage, age, and sex. For the 5-year rates, 95% confidence intervals (CI) are given

Stage	Age	Males					Females				
		n	1-year	5-year	95% CI	10-year	n	1-year	5-year	95% CI	10-year
Localized	0–14	3	·	·	·	·	0	·	·	·	·
	15–29	0	·	·	·		0	·	·	·	·
	30–44	12	92	51	11–90	·	0	·	·	·	·
	45–59	24	101	73	50–96	·	6	·	·	·	·
	60–74	32	91	75	52–98	·	24	102	36	12–61	·
	75+	9	·	·	·	·	29	96	26	0–56	·
	All	80	97	67	52–82	·	59	97	31	13–48	·
Regional metastases	0–14	0	·	·	·	·	0	·	·	·	·
	15–29	0	·	·	·		0	·	·	·	·
	30–44	0	·	·	·	·	0	·	·	·	·
	45–59	2	·	·	·	·	1	·	·	·	·
	60–74	6	·	·	·	·	2	·	·	·	·
	75+	1	·	·	·	·	1	·	·	·	·
	All	9	·	·	·	·	4	·	·	·	·
Distant metastases	0–14	0	·	·	·	·	0	·	·	·	·
	15–29	0	·	·	·	·	2	·	·	·	·
	30–44	4	·	·	·	·	2	·	·	·	·
	45–59	15	67	19	0–42	·	3	·	·	·	·
	60–74	18	52	10	0–28	·	17	84	65	38–93	·
	75+	8	·	·	·	·	17	47	0	·	·
	All	45	55	12	0–25	·	41	67	38	18–58	·
All[a]	0–14	4	·	·	·	·	0	·	·	·	·
	15–29	0	·	·	·	·	2	·	·	·	·
	30–44	22	91	49	22–76	·	4	·	·	·	·
	45–59	50	83	43	26–60	·	15	80	29	1–57	·
	60–74	84	76	52	38–66	·	64	88	47	31–62	·
	75+	35	54	11	0–27	0	71	71	21	4–38	·
	All	195	77	44	35–54	36	156	79	36	25–47	·

[a] 'All' includes all cases, including those with unknown stage.
A '·' indicates that the value was either not estimable or the estimate lacked precision (see Section 6.3).

Cancer of the larynx

Summary 1985–1994	Males	Females
Average annual number of cases	109	12
Microscopically verified (%)	99	99
DCO cases (% excluded)	0.2	0.0
Autopsy cases (% excluded)	1.1	0.8
Mean age at diagnosis (years)	64	65
Main histological types (%)		
Squamous cell carcinoma	96	91
Relative survival rates (%)		
1-year	86	80
5-year	62	58
10-year	53	58

Cancers of the epiglottis are included. Some 95% of all cancers of the larynx are squamous cell carcinomas. The number of cases in males is about 10 times that in females.

The 5-year RSR in 1985–1994 is 62% for males and 58% for females. Excess mortality is observable for a rather long time, some 8 years after diagnosis (Fig. 61). The survival rate has improved only slightly since the 1960s (Fig. 62), and no improvement whatsoever can be seen in metastasized cancer (Fig. 64). A consistent age-survival pattern is seen: the 5-year RSR is best among the youngest and worst among the oldest patients (Fig. 63).

Stage is a strong determinant of survival: the 5-year RSR in 1985–1994 is 75%, 27% and 13% in males and 69%, 31% and 15% in females for the groups localized cancer, regional metastases and distant metastases, respectively (Table 26).

Comment: The excess mortality observed after the first few years of follow-up is largely due to other smoking-related diseases rather than laryngeal cancer itself.

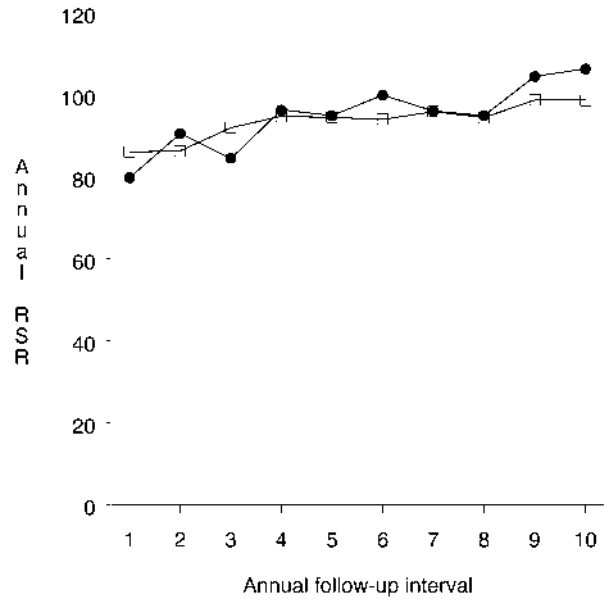

Fig. 61. Cancer of the larynx 1985–1994. Annual (interval-specific) relative survival rates for males (□) and females (●).

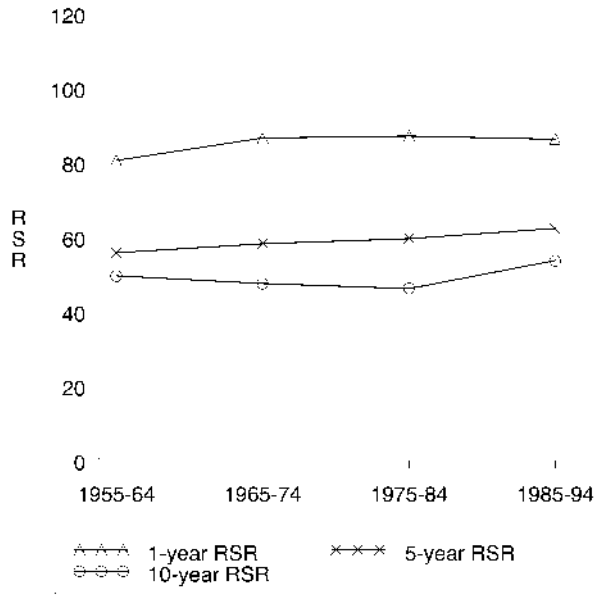

Fig. 62. Cancer of the larynx, males 1955–1994. Relative survival rates by calendar period of diagnosis.

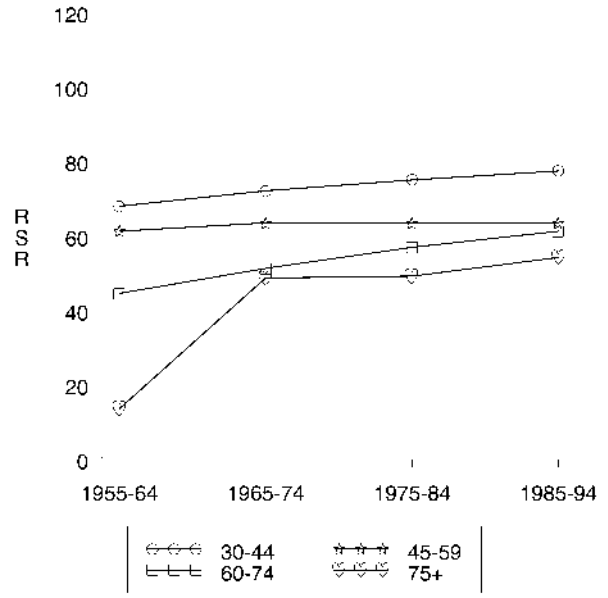

Fig. 63. Cancer of the larynx, males 1955–1994. Five-year relative survival rates by age and calendar period of diagnosis.

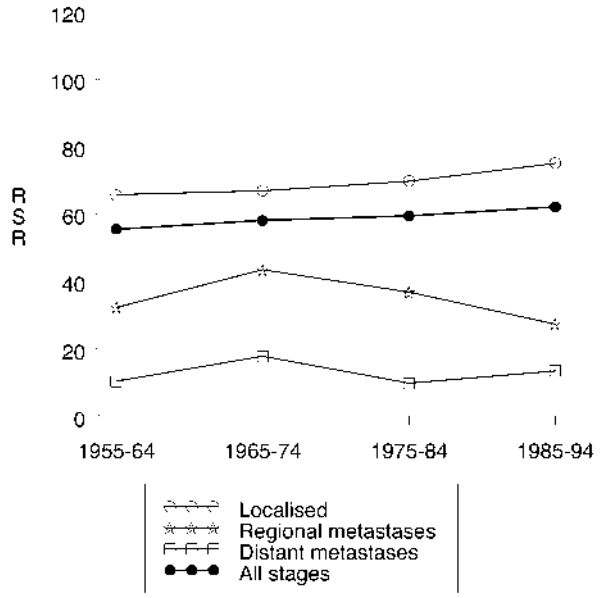

Fig. 64. Cancer of the larynx, males 1955–1994. Five-year relative survival rates by stage and calendar period of diagnosis.

Cancer of the lung

Summary 1985–1994	Males	Females
Average annual number of cases	1774	397
Microscopically verified (%)	91	89
DCO cases (% excluded)	1.2	1.8
Autopsy cases (% excluded)	4.0	5.3
Mean age at diagnosis (years)	67	68
Main histological types (%)		
Squamous cell carcinoma	33	17
None or unknown	28	28
Small cell carcinoma	16	16
Adenocarcinoma	14	28
Carcinoma NOS	9	9
Relative survival rates (%)		
1-year	38	40
5-year	10	13
10-year	7	11

Cancers of the trachea and carcinoid tumours of the bronchus are included. Cancers of the pleura (i.e. mesotheliomas) are excluded and analysed separately (see next set of results). Separate analyses were also conducted for the largest histological subgroups of lung cancer: squamous cell carcinoma, small cell carcinoma and adenocarcinoma. There is a clear male preponderance in the number of incident cases.

Lung cancer belongs to the group of cancers with poor prognosis. The 5-year RSR in 1985–1994 is only 10% for males and 13% for females. Excess mortality continues for at least 10 years from diagnosis (Fig. 65). There is a consistent but very slow increase in the overall survival rate with time (Fig. 66); the increase has been fastest among patients with localized cancer (Fig. 68). Young patients (30–44 years) experience the best prognosis and elderly patients (75+ years) the worst (Fig. 67). However, even for young patients, the 5-year RSR in 1985–1994 is only 18% for males and 27% for females (Table 27).

Table 26

Cancer of the larynx 1985–1994. Number of cases (n) and cumulative relative survival rates at 1, 5, and 10 years subsequent to diagnosis, stratified by stage, age, and sex. For the 5-year rates, 95% confidence intervals (CI) are given

Stage	Age	Males					Females				
		n	1-year	5-year	95% CI	10-year	n	1-year	5-year	95% CI	10-year
Localized	0–14	0	·	·	·	·	0	·	·	·	·
	15–29	0	·	·	·	·	1	·	·	·	·
	30–44	33	100	88	74–101	84	4	·	·	·	·
	45–59	187	94	74	66–82	57	15	94	79	55–102	83
	60–74	328	96	77	69–84	64	28	91	77	55–98	86
	75+	115	85	64	45–83	·	17	70	44	7–82	·
	All	663	94	75	70–80	62	65	85	69	53–85	76
Regional metastases	0–14	0	·	·	·	·	0	·	·	·	·
	15–29	1	·	·	·	·	0	·	·	·	·
	30–44	6	·	·	·	·	1	·	·	·	·
	45–59	28	76	27	6–47	·	6	·	·	·	·
	60–74	51	79	26	11–41	·	13	78	52	18–87	·
	75+	14	47	12	0–36	0	2	·	·	·	·
	All	100	75	27	17–38	·	22	74	31	7–55	·
Distant metastases	0–14	0	·	·	·	·	0	·	·	·	·
	15–29	0	·	·			0	·	·	·	·
	30–44	2	·	·	·	·	0	·	·	·	·
	45–59	18	56	35	11–59	·	1	·	·	·	·
	60–74	45	67	4	0–12	0	3	·	·	·	·
	75+	11	41	0	·	·	5	·	·	·	·
	All	76	60	13	4–23	·	9	·	·	·	·
All[a]	0–14	1	·	·	·	·	0	·	·	·	·
	15–29	1	·	·	·	·	1	·	·	·	·
	30–44	52	96	77	64–90	76	6	·	·	·	·
	45–59	285	86	63	57–70	50	26	85	62	40–83	·
	60–74	548	89	61	55–67	53	61	87	64	48–80	65
	75+	192	74	54	40–68	·	27	56	34	7–61	·
	All	1 079	86	62	58–66	53	121	80	58	46–70	58

[a] 'All' includes all cases, including those with unknown stage.

A '·' indicates that the value was either not estimable or the estimate lacked precision (see Section 6.3).

Patients with advanced cancer rarely survive 5 years or longer (5-year RSR 1–2%, Table 27).

Among both males and females, small cell carcinoma has the lowest RSR among the three histological groups studied (Table 28). In the oldest age group (75+ years), the variation in survival by histology is smallest.

Comment: Many lung cancer patients remain without histological confirmation of the diagnosis (the lung cancer diagnosis is based on cytological examination, x-ray, endoscopy, etc.), and are thus excluded from histology-specific analyses. The probability of being without histology depends on the stage of the tumour, and is thus likely to be largest among patients with poor prognosis and, consequently, among patients with small cell carcinoma. The RSRs estimated for different histological types are thus somewhat high compared to the real situation. This also means that the very low estimate for small cell carcinoma should in fact be lower still. In addition to being attributable to lung cancer itself, part of the excess mortality after diagnosis is due to other smoking-related diseases.

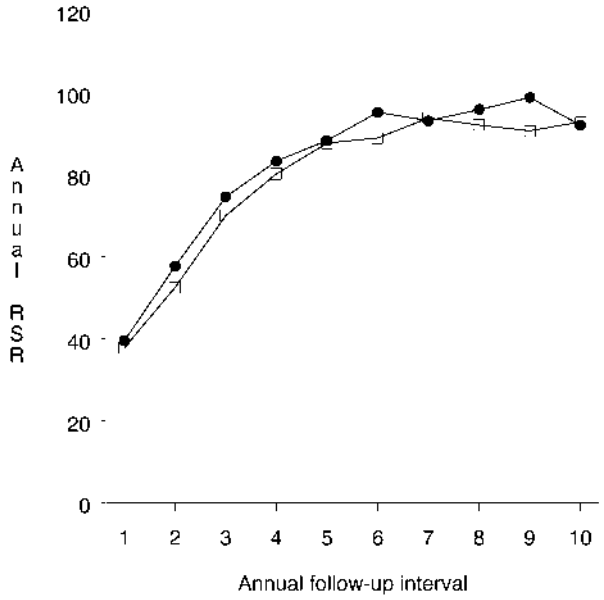

Fig. 65. Cancer of the lung 1985–1994. Annual (interval-specific) relative survival rates for males (□) and females (●).

Table 27

Cancer of the lung 1985–1994. Number of cases (n) and cumulative relative survival rates at 1, 5, and 10 years subsequent to diagnosis, stratified by stage, age, and sex. For the 5-year rates, 95% confidence intervals (CI) are given

Stage	Age	Males					Females				
		n	1-year	5-year	95% CI	10-year	n	1-year	5-year	95% CI	10-year
Localized	0–14	0	·	·	·	·	0	·	·	·	·
	15–29	2	·	·	·	·	8	·	·	·	·
	30–44	50	78	58	43–74	49	35	92	80	66–94	·
	45–59	623	80	41	36–45	30	123	91	56	46–66	46
	60–74	2 318	70	29	27–31	19	435	73	36	31–42	28
	75+	862	56	10	7–13	·	191	48	8	2–15	0
	All	3 855	69	29	27–31	21	792	71	38	34–42	31
Regional metastases	0–14	0	·	·	·		0	·	·	·	·
	15–29	0	·	·	·	·	0	·	·	·	·
	30–44	42	72	26	12–41	·	17	65	14	0–31	·
	45–59	369	62	15	11–20	·	83	64	15	7–24	·
	60–74	1 016	51	12	9–14	·	157	62	19	12–26	·
	75+	223	41	4	0–9	·	51	30	10	0–21	0
	All	1 650	53	13	11–15	8	308	58	16	11–21	·
Distant metastases	0–14	0	·	·	·	·	0	·	·	·	·
	15–29	1	·	·	·	·	4	·	·	·	·
	30–44	134	20	0	·	·	69	28	2	0–6	·
	45–59	1 455	22	2	1–2	·	292	27	3	1–5	·
	60–74	4 081	20	1	1–1	·	790	25	3	1–4	·
	75+	1 370	15	1	0–1	·	472	13	1	0–2	·
	All	7041	20	1	1–1	1	1 627	22	2	1–3	·
All[a]	0–14	1	·	·	·	·	1	·	·	·	·
	15–29	4	·	·	·	·	15	73	59	33–85	59
	30–44	281	41	18	13–23	14	136	52	27	19–35	·
	45–59	2 974	42	13	12–15	10	613	50	18	15–22	16
	60–74	9 650	39	10	10–11	6	1 790	44	14	12–16	11
	75+	3 893	30	4	3–5	·	1 134	24	4	2–5	·
	All	16 803	38	10	10–11	7	3 689	40	13	12–15	11

[a] 'All' includes all cases, including those with unknown stage.

A '·' indicates that the value was either not estimable or the estimate lacked precision (see Section 6.3).

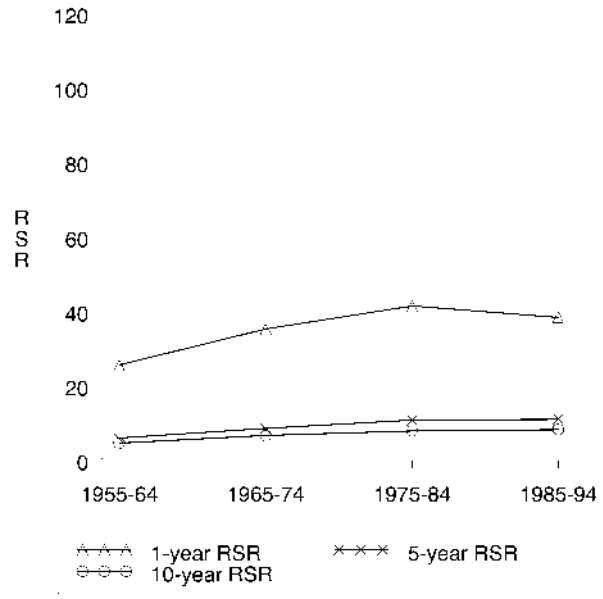

Fig. 66. Cancer of the lung, both sexes 1955–1994. Relative survival rates by calendar period of diagnosis.

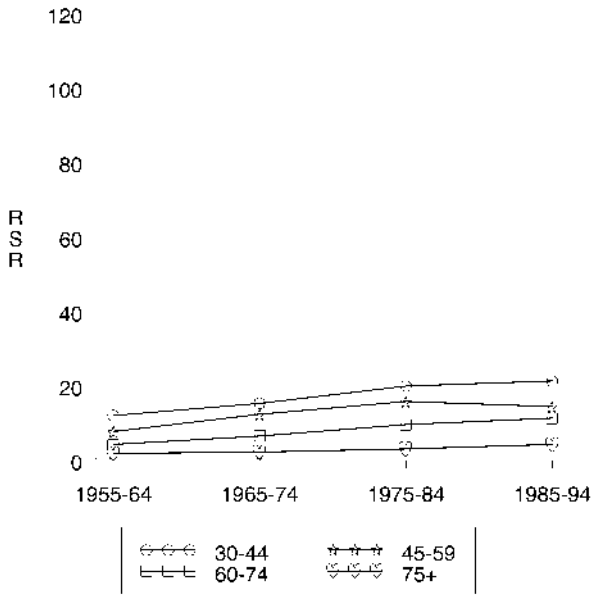

Fig. 67. Cancer of the lung, both sexes 1955–1994. Five-year relative survival rates by age and calendar period of diagnosis.

Table 28

Cancer of the lung 1985–1994. Number of cases (n), 5-year cumulative relative survival rates and 95% confidence intervals (CI) stratified by histology, sex, and age

Age	Squamous cell carcinoma			Small cell carcinoma			Adenocarcinoma		
	n	RSR	95% CI	n	RSR	95% CI	n	RSR	95% CI
Males									
30–44	55	19	8–30	55	6	0 13	98	29	20–39
45–59	996	20	17–23	624	4	2–6	584	19	15–23
60–74	3 477	17	16–19	1 623	3	2–4	1 267	15	13–18
75+	1 070	6	4–8	431	3	1–5	323	6	2–10
All	5 598	16	15–18	2 733	3	3–4	2 275	16	14–18
Females									
30–44	23	18	2–33	23	·	·	64	37	24–50
45–59	105	19	11–27	124	9	4–15	225	26	19–32
60–74	343	18	13–23	339	4	1–6	504	26	21–30
75+	146	5	0–9	121	·	·	239	7	2–12
All	618	16	13–19	607	4	2–6	1 044	24	21–27

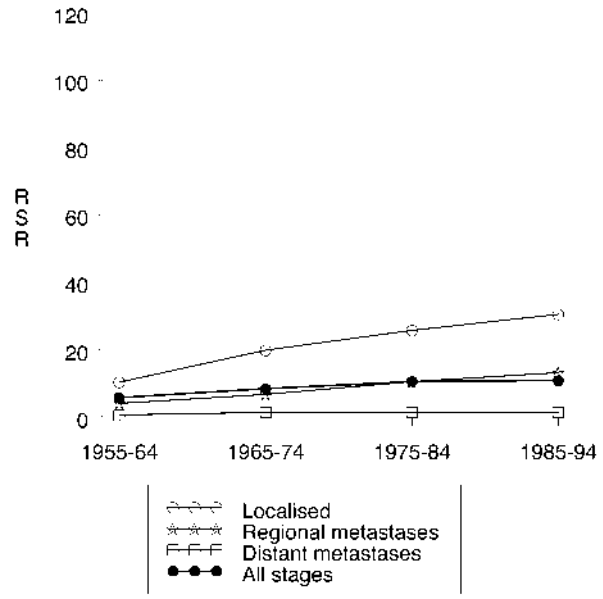

Fig. 68. Cancer of the lung, both sexes 1955–1994. Five-year relative survival rates by stage and calendar period of diagnosis.

Pleural mesothelioma

Summary 1985–1994	Males	Females
Average annual number of cases	29	11
Microscopically verified (%)	100	100
DCO cases (% excluded)	0.0	0.0
Autopsy cases (% excluded)	3.4	3.5
Mean age at diagnosis (years)	62	67
Relative survival rates (%)		
1-year	39	35
5-year	4	7
10-year	2	9

Pleural mesothelioma is a cancer with a very unfavourable prognosis. For patients diagnosed in 1985–1994, the annual RSRs are low (Fig. 69), and the 5-year RSR is only 4% for males and 7% for females. The estimates of the annual relative survival rates lack precision due to the low incidence and high fatality. No improvement has taken place in survival since the 1960s (Fig. 70).

If the tumour is considered to be localized, a 5-year RSR of 10% is reached in 1985–1994 in both males and females, but for advanced cases the survival rate is almost zero (Table 29).

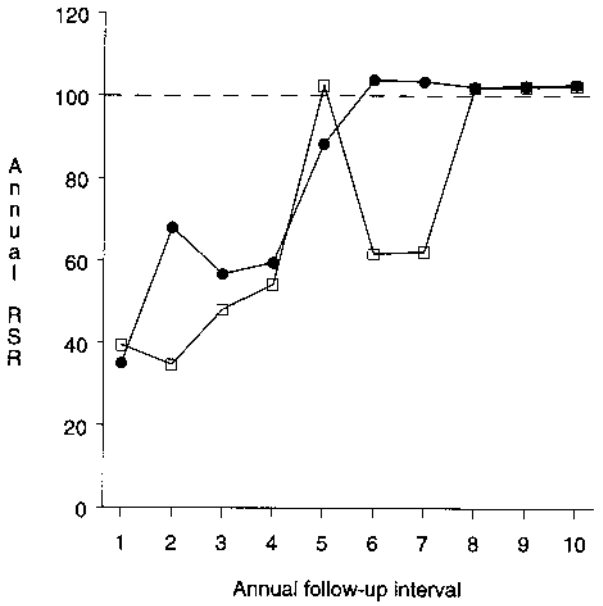

Fig. 69. Pleural mesothelioma 1985–1994. Annual (interval-specific) relative survival rates for males (□) and females (●).

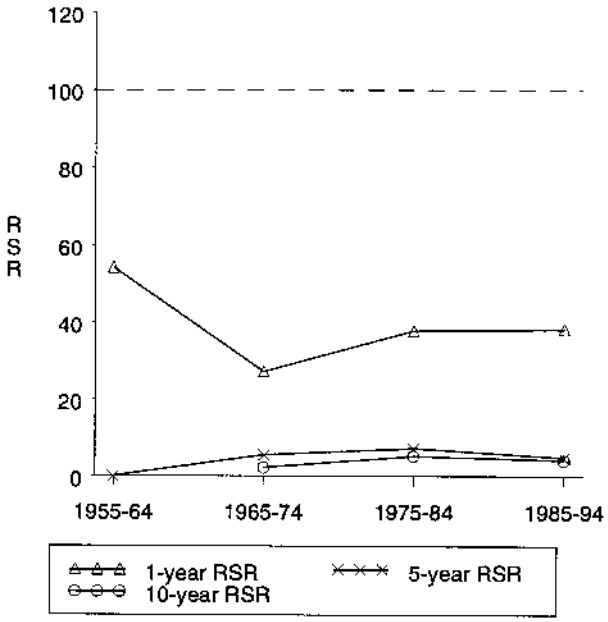

Fig. 70. Pleural mesothelioma, both sexes 1955–1994. Relative survival rates by calendar period of diagnosis.

Table 29

Pleural mesothelioma 1985–1994. Number of cases (n) and cumulative relative survival rates at 1, 5, and 10 years subsequent to diagnosis, stratified by stage, age, and sex. For the 5-year rates, 95% confidence intervals (CI) are given

Stage	Age	Males					Females				
		n	1-year	5-year	95% CI	10-year	n	1-year	5-year	95% CI	10-year
Localized	0–14	0	·	·	·	·	0	·	·	·	·
	15–29	0	·	·	·	·	0	·	·	·	·
	30–44	1	·	·	·	·	3	·	·	·	·
	45–59	19	74	22	0–43	·	2	·	·	·	·
	60–74	38	41	6	0–15	·	10	41	0	·	·
	75+	8	·	·	·	·	9	·	·	·	·
	All	66	49	10	2–19	·	24	35	10	0–24	·
Regional metastases	0–14	0	·	·	·	·	0	·	·	·	·
	15–29	0	·	·	·	·	0	·	·	·	·
	30–44	1	·	·	·	·	0	·	·	·	·
	45–59	1	·	·	·	·	0	·	·	·	·
	60–74	5	·	·	·	·	1	·	·	·	·
	75+	1	·	·	·	·	0	·	·	·	·
	All	8	·	·	·	·	1	·	·	·	·
Distant metastases	0–14	0	·	·	·	·	0	·	·	·	·
	15–29	0	·	·	·	·	0	·	·	·	·
	30–44	10	60	0	·	·	3	·	·	·	·
	45–59	39	23	0	·	·	9	·	·	·	·
	60–74	50	35	0	·	·	24	38	6	0–18	·
	75+	13	17	0	·	·	8	·	·	·	·
	All	112	31	0	·	·	44	33	3	0–9	·
All[a]	0–14	0	·	·	·	·	0	·	·	·	·
	15–29	0	·	·	·	·	1	·	·	·	·
	30–44	18	39	0	·	·	7	·	·	·	·
	45–59	95	45	6	0–12	·	16	31	6	0–19	·
	60–74	134	40	3	0–7	·	53	40	5	0–12	·
	75+	34	23	0	·	·	32	20	16	0–36	·
	All	281	39	4	1–7	·	109	35	7	2–13	·

[a] 'All' includes all cases, including those with unknown stage.
A '·' indicates that the value was either not estimable or the estimate lacked precision (see Section 6.3).

Cancer of the breast

Summary 1985–1994	Females
Average annual number of cases	2 528
Microscopically verified (%)	99
DCO cases (% excluded)	0.2
Autopsy cases (% excluded)	0.1
Mean age at diagnosis (years)	61
Main histological types (%)	
Ductal/intraductal carcinoma	73
Lobular carcinoma	10
Carcinoma NOS	7
Adenocarcinoma NOS	4
Relative survival rates (%)	
1-year	96
5-year	80

Only female breast cancer was analysed. The most common individual histological types of breast cancer are ductal and lobular carcinomas. Intraductal carcinomas and lobular carcinoma in situ lesions are included and analysed together with the respective invasive carcinomas.

A 5-year RSR of 80% is reached among patients diagnosed in 1985–1994. There is a slight but consistent excess mortality during the entire 10-year follow-up period (Fig. 71), and the 10-year RSRs are thus clearly lower than the 5-year rates (Fig. 72). Breast cancer is one of the few cancers for which excess mortality persists after 10 years of follow-up. Excess mortality due to breast cancer exists even 20 years after diagnosis (2, 13). The RSR has increased continuously during the study period, an increase which has occurred consistently across each age group (Fig. 73) and stage (Fig. 74). The differences in the 5-year RSR among age groups are rather small, but the RSR has always been lowest among the oldest patients (Fig. 73).

Stage is a very strong prognostic factor. In 1985–1994, the 5-year RSR is 93%, 69% and 22% for the groups with localized disease, regional metastases and distant metastases, respectively (Table 30). The pattern is essentially similar in all age groups (Fig. 75).

Comment: Population-based mammography screening has been practised in Finland as a routine health care activity since 1987. Women aged 50–59 are invited every 2 years to participate in screening programs organized by the municipalities. Even if the incidence has increased following commencement of screening (attributable to earlier diagnosis), the role played by screening in the smoothly continuing increase in the RSR up to the 1990s is difficult to assess.

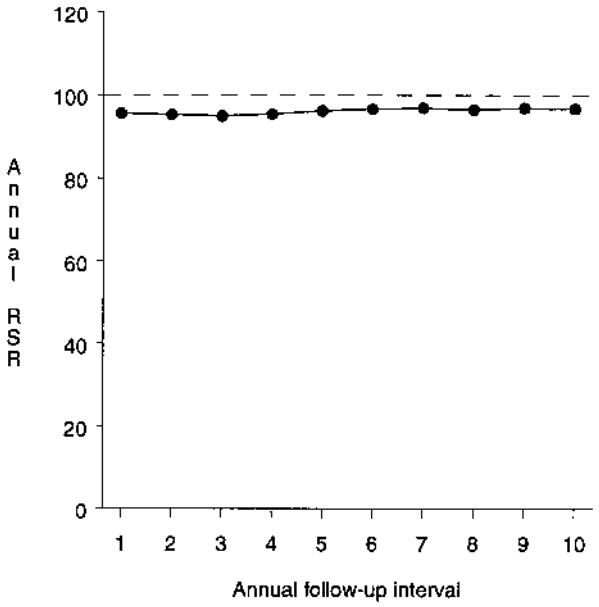

Fig. 71. Cancer of the breast, females 1985–1994. Annual (interval-specific) relative survival rates.

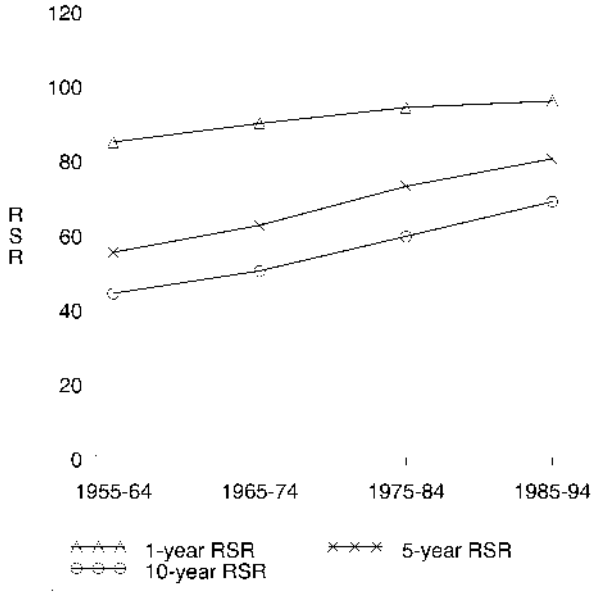

Fig. 72. Cancer of the breast, females 1955–1994. Relative survival rates by calendar period of diagnosis.

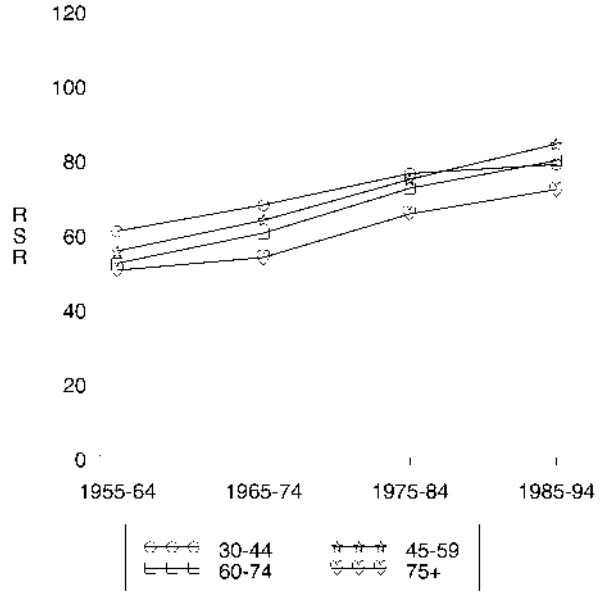

Fig. 73. Cancer of the breast, females 1955–1994. Five-year relative survival rates by age and calendar period of diagnosis.

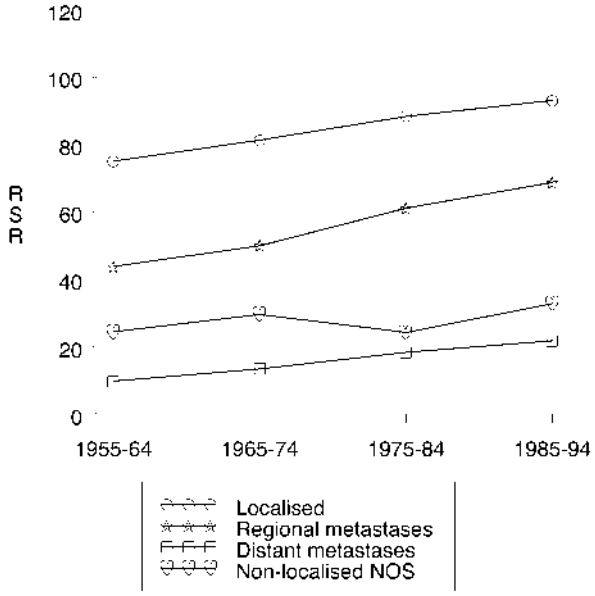

Fig. 74. Cancer of the breast, females 1955–1994. Five-year relative survival rates by stage and calendar period of diagnosis.

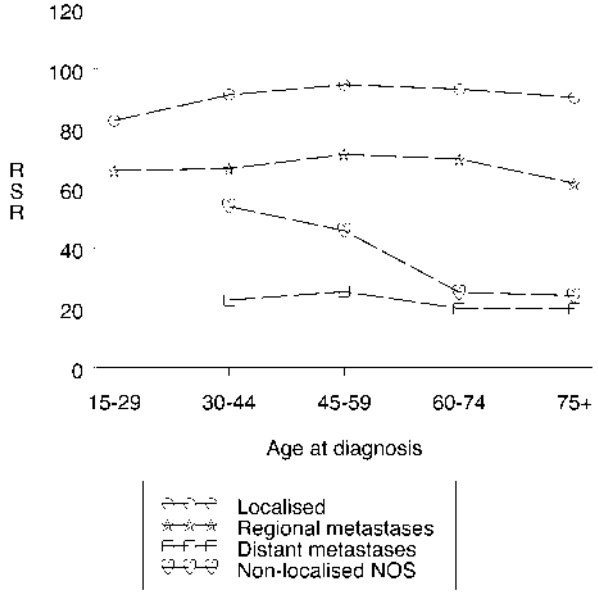

Fig. 75. Cancer of the breast, females 1985–1994. Five-year relative survival rates by age and stage.

Cancer of the cervix uteri

Summary 1985–1994	Invasive carcinoma	Carcinoma in situ
Average annual number of cases	148	192
Microscopically verified (%)	99	100
DCO cases (% excluded)	0.2	0.0
Autopsy cases (% excluded)	1.1	0.0
Mean age at diagnosis (years)	61	39
Main histological types (%)		
Squamous cell carcinoma	70	
Adenocarcinoma	21	
Carcinoma NOS	4	
Relative survival rates (%)		
1-year	81	100
5-year	58	100
10-year	54	98

Table 30

Cancer of the breast, females 1985–1994. Number of cases (n) and cumulative relative survival rates at 1, 5, and 10 years subsequent to diagnosis, stratified by stage and age. For the 5-year rates, 95% confidence intervals (CI) are given

Stage	Age	n	1-year	5-year	95% CI	10-year
Localized	0–14	0	·	·	·	·
	15–29	44	100	83	69–96	74
	30–44	1 705	100	91	90–93	81
	45–59	4 985	100	95	94–96	88
	60–74	4 244	100	93	92–95	83
	75+	2 557	99	90	87–94	83
	All	13 535	100	93	92–94	85
Regional metastases	0–14	0	·	·	·	·
	15–29	50	90	66	51–81	43
	30–44	1 362	99	66	64–69	47
	45–59	2 789	98	71	69–73	53
	60–74	2 426	96	70	67–72	52
	75+	1 303	92	62	57–66	35
	All	7 930	96	69	67–70	50
Distant metastases	0–14	0	·	·	·	·
	15–29	4	·	·	·	·
	30–44	114	84	23	13–32	·
	45–59	315	70	25	20–31	·
	60–74	501	61	20	16–24	·
	75+	429	50	20	14–26	·
	All	1 363	62	22	19–25	9
All[a]	0–14	0	·	·	·	·
	15–29	109	94	75	66–85	56
	30–44	3 372	99	78	77–80	65
	45–59	8 753	98	84	83–85	73
	60–74	7 842	95	80	78–81	67
	75+	5 126	90	72	69–74	61
	All	25 202	96	80	79–81	68

[a] 'All' includes all cases, including those with unknown stage.
A '·' indicates that the value was either not estimable or the estimate lacked precision (see Section 6.3).

Invasive carcinoma. Microinvasive carcinomas were included in the material. Patients with carcinoma in situ lesions were analysed separately from those with invasive carcinomas. Separate analyses were also made for the two major histological types of cervical cancer: squamous cell carcinoma and adenocarcinoma.

Excess mortality due to cancer is present during the first 9 years of follow-up from diagnosis (Fig. 76). The excess mortality is greatest during the first year of follow-up and decreases during each subsequent year.

Patient survival has not improved since the late 1960s; on the contrary, the 1-, 5- and 10-year RSRs have slightly decreased (Fig. 77), a decrease which is also seen for most age (Fig. 78) and stage groups (Fig. 80). When age-standardized rates are studied (Fig. 79), the decrease is not quite as sharp, although it is still observable nevertheless.

Stage at diagnosis is strongly associated with patient survival, the 5-year RSRs for localized disease, regional metastases and distant metastases being 84%, 49% and 28%, respectively (Table 32). The 5-year RSR for patients with localized cancer increased continuously after 1965–1974, whereas for other stages (and for the total group) the RSR decreased (Fig. 80).

Older patients have a worse prognosis than the younger ones, except for patients with regional metastases (Fig. 81, Table 32). A similar age dependence—decreasing RSR with increasing age—is found for both squamous cell carcinoma and adenocarcinoma subgroups (Table 31).

Comment: Organized screening for cervical cancer has been carried out in Finland since the mid-1960s, and by 1970 had covered all women aged 30–55 with some 75% compliance (14–17). As a result, the incidence of cervical cancer has substantially decreased, especially in the age groups subject to screening (16, 17). This has resulted in a

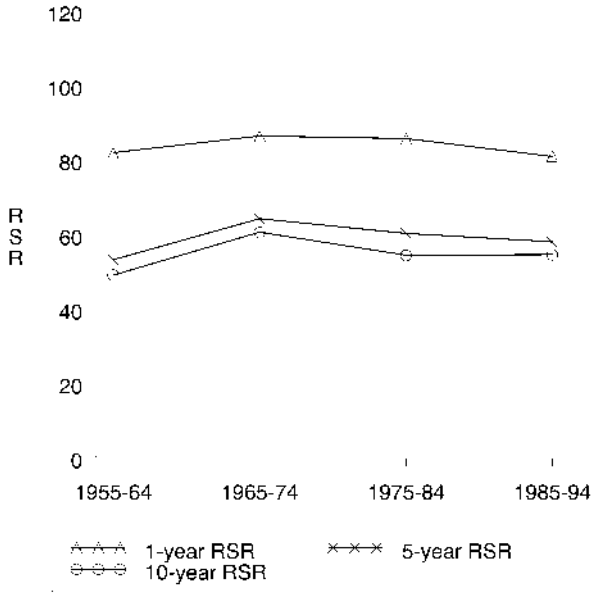

Fig. 77. Carcinoma of the cervix uteri 1955–1994. Relative survival rates by calendar period of diagnosis.

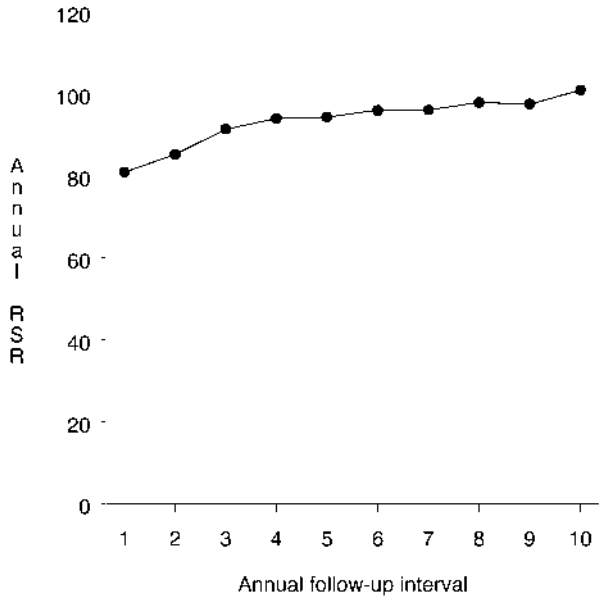

Fig. 76. Carcinoma of the cervix uteri 1985–1994. Annual (interval-specific) relative survival rates.

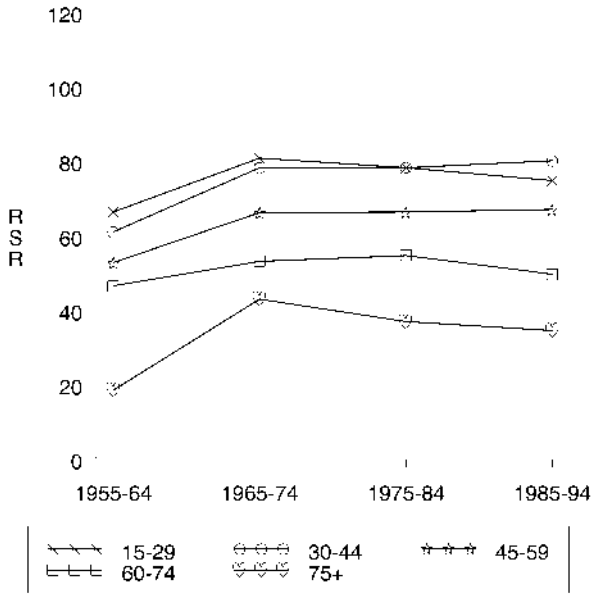

Fig. 78. Carcinoma of the cervix uteri 1955–1994. Five-year relative survival rates by age and calendar period of diagnosis.

Table 31

Carcinoma of the cervix uteri 1985–1994. Number of cases (n), 5-year cumulative relative survival rates, and 95% confidence intervals (CI) stratified by histology and age

Age	Squamous cell carcinoma			Adenocarcinoma		
	n	RSR	95% CI	n	RSR	95% CI
30–44	199	79	73–86	68	85	75–95
45–59	183	64	56–72	85	79	68–89
60–74	362	53	46–59	93	42	30–54
75+	250	37	28–46	60	25	7–43
All	1 023	58	55–62	314	62	55–69

change in the age distribution of patients and a marked increase in their mean age. The composition of each of the non-localized stage categories has probably changed over time (towards less favourable outcomes). Thus, the decrease with time in the RSR of patients with cervical cancer can be explained by the effects of screening.

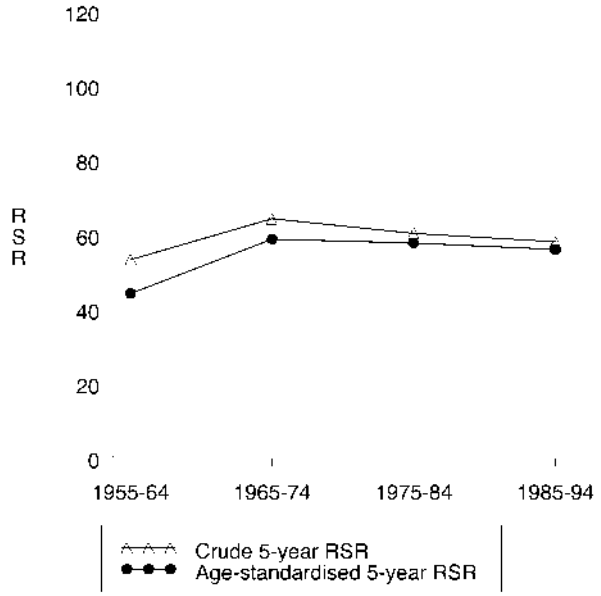

Fig. 79. Carcinoma of the cervix uteri 1955–1994. Crude and age-standardized 5-year relative survival rates by calendar period of diagnosis.

Table 32

Carcinoma of the cervix uteri 1985–1994. Number of cases (n) and cumulative relative survival rates at 1, 5, and 10 years subsequent to diagnosis, stratified by stage and age. For the 5-year rates, 95% confidence intervals (CI) are given

Stage	Age	n	1-year	5-year	95% CI	10-year
Localized	0–14	0	·	·	·	·
	15–29	26	100	90	77–100	91
	30–44	201	99	91	87–96	89
	45–59	169	96	86	80–93	74
	60–74	175	99	77	68–85	72
	75+	94	94	71	53–89	·
	All	665	98	84	80–88	78
Regional metastases	0–14	0	·	·	·	·
	15–29	2	·	·	·	·
	30–44	14	86	34	3–65	·
	45–59	30	94	43	23–64	45
	60–74	28	84	59	37–82	58
	75+	6	·	·	·	·
	All	80	89	49	35–62	47
Distant metastases	0–14	0	·	·	·	·
	15–29	8	·	·	·	·
	30–44	41	71	38	22–55	·
	45–59	63	75	29	17–42	·
	60–74	212	57	28	21–35	25
	75+	149	57	21	11–30	·
	All	473	61	28	22–33	23
All[a]	0–14	0	·	·	·	·
	15–29	39	92	75	60–90	75
	30–44	284	93	80	75–85	78
	45–59	287	90	67	60–73	56
	60–74	495	78	50	44–55	45
	75+	359	66	34	27–42	·
	All	1464	81	58	55–61	54

[a] 'All' includes all cases, including those with unknown stage.

A '·' indicates that the value was either not estimable or the estimate lacked precision (see Section 6.3).

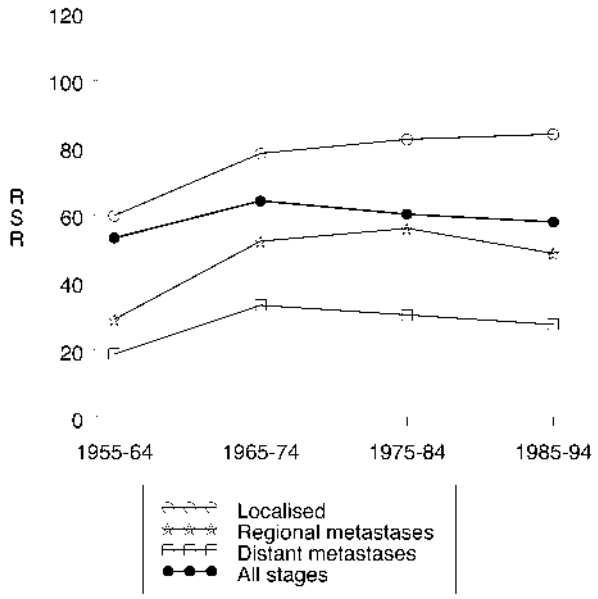

Fig. 80. Carcinoma of the cervix uteri 1955–1994. Five-year relative survival rates by stage and calendar period of diagnosis.

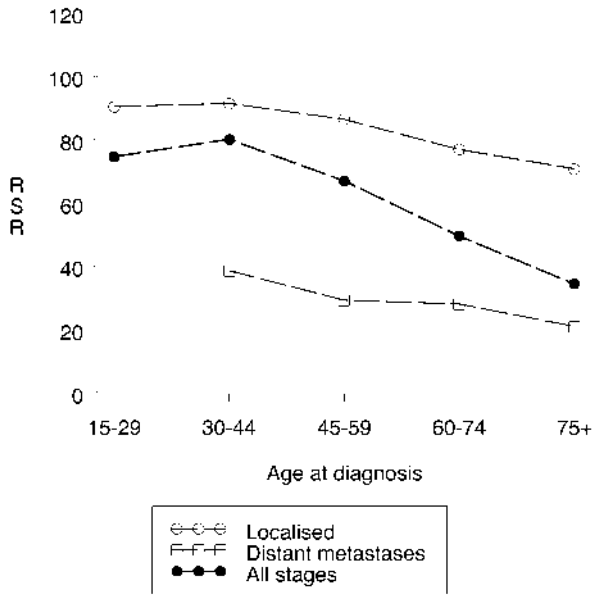

Fig. 81. Carcinoma of the cervix uteri 1985–1994. Five-year relative survival rates by stage and age.

Carcinoma in situ. Patients with carcinoma in situ lesion of the cervix uteri were analysed separately. No excess mortality is observable, and in all ages the RSRs are close to 100% (Table 33).

Comment: It is probable that some women, after a diagnosis of carcinoma in situ of the cervix uteri, will develop an invasive cervical carcinoma and therefore appear in the Cancer Registry files as patients with invasive cancer (and not as patients with two separate cancers). Thus, the estimated survival rates do not give a totally reliable picture of the prognosis of patients with an initial diagnosis of carcinoma in situ.

Table 33

Carcinoma in situ of the cervix uteri 1985–1994. Number of cases (n) and cumulative relative survival rates at 1, 5, and 10 years subsequent to diagnosis, stratified by age. For the 5-year rates, 95% confidence intervals (CI) are given

Age	n	1-year	5-year	95% CI	10-year
0–14	0	·	·	·	·
15–29	467	100	100	·	100
30–44	962	100	100	99–100	100
45–59	288	100	100	99–102	95
60–74	159	100	96	90–103	94
75+	42	98	86	61–112	·
All	1 918	100	100	99–100	98

A '·' indicates that the value was either not estimable or the estimate lacked precision (see Section 6.3).

Carcinoma of the corpus uteri

Summary 1985–1994	
Average annual number of cases	508
Microscopically verified (%)	99
DCO cases (% excluded)	0.3
Autopsy cases (% excluded)	0.6
Mean age at diagnosis (years)	66
Main histological types (%)	
Adenocarcinoma	95
Papillary carcinoma	2
None or unknown	2
Carcinoma NOS	1
Relative survival rates (%)	
1-year	92
5-year	82
10-year	82

Only carcinomas of the endometrium (and tumours with unknown or uncertain histology) are included. The survival rate of endometrial carcinoma is good: the 5-year RSR in 1985–1994 is 82%. Excess mortality is slight and observable during the first 4 follow-up years only (Fig. 82). The 10-year RSRs are almost equal to the 5-year rates (Fig. 83). Patient survival has improved with time (Fig. 83), although when analysed by age, no increase is observable between the last two decades in the youngest age

group of 30–44 years (with the highest rates) or in the oldest age group of 75+ years (with the lowest rates) (Fig. 84). The improvement in patient survival is more pronounced when age-standardized rates are studied (Fig. 85), since these estimates account for the negative impact on patient survival associated with the ageing of the patients.

Survival is strongly dependent on stage (Fig. 86). The 5-year RSRs in 1985–1994 are 92%, 51% and 37% in the groups of localized cancer, regional metastases, and distant metastases, respectively (Table 34). The observation of lower than average RSRs in old age holds true also within each individual stage (Fig. 87).

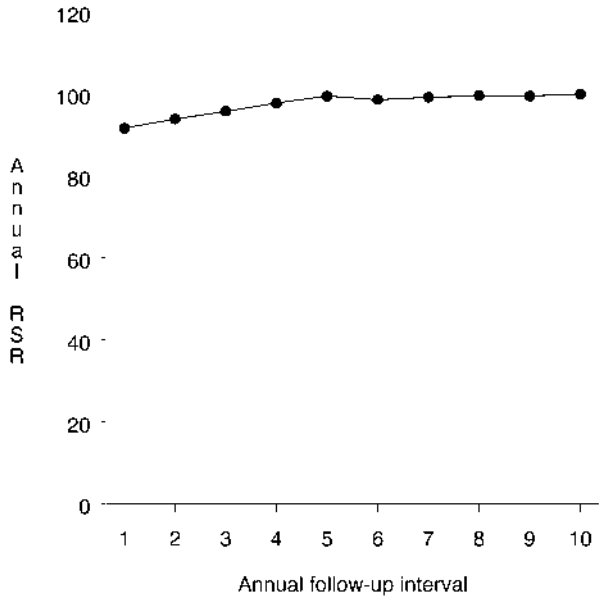

Fig. 82. Carcinoma of the corpus uteri 1985–1994. Annual (interval-specific) relative survival rates.

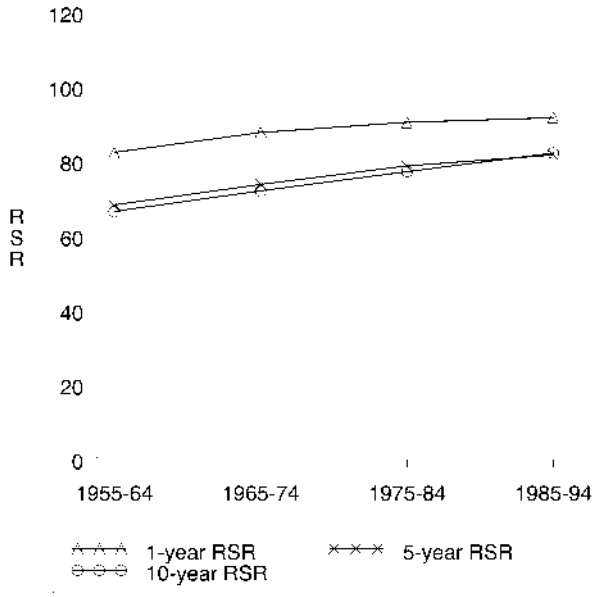

Fig. 83. Carcinoma of the corpus uteri 1955–1994. Relative survival rates by calendar period of diagnosis.

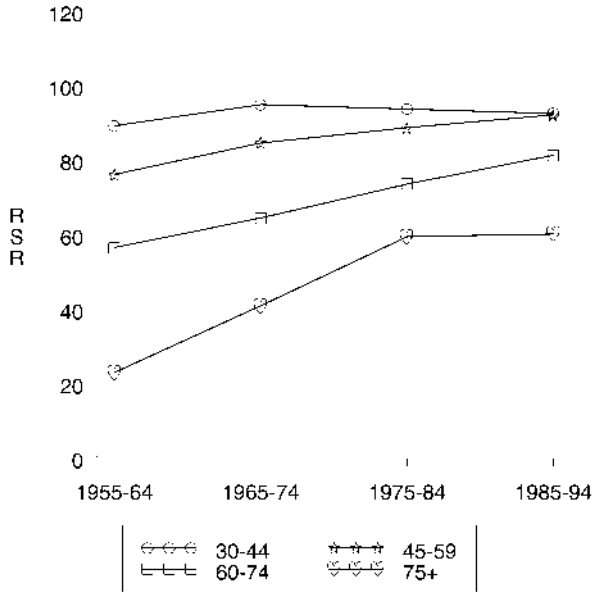

Fig. 84. Carcinoma of the corpus uteri 1955–1994. Five-year relative survival rates by age and calendar period of diagnosis.

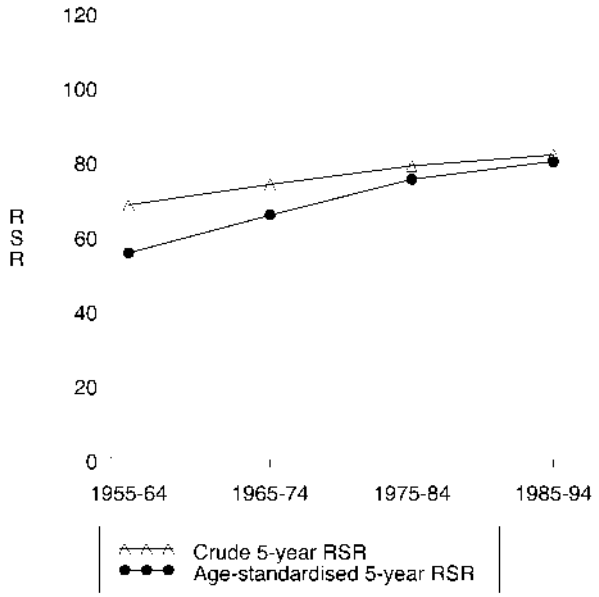

Fig. 85. Carcinoma of the corpus uteri 1955–1994. Crude and age-standardized 5-year relative survival rates by calendar period of diagnosis.

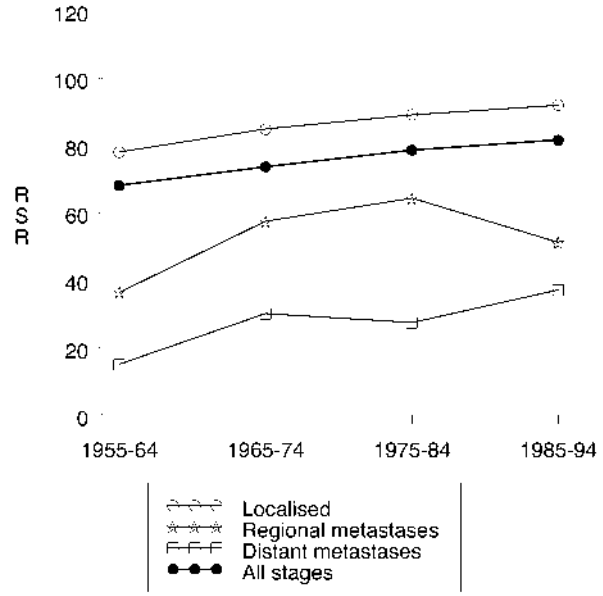

Fig. 86. Carcinoma of the corpus uteri 1955–1994. Five-year relative survival rates by stage and calendar period of diagnosis.

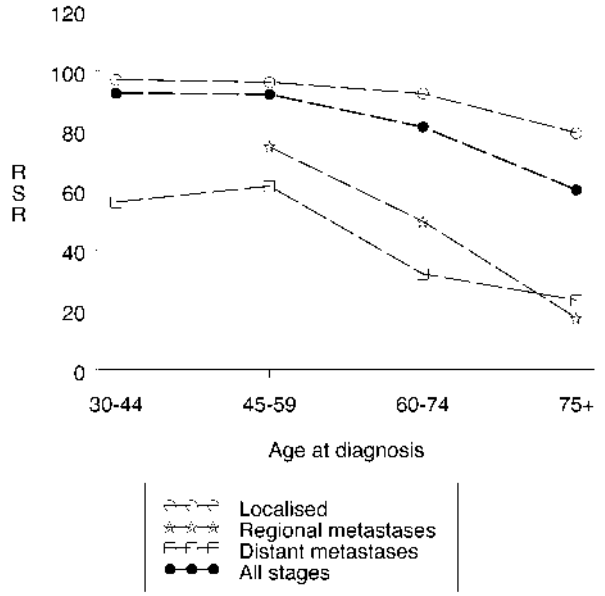

Fig. 87. Carcinoma of the corpus uteri 1985–1994. Five-year relative survival rates by stage and age.

Table 34

Carcinoma of the corpus uteri 1985–1994. Number of cases (n) and cumulative relative survival rates at 1, 5, and 10 years subsequent to diagnosis, stratified by stage and age. For the 5-year rates, 95% confidence intervals (CI) are given

Stage	Age	n	1-year	5-year	95% CI	10-year
Localized	0–14	0	·	·	·	·
	15–29	0	·	·	·	·
	30–44	126	99	97	93–101	96
	45–59	1018	100	96	94–98	96
	60–74	1759	99	92	90–95	89
	75+	651	95	79	72–86	71
	All	3554	98	92	90–94	91
Regional metastases	0–14	0	·	·	·	·
	15–29	0	·	·	·	·
	30–44	2	·	·	·	·
	45–59	20	100	75	49–100	78
	60–74	48	93	50	32–68	0
	75+	18	97	17	0–49	·
	All	88	96	51	37–66	46
Distant metastases	0–14	0	·	·	·	·
	15–29	1	·	·	·	·
	30–44	17	88	56	30–82	57
	45–59	113	84	61	51–72	59
	60–74	316	67	32	26–38	28
	75+	198	47	23	14–33	·
	All	645	65	37	32–42	40
All[a]	0–14	0	·	·	·	·
	15–29	2	·	·	·	·
	30–44	162	98	92	88–97	92
	45–59	1 322	98	92	90–94	92
	60–74	2 437	93	81	79–83	78
	75+	1 107	79	60	55–65	55
	All	5030	92	82	80–83	82

[a] 'All' includes all cases, including those with unknown stage.
A '·' indicates that the value was either not estimable or the estimate lacked precision (see Section 6.3).

Cancer of the ovary

Summary 1985–1994	
Average annual number of cases	421
Microscopically verified (%)	96
DCO cases (% excluded)	0.5
Autopsy cases (% excluded)	1.5
Mean age at diagnosis (years)	62
Main histological types (%)	
Papillary cystadenocarcinoma	38
Adenocarcinoma NOS	24
Mucinous cystadenocarcinoma	12
None or unknown	8
Carcinoma NOS	7
Relative survival rates (%)	
1-year	68
5-year	37
10-year	35

Semimalignant (borderline) tumours of the ovary and cancers of the Fallopian tube are excluded. The most common histological entities are papillary serous cystadenocarcinoma, unspecified adenocarcinoma and mucinous cystadenocarcinoma. The few childhood ovarian cancers have different histological types to those diagnosed in adults.

Cancer of the ovary is associated with a rather unfavourable prognosis, the 5-year RSR in 1985–1994 being only 37%. Excess mortality continues for almost 10 years (Fig. 88). There is only a small increase in the 5-year RSR over time (Fig. 89). Patient's age has a strong effect on the prognosis (Fig. 90). Among adults, the youngest patients (15–29 years) have the best survival rates (5-year RSR

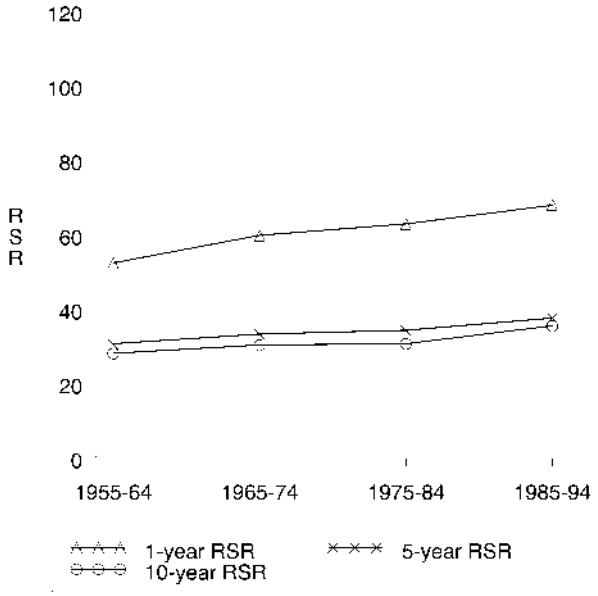

Fig. 89. Cancer of the ovary 1955–1994. Relative survival rates by calendar period of diagnosis.

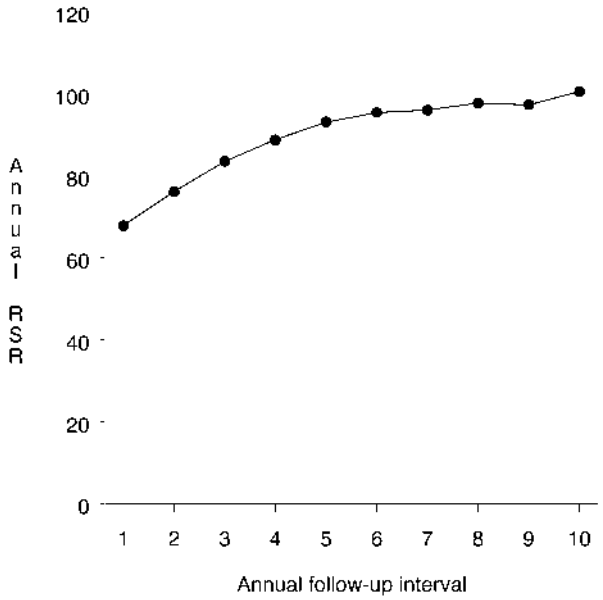

Fig. 88. Cancer of the ovary 1985–1994. Annual (interval-specific) relative survival rates.

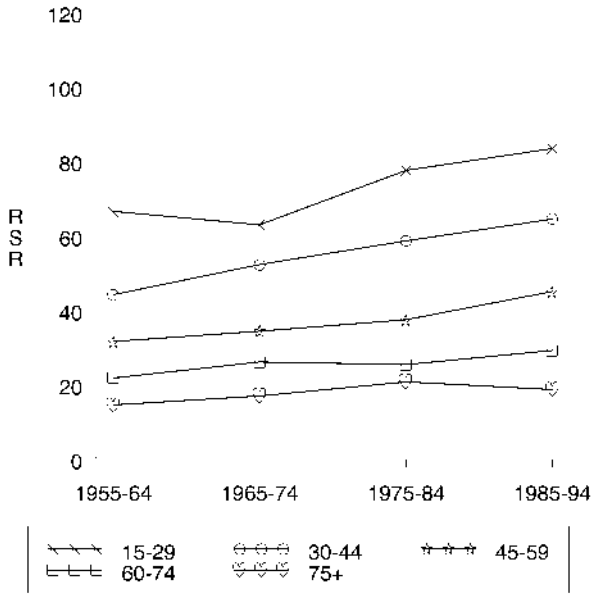

Fig. 90. Cancer of the ovary 1955–1994. Five-year relative survival rates by age and calendar period of diagnosis.

83% in 1985–1994), whereas the oldest patients (75+ years) have the lowest 5-year RSR (18%) (Table 35). The 5-year RSR in 1985–1994 among children under 15 years of age is 72%. The improvement in patient survival is more pronounced when age-standardized rates are studied (Fig. 91), since these estimates account for the negative impact on patient survival associated with the ageing of the patients.

The prognosis of patients with localized cancer is rather favourable (Fig. 92), especially in young adults (Fig. 93). On the other hand, advanced cancer, especially when diagnosed in old women, is associated with a very unfavourable survival rate (Table 35).

Comment: The difference between the survival rates of children and adults can be explained by differences in the histological types of the tumours.

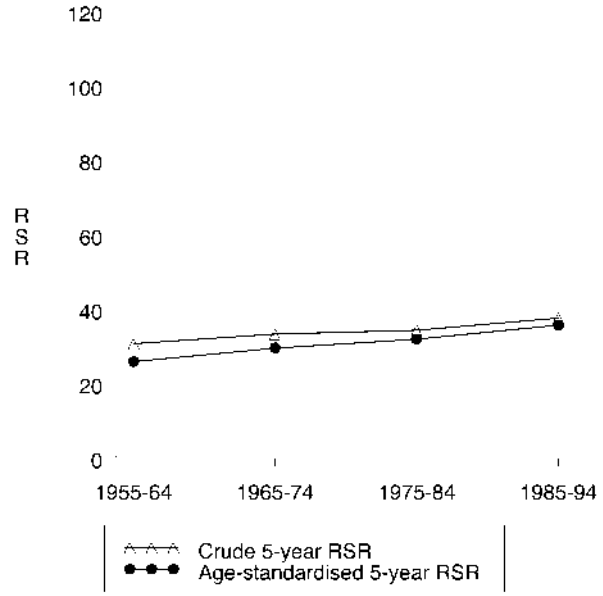

Fig. 91. Cancer of the ovary 1955–1994. Crude and age-standardized 5-year relative survival rates by calendar period of diagnosis.

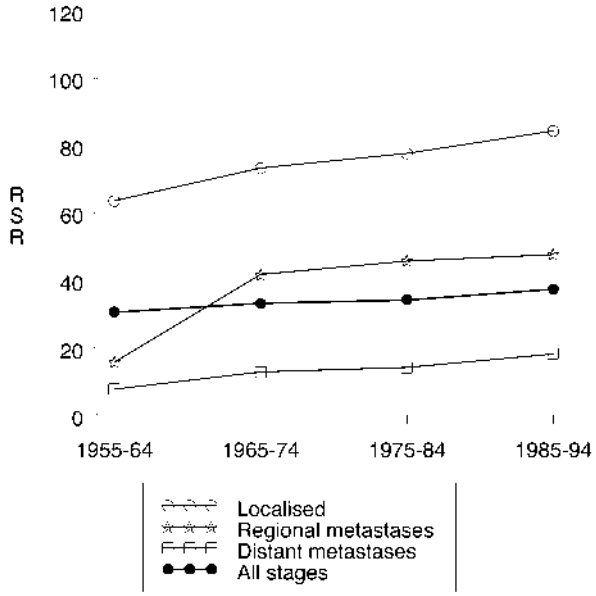

Fig. 92. Cancer of the ovary 1955–1994. Five-year relative survival rates by stage and calendar period of diagnosis.

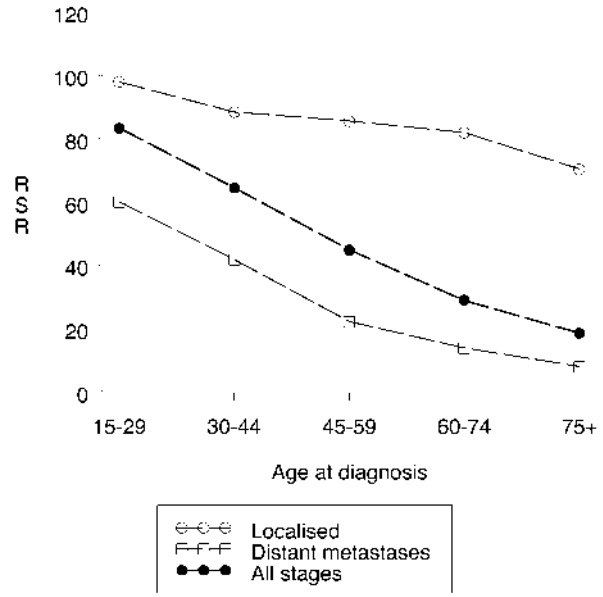

Fig. 93. Cancer of the ovary 1985–1994. Five-year relative survival rates by stage and age.

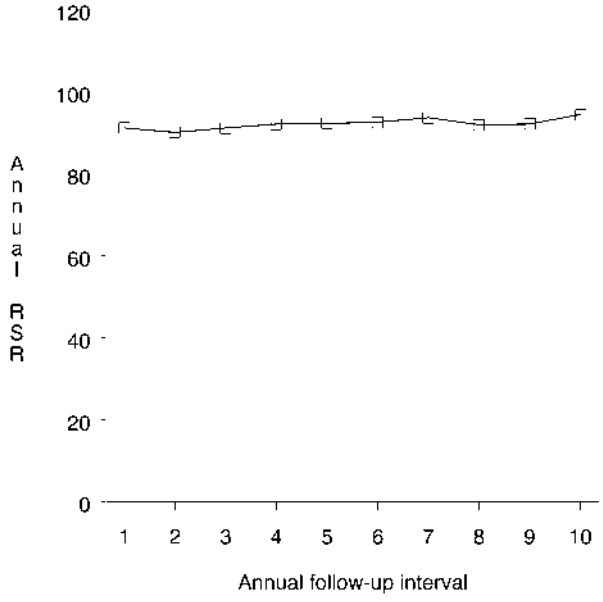

Fig. 94. Cancer of the prostate 1985–1994. Annual (interval-specific) relative survival rates.

Table 35

Cancer of the ovary 1985–1994. Number of cases (n) and cumulative relative survival rates at 1, 5, and 10 years subsequent to diagnosis, stratified by stage and age. For the 5-year rates, 95% confidence intervals (CI) are given

Stage	Age	n	1-year	5-year	95% CI	10-year
Localized	0–14	7	·	·	·	·
	15–29	45	100	98	93–100	98
	30–44	138	96	88	82–94	89
	45–59	280	97	86	80–91	83
	60–74	272	97	82	75–88	86
	75+	111	90	70	53–87	43
	All	853	96	84	81–88	85
Regional metastases	0–14	1	·	·	·	·
	15–29	3	·	·	·	·
	30–44	7	·	·	·	·
	45–59	11	91	39	5–74	·
	60–74	15	68	51	23–79	·
	75+	11	49	15	0–42	·
	All	48	77	48	31–64	·
Distant metastases	0–14	2	·	·	·	·
	15–29	18	83	60	36–84	60
	30–44	199	80	42	34–50	32
	45–59	606	76	22	18–26	14
	60–74	1099	59	14	11–16	10
	75+	515	29	8	5–11	·
	All	2 439	59	18	16–20	14
All[a]	0–14	12	92	72	45–100	73
	15–29	85	92	83	75–92	81
	30–44	403	88	64	59–70	58
	45–59	1 076	82	45	41–48	39
	60–74	1 656	67	29	26–32	25
	75+	894	38	18	15–22	18
	All	4 126	68	37	36–39	35

[a]'All' includes all cases, including those with unknown stage.
A '·' indicates that the value was either not estimable or the estimate lacked precision (see Section 6.3).

Cancer of the prostate

Summary 1985–1994	
Average annual number of cases	1 506
Microscopically verified (%)	97
DCO cases (% excluded)	0.5
Autopsy cases (% excluded)	1.9
Mean age at diagnosis (years)	73
Main histological types (%)	
Adenocarcinoma	85
None or unknown	11
Carcinoma NOS	4
Relative survival rates (%)	
1-year	91
5-year	64
10-year	45

Adenocarcinoma is the most common histological type of prostate cancer. The 5-year RSR for patients with prostate cancer diagnosed in 1985–1994 is 64%. A clear excess mortality is seen throughout the 10-year follow-up period after diagnosis (Fig. 94). Hence, the 10-year RSR is much lower than the 5-year rate (Fig. 95), no more than 46% for any age group (Table 36).

The RSR has improved during the entire 40-year study period (Fig. 95), both in the total material and in individual age and stage groups (Figs. 96 and 97). The increase in the 5-year RSR is slowest among the youngest patients (45–59 years) and fastest in the oldest group (75+ years) (Fig. 96). During the last two decades the RSR is lowest among the youngest patients.

Stage is an important prognostic factor: in 1985–1994 the 5-year RSRs in the groups of localized disease, regional metastases and distant metastases are 84%, 65% and 25%, respectively (Table 36).

Comment: In addition to being due to advances in treatment, the increase with time in the RSR is partly due to improvements in diagnostic methods (such as transurethral resections and serum PSA determinations), leading to a more favourable stage distribution of the tumours, and also to the diagnosis of small cancers, which otherwise would never have been detected clinically. A more intensive diagnostic activity among older men possibly explains the rapid increase in the RSR among this group. The worse prognosis among younger men could be due to their more aggressive tumours, and also to diagnostic delays in those ages in which prostate cancer is rare.

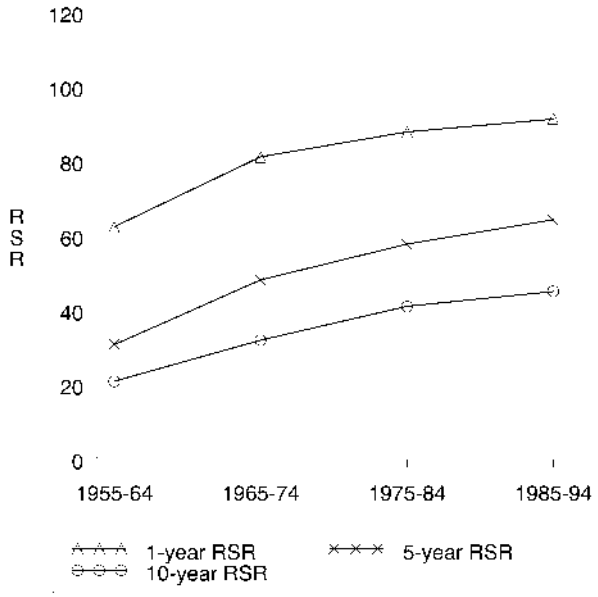

Fig. 95. Cancer of the prostate 1955–1994. Relative survival rates by calendar period of diagnosis.

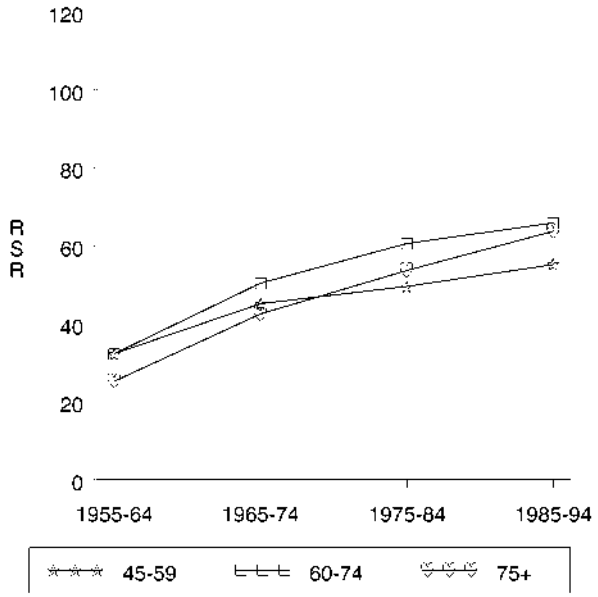

Fig. 96. Cancer of the prostate 1955–1994. Five-year relative survival rates by age and calendar period of diagnosis.

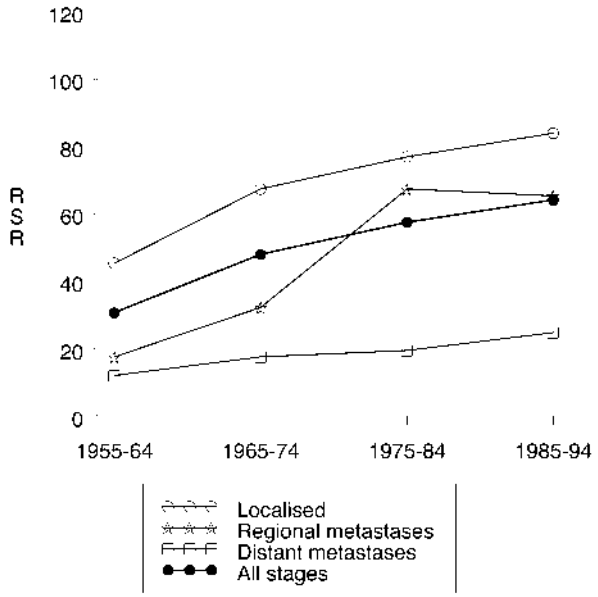

Fig. 97. Cancer of the prostate 1955–1994. Five-year relative survival rates by stage and calendar period of diagnosis.

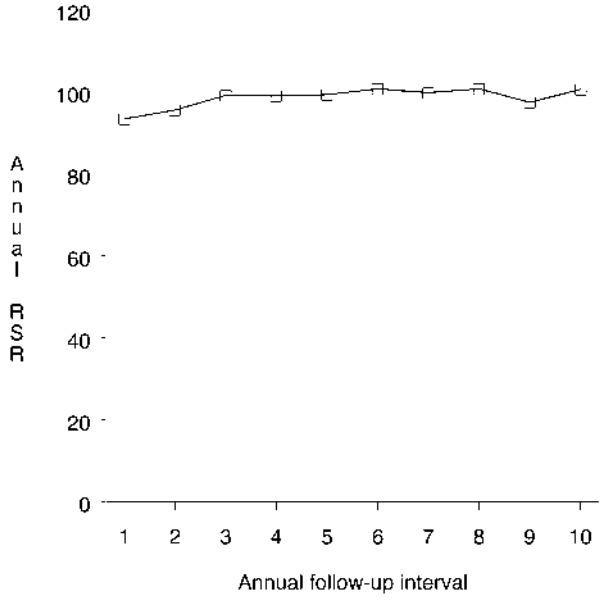

Fig. 98. Cancer of the testis 1985–1994. Annual (interval-specific) relative survival rates.

Table 36

Cancer of the prostate 1985–1994. Number of cases (n) and cumulative relative survival rates at 1, 5, and 10 years subsequent to diagnosis, stratified by stage and age. For the 5-year rates, 95% confidence intervals (CI) are given

Stage	Age	n	1-year	5-year	95% CI	10-year
Localized	0–14	0	·	·	·	·
	15–29	0	·	·	·	·
	30–44	1	·	·	·	·
	45–59	346	99	83	77–89	71
	60–74	3 304	100	85	82–87	64
	75+	2 928	99	83	79–88	61
	All	6 579	99	84	82–86	64
Regional metastases	0–14	0	·	·	·	·
	15–29	0	·	·	·	·
	30–44	0	·	·	·	·
	45–59	30	101	46	18–74	0
	60–74	122	100	74	60–88	·
	75+	74	91	55	32–77	·
	All	226	97	65	54–77	·
Distant metastases	0–14	1	·	·	·	·
	15–29	1	·	·	·	·
	30–44	5	·	·	·	·
	45–59	268	86	19	14–25	·
	60–74	1 640	80	25	22–28	8
	75+	1 495	73	27	22–31	·
	All	3 410	78	25	23–27	9
All[a]	0–14	1	·	·	·	·
	15–29	2	·	·	·	·
	30–44	10	80	0	0–0	·
	45–59	818	93	55	51–60	42
	60–74	7 022	93	66	64–68	46
	75+	6 856	89	64	61–66	44
	All	14 709	91	64	63–66	45

[a] 'All' includes all cases, including those with unknown stage.
A '.' indicates that the value was either not estimable or the estimate lacked precision (see Section 6.3).

Cancer of the testis

Summary 1985–1994	
Average annual number of cases	70
Microscopically verified (%)	100
DCO cases (% excluded)	0.0
Autopsy cases (% excluded)	0.0
Mean age at diagnosis (years)	38
Main histological types (%)	
Seminoma	46
Teratoma/embryonal carcinoma	44
Lymphoma	7
Relative survival rates (%)	
1-year	93
5-year	88
10-year	90

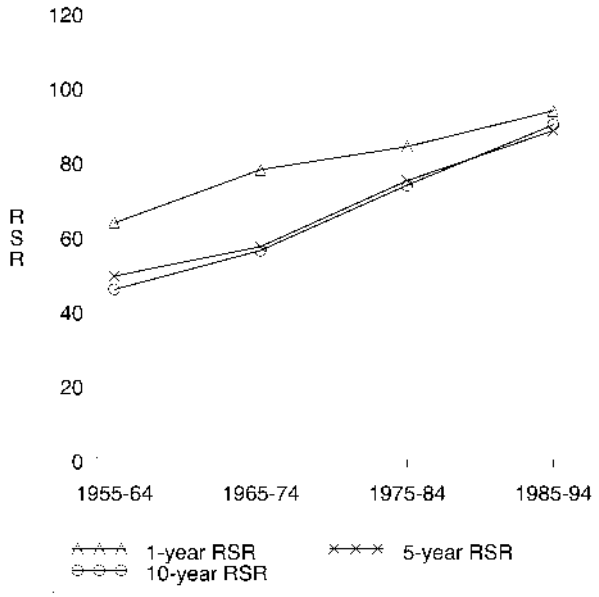

Fig. 99. Cancer of the testis 1955–1994. Relative survival rates by calendar period of diagnosis.

Testis cancer includes mature and immature teratomas. Analyses were also made for the two most important histological groups, pure seminoma, and teratoma (including embryonal carcinoma and teratoma, with or without seminoma).

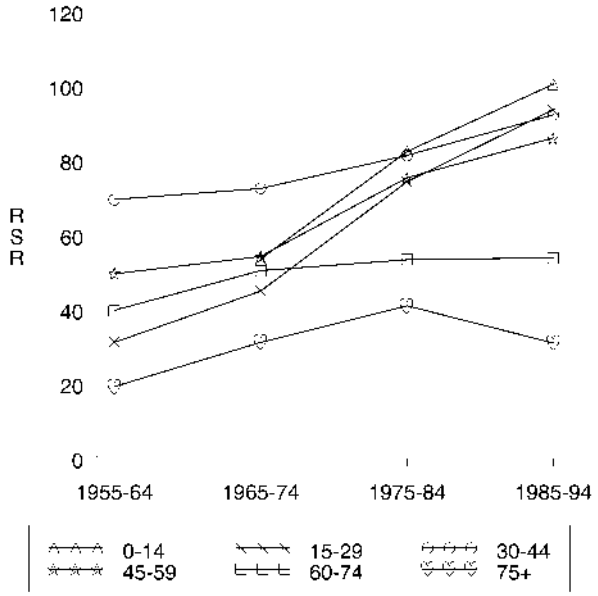

Fig. 100. Cancer of the testis 1955–1994. Five-year relative survival rates by age and calendar period of diagnosis.

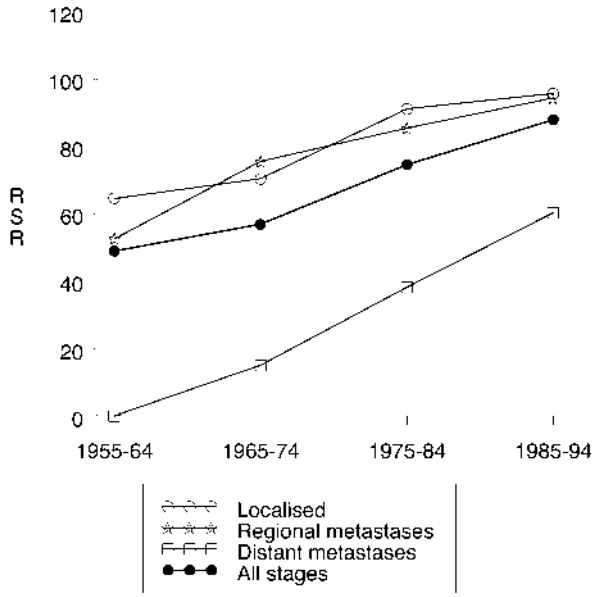

Fig. 101. Cancer of the testis 1955–1994. Five-year relative survival rates by stage and calendar period of diagnosis.

The 5-year RSR for patients with testis cancer is 88% (Table 38). The annual RSRs are close to 100% from the third follow-up year from diagnosis onwards (Fig. 98). The RSR of patients with testis cancer has improved markedly from the 1950s (Fig. 99), and is now one of the highest of all cancers. Substantial variation exists in the survival of testis cancer patients between different age groups (Fig. 100): in 1985–1994 the 5-year RSRs of those under 60 years are more than 90%, whereas in older patients much lower rates are observed. Improvements in survival rates over time have been much more pro-

Table 37

Cancer of the testis 1985–1994. Number of cases (n), 5-year cumulative relative survival rates, and 95% confidence intervals (CI), stratified by histology and age

Age	Seminoma			Teratoma		
	n	RSR	95% CI	n	RSR	95% CI
15–29	64	99	96–101	146	93	88–97
30–44	150	95	90–99	113	90	84–96
45–59	79	99	93–105	19	74	50–98
60–74	19	44	7–81	5	·	·
75+	9	·	·	4	·	·
All	321	94	90–98	306	90	86–94

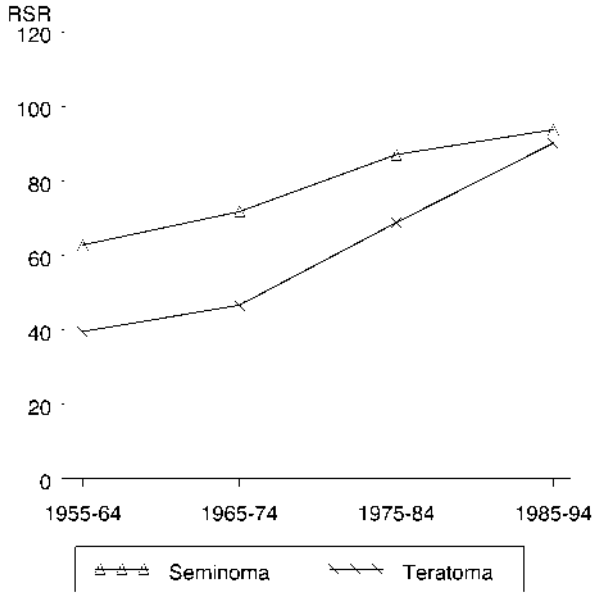

Fig. 102. Cancer of the testis 1955–1994. Five-year relative survival rates by calendar period of diagnosis and histology.

Table 38

Cancer of the testis 1985–1994. Number of cases (n) and cumulative relative survival rates at 1, 5, and 10 years subsequent to diagnosis, stratified by stage and age. For the 5-year rates, 95% confidence intervals (CI)

Stage	Age	n	1-year	5-year	95% CI	10-year
Localized	0–14	15	100	100	·	100
	15–29	108	100	101	·	102
	30–44	145	100	97	93–101	96
	45–59	69	98	97	89–105	105
	60–74	28	100	71	42–100	0
	75+	13	69	49	0–100	0
	All	378	99	96	92–99	98
Regional metastases	0–14	1	·	·	·	·
	15–29	26	100	101	·	102
	30–44	36	97	96	87–102	98
	45–59	5	·	·	·	·
	60–74	1	·	·	·	·
	75+	1	·	·	·	·
	All	70	96	94	88–101	97
Distant metastases	0–14	3	·	·	·	·
	15–29	48	86	72	59–86	73
	30–44	35	86	63	46–80	65
	45–59	15	54	49	21–76	·
	60–74	9	·	·	·	·
	75+	6	·	·	·	·
	All	116	77	60	50–70	65
All[a]	0–14	22	100	100	·	100
	15–29	215	96	93	90–97	94
	30–44	267	97	92	88–96	91
	45–59	115	91	86	77–94	88
	60–74	54	79	54	34–73	·
	75+	27	62	31	0–62	0
	All	700	93	88	85–91	90

[a] 'All' includes all cases, including those with unknown stage.
A '·' indicates that the value was either not estimable or the estimate lacked precision (see Section 6.3).

nounced in the younger patients, with no increase found for patients aged 60 years or more (Fig. 100).

Patients with regional metastases have a 5-year survival rate only slightly worse (RSR 94%) than those with localized disease (96%), but patients with distant metastases do worse (RSR 60%) (Fig. 101, Table 38).

In 1985–1994, the 5-year RSRs of patients with seminoma or teratoma are very similar: 94% and 90%, respectively (Table 37). In earlier periods, patients with teratoma had a much lower survival rate than those with seminoma (Fig. 102).

Comment: The improvement over time in the survival of testis cancer patients is, to a great extent, due to developments in the chemotherapy of advanced disease, especially in the teratoma group. Since the majority of testis cancer patients are below 60 years of age (mean age 38 years in 1985–1994), the survival rates of the total group of testis cancer patients is determined by the favourable outcome of the disease in young and middle-aged patients.

Cancer of the kidney

Summary 1985–1994	Males	Females
Average annual number of cases	357	295
Microscopically verified (%)	92	90
DCO cases (% excluded)	1.1	1.3
Autopsy cases (% excluded)	6.0	5.6
Mean age at diagnosis (years)	63	66
Main histological types (%)		
Adenocarcinoma	78	76
None or unknown	10	13
Transitional cell carcinoma	6	5
Carcinoma NOS	3	3
Wilms' tumour	2	2
Relative survival rates (%)		
1-year	71	71
5-year	51	54
10-year	43	48

Cancer of the kidney includes cancers of the renal pelvis. Adenocarcinomas (hypernephromas), transitional cell carcinomas (originating in the renal pelvis) and nephroblastomas (Wilms' tumours, mostly diagnosed in childhood) were analysed as separate subgroups.

The prognosis for kidney cancer is similar in males and females. In 1985–1994, the 5-year RSRs were 51% and 54%, respectively. The excess mortality after diagnosis of cancer continues for the entire 10-year follow-up period (Fig. 103). A distinct improvement has taken place in the

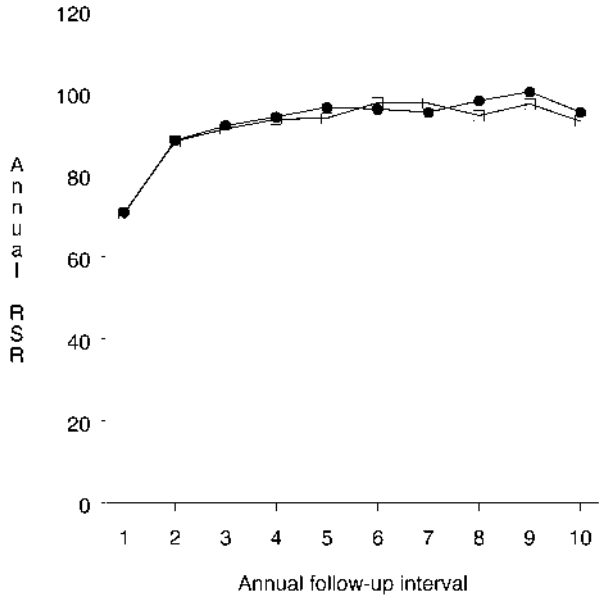

Fig. 103. Cancer of the kidney 1985–1994. Annual (interval-specific) relative survival rates for males (□) and females (●).

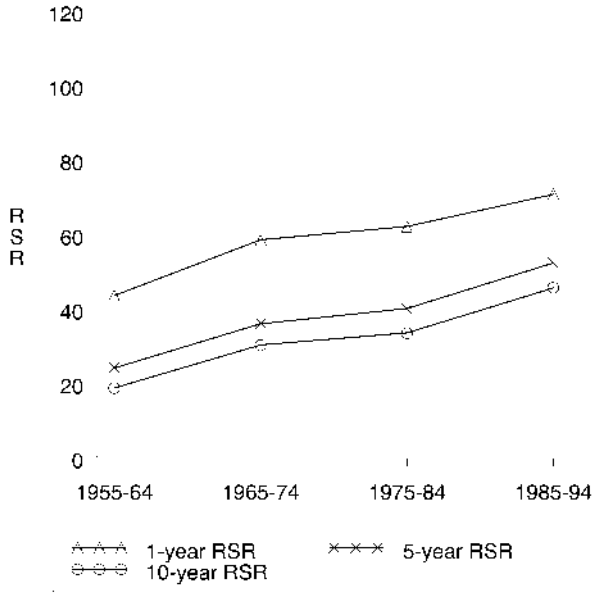

Fig. 104. Cancer of the kidney, both sexes 1955–1994. Relative survival rates by calendar period of diagnosis.

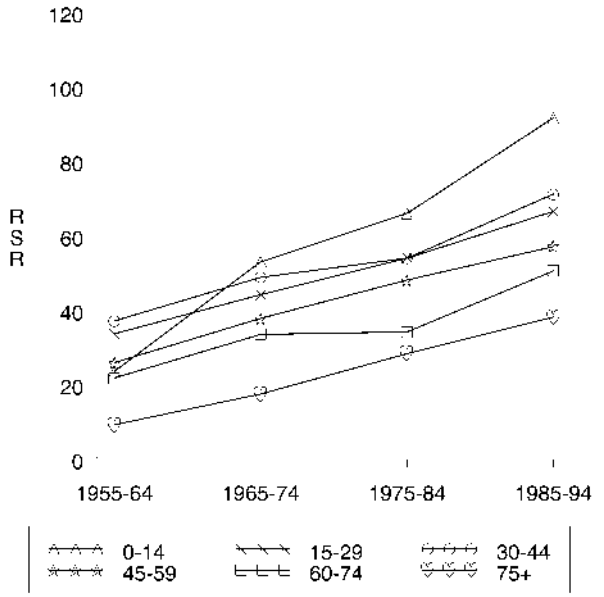

Fig. 105. Cancer of the kidney, both sexes 1955–1994. Five-year relative survival rates by age and calendar period of diagnosis.

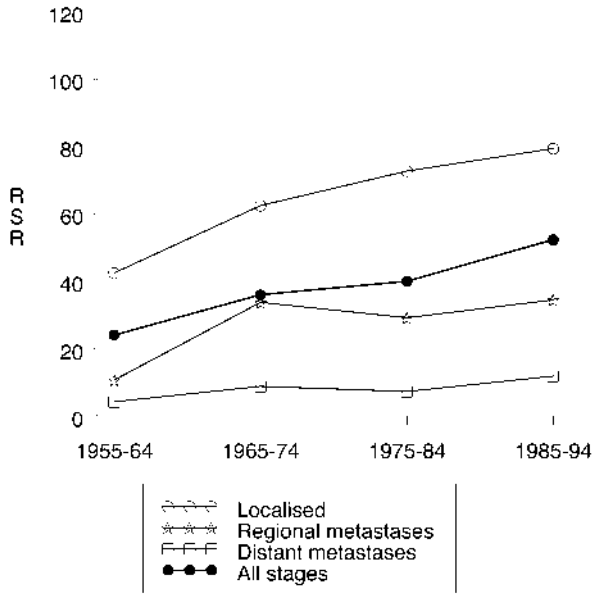

Fig. 106. Cancer of the kidney, both sexes 1955–1994. Five-year relative survival rates by stage and calendar period of diagnosis.

prognosis of kidney cancer (Fig. 104), especially in children (Fig. 105). A consistent age-survival pattern emerges: the older the patients, the lower their 5-year RSRs (Fig. 105). There is wide variation in the survival rates of patients with cancers of different stages (Fig. 106, Table 40).

In 1985–1994, the 5-year RSR of transitional cell carcinomas was slightly lower (50%) than that of adenocarcinomas (57%) (Table 39), whereas the small group of children with Wilms' tumour experienced the highest RSR (93%).

Table 39

Cancer of the kidney 1985–1994. Number of cases (n), 5-year cumulative relative survival rates, and 95% confidence intervals (CI), stratified by histology and age

Age	Adenocarcinoma			Transitional cell carcinoma			Wilms' tumour		
	n	RSR	95% CI	n	RSR	95% CI	n	RSR	95% CI
0–14	4	·	·	0	·	·	101	93	87–98
15–29	22	68	45–90	1	·	·	1	·	·
30–44	256	71	65–78	12	85	63–102	5	·	·
45–59	1 235	61	57–64	43	53	36–70	2	·	·
60–74	2 315	55	52–58	174	50	40–61	3	·	·
75+	863	51	45–56	96	37	20–55	0	·	·
All	4 695	57	55–59	326	50	42–58	112	90	84–96

Table 40

Cancer of the kidney 1985–1994. Number of cases (n) and cumulative relative survival rates at 1, 5, and 10 years subsequent to diagnosis, stratified by stage, age, and sex. For the 5-year rates, 95% confidence intervals (CI) are given

Stage	Age	Males					Females				
		n	1-year	5-year	95% CI	10-year	n	1-year	5-year	95% CI	10-year
Localised	0–14	33	100	92	80–100	92	26	100	92	82–100	92
	15–29	8	·	·	·	·	12	100	78	49–100	0
	30–44	108	98	90	83–97	81	74	97	90	81–98	83
	45–59	468	97	80	76–85	66	295	97	85	80–90	74
	60–74	711	94	78	73–83	63	649	95	81	76–85	71
	75+	239	92	70	57–83	·	332	81	62	53–72	49
	All	1 567	95	80	76–83	68	1 388	93	79	76–82	70
Regional metastases	0–14	3	·	·	·	·	4	·	·	·	·
	15–29	1	·	·	·	·	0	·	·	·	·
	30–44	6	·	·	·	·	7	·	·	·	·
	45–59	20	66	37	14–60	·	15	94	41	15–67	·
	60–74	43	67	18	3–33	·	32	70	34	14–53	·
	75+	9	·	·	·	·	13	82	28	0–66	·
	All	82	67	29	17–42	34	71	81	40	26–54	·
Distant metastases	0–14	15	100	80	59–100	80	8	·	·	·	·
	15–29	0	·	·	·	·	4	·	·	·	·
	30–44	44	52	17	5–29	·	18	50	36	11–61	·
	45–59	305	41	10	6–14	·	96	40	12	5–20	·
	60–74	510	37	9	6–13	·	402	36	12	8–16	11
	75+	215	22	7	2–12	·	256	23	8	3–13	·
	All	1 089	37	11	9–13	8	784	34	13	10–16	12
All[a]	0–14	55	100	87	77–97	88	51	100	96	90–100	96
	15–29	11	82	67	34–101	68	16	88	64	38–91	·
	30–44	182	82	68	60–75	59	114	88	76	67–85	60
	45–59	931	74	52	48–56	42	470	84	66	61–71	58
	60–74	1 528	71	48	45–52	36	1 312	72	53	49–56	45
	75+	609	58	40	33–47	·	787	55	36	31–42	33
	All	3 316	71	51	49–53	43	2 750	71	54	52–56	48

[a] 'All' includes all cases, including those with unknown stage.

A '·' indicates that the value was either not estimable or the estimate lacked precision (see Section 6.3).

Cancer of the bladder

Summary 1985–1994	Males	Females
Average annual number of cases	497	161
Microscopically verified (%)	99	97
DCO cases (% excluded)	0.2	0.4
Autopsy cases (% excluded)	0.6	1.5
Mean age at diagnosis (years)	69	72
Main histological types (%)		
Transitional cell carcinoma	95	89
None or unknown	2	5
Relative survival rates (%)		
1-year	87	78
5-year	72	63
10-year	65	61

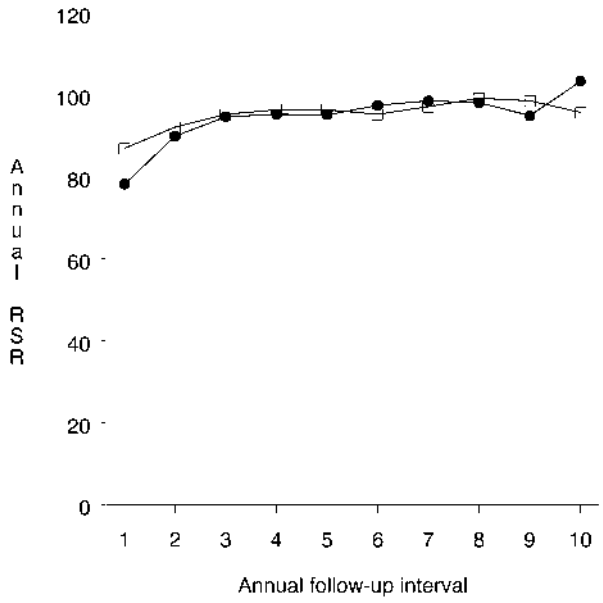

Fig. 107. Cancer of the bladder 1985–1994. Annual (interval-specific) relative survival rates for males (□) and females (●).

Cancers of the ureter and urethra are excluded, as are benign papillomas of the bladder. Transitional cell carcinoma is by far the most common histological type of bladder cancer.

The prognosis of patients with bladder cancer is rather favourable. A slight excess mortality continues for almost 10 years from diagnosis (Fig. 107). The survival rate of patients with bladder cancer has improved markedly through the decades, although with decreasing intensity (Fig. 108). Age is consistently associated with survival (Fig. 109, Table 41).

Large variation exists in the 5-year RSR by stage (Fig. 110). Advanced cancer carries a poor prognosis (Table 41).

Comment: During the decades, the diagnostic criteria for transitional cell carcinoma have gradually changed, so that many lesions that in the 1950s and 1960s were called papillomas are now labelled carcinoma grade I. Theoretically, this shift would make the chances of survival for patients with bladder carcinomas more favourable than earlier, and has probably contributed to the increase over time in the RSRs.

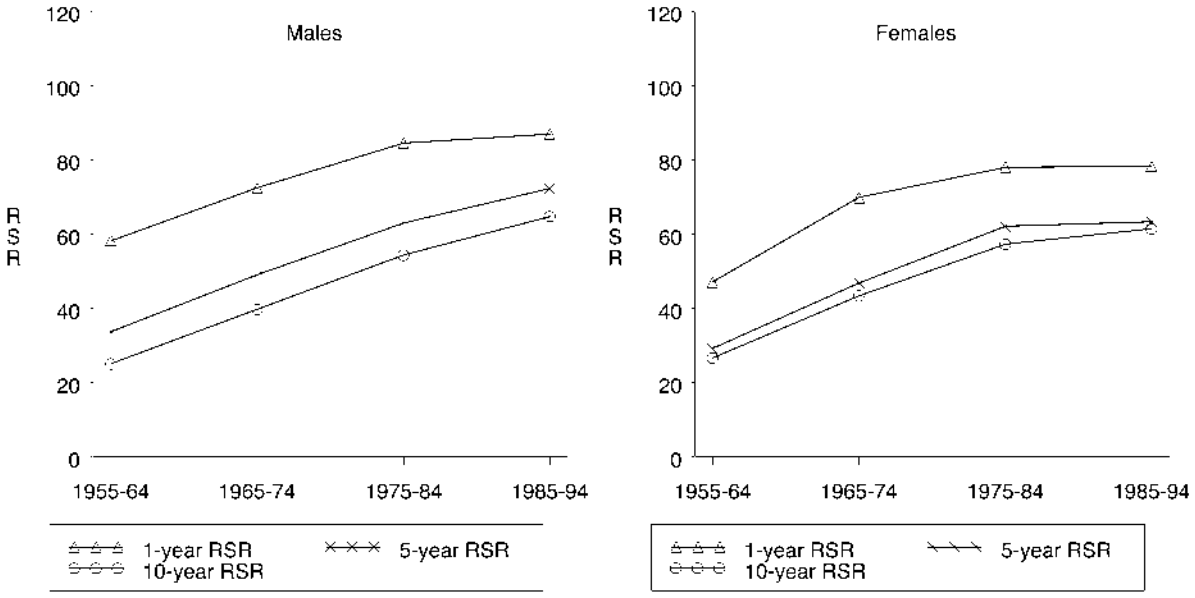

Fig. 108. Cancer of the bladder 1955–1994. Relative survival rates by calendar period of diagnosis for males and females.

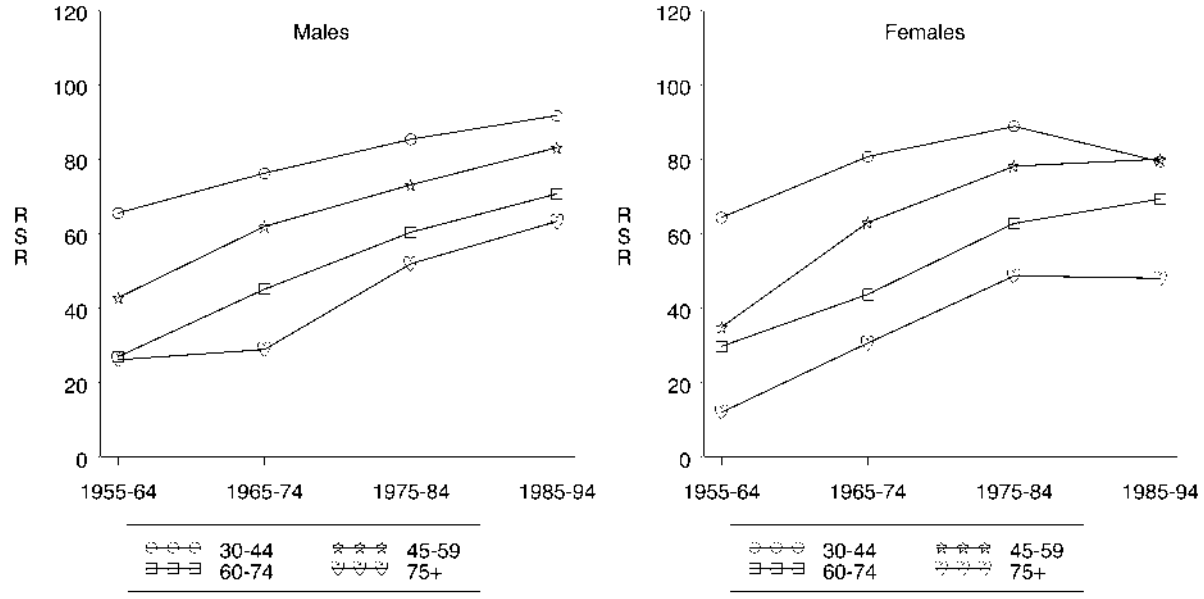

Fig. 109. Cancer of the bladder 1955–1994. Five-year relative survival rates by age and calendar period of diagnosis for males and females.

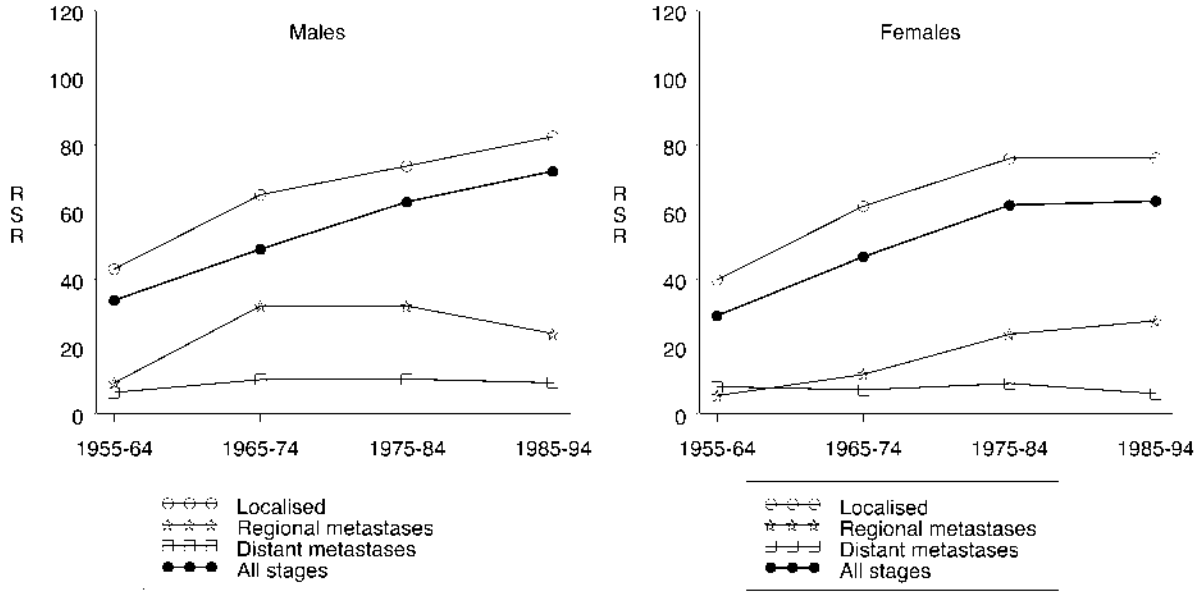

Fig. 110. Cancer of the bladder 1955–1994. Five-year relative survival rates by stage and calendar period of diagnosis for males and females.

Table 41

Cancer of the bladder 1985–1994. Number of cases (n) and cumulative relative survival rates at 1, 5, and 10 years subsequent to diagnosis, stratified by stage, age, and sex. For the 5-year rates, 95% confidence intervals (CI) are given

Stage	Age	Males					Females				
		n	1-year	5-year	95% CI	10-year	n	1-year	5-year	95% CI	10-year
Localized	0–14	2	·	·	·	·	1	·	·	·	·
	15–29	16	100	94	80–101	95	2	·	·	·	·
	30–44	111	100	96	92–101	99	38	97	86	73–100	87
	45–59	534	97	88	84–92	81	124	96	85	77–93	89
	60–74	1 697	95	81	78–84	63	409	96	81	76–87	73
	75+	1 063	94	78	71–84	75	441	88	63	55–72	56
	All	3 423	95	83	80–85	72	1 015	92	76	72–80	72
Regional metastases	0–14	0	·	·	·	·	0	·	·	·	·
	15–29	0	·	·	·	·	0	·	·	·	·
	30–44	1	·	·	·	·	0	·	·	·	·
	45–59	21	82	37	14–61	·	5	·	·	·	·
	60–74	31	71	20	0–42	·	11	46	20	0–46	·
	75+	18	75	0	0–0	·	6	·	·	·	·
	All	71	76	24	10–37	·	22	52	28	6–49	·
Distant metastases	0–14	0	·	·	·	·	0	·	·	·	·
	15–29	0	·	·	·	·	0	·	·	·	·
	30–44	7	·	·	·	·	3	·	·	·	·
	45–59	25	57	27	4–49	·	9	·	·	·	·
	60–74	174	47	8	3–14	·	48	34	6	0–14	·
	75+	131	31	5	0–11	·	97	19	5	0–12	·
	All	337	42	9	5–14	·	157	25	6	1–11	·
All[a]	0–14	3	·	·	·	·	1	·	·	·	·
	15–29	19	100	95	84–101	96	2	·	·	·	·
	30–44	139	97	92	86–97	94	46	91	79	65–93	80
	45–59	698	94	83	79–87	77	176	90	80	73–87	83
	60–74	2 372	87	71	68–73	55	593	86	69	64–74	64
	75+	1 701	82	63	58–68	61	765	68	48	42–54	41
	All	4 932	87	72	70–74	65	1 583	78	63	60–67	61

[a] 'All' includes all cases, including those with unknown stage.
A '·' indicates that the value was either not estimable or the estimate lacked precision (see Section 6.3).

Table 42

Melanoma of the skin, both sexes 1985-1994. Number of cases (n), 5-year cumulative relative survival rates, and 95% confidence intervals (CI), stratified by subsite and age

Age	Head & neck			Trunk			Limbs			Other		
	n	RSR	95% CI	n	RSR	95% CI	n	RSR	95% CI	n	RSR	95% CI
0–14	1	·	·	2	·	·	3	·	·	0	·	·
15–29	19	95	84–101	107	88	82–95	119	99	96–101	10	79	52–106
30–44	78	89	81–97	392	85	81–89	396	88	85–92	44	65	48–83
45–59	126	77	68–86	637	83	80–87	514	89	85–92	106	64	53–75
60–74	225	79	70–87	593	76	70–81	481	83	77–88	96	57	44–69
75+	265	82	69–94	241	71	58–83	297	60	49–71	64	51	28–74
All	714	81	76–86	1 972	81	78–83	1 810	85	82–87	320	61	53–68

Melanoma of the skin

Summary 1985–1994	Males	Females
Average annual number of cases	239	245
Microscopically verified (%)	100	100
DCO cases (% excluded)	0.1	0.2
Autopsy cases (% excluded)	0.4	0.1
Mean age at diagnosis (years)	57	58
Relative survival rates (%)		
1-year	94	96
5-year	78	84
10-year	74	85

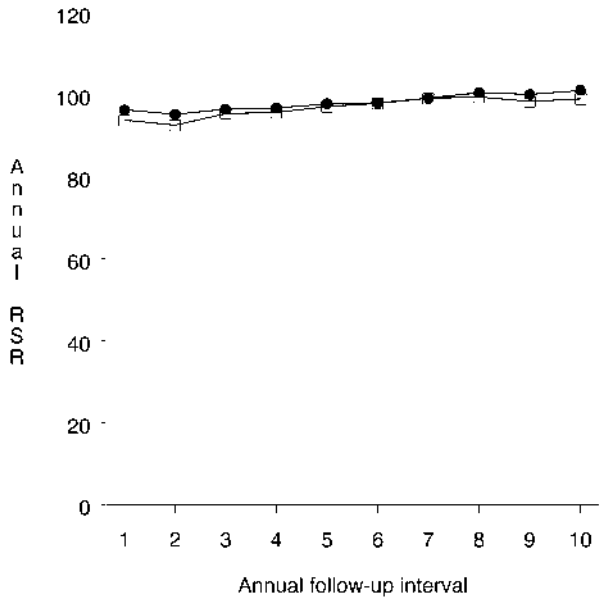

Fig. 111. Melanoma of the skin 1985–1994. Annual (interval-specific) relative survival rates for males (□) and females (●).

Juvenile melanomas and melanoma in situ lesions (lentigo maligna, Hutchinson's freckle) are excluded. Survival was also analysed separately for melanomas located in the following four subsites: head and neck, trunk, limbs, and other (unspecified or multiple subsites).

Melanoma of the skin is associated with a relatively good prognosis; in 1985–1994 the 5-year RSR is 78% for males and 84% for females. The excess mortality due to cancer is small and disappears after 6 years of follow-up (Fig. 111). Survival rates have improved markedly during the entire study period (Fig. 112). In almost all subgroups, the survival rate among females is superior to that among males (Table 43). The youngest patients (aged 15–29 years) have the best survival rates (Fig. 113), with a 5-year RSR as high as 97% among young females diagnosed in 1985–1994 (Table 43). Large variation exists in the patient survival rates depending on the stage at which the tumour was diagnosed (Fig. 114).

Melanomas located in the skin of the limbs tend to carry a better prognosis (5-year RSR 85%) than those in the skin of the head and neck or trunk (5-year RSR 81% for both) (Table 42). The 5-year RSR for the other subsites is much lower (61%). The 5-year RSR has increased with time in

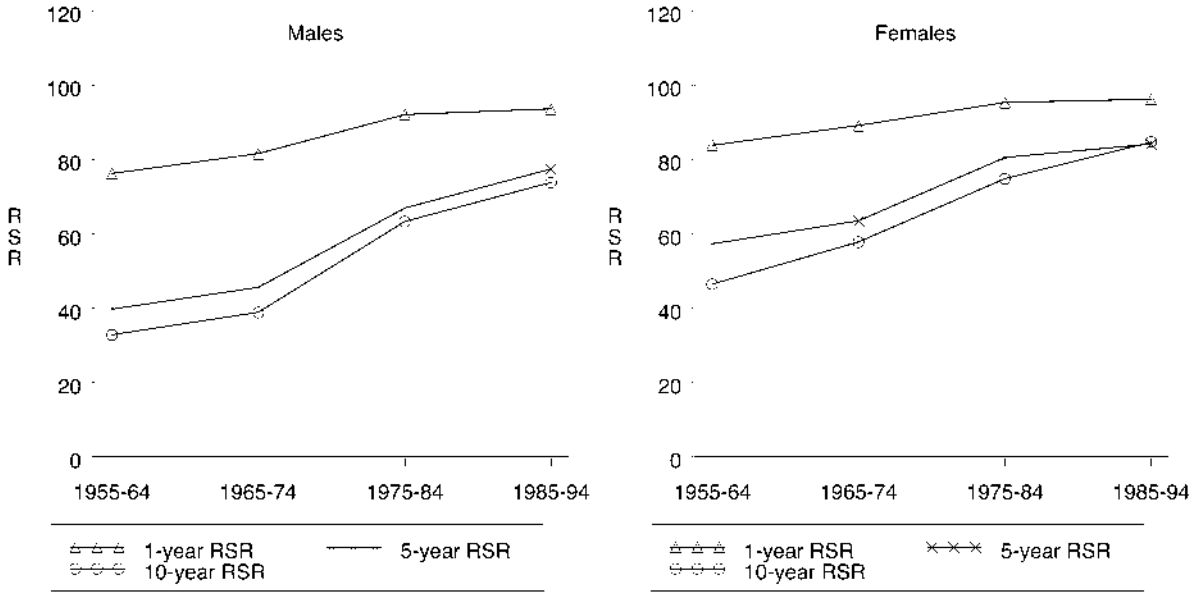

Fig. 112. Melanoma of the skin 1955–1994. Relative survival rates by calendar period of diagnosis for males and females.

all subsites, the fastest of which has been melanomas of the trunk (Fig. 115). The association between subsite and survival is fairly similar in all age groups (Fig. 116).

Comment: Part of the increase in the survival rates of melanoma patients is due to a decrease over time in the proportion of advanced cancer.

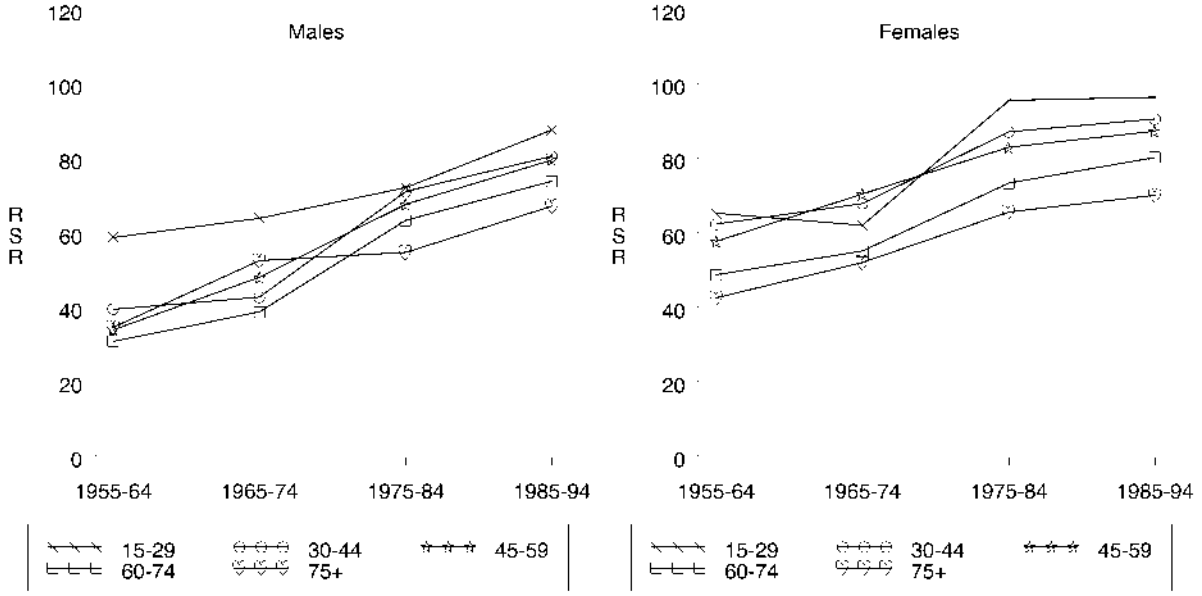

Fig. 113. Melanoma of the skin 1955–1994. Five-year relative survival rates by age and calendar period of diagnosis for males and females.

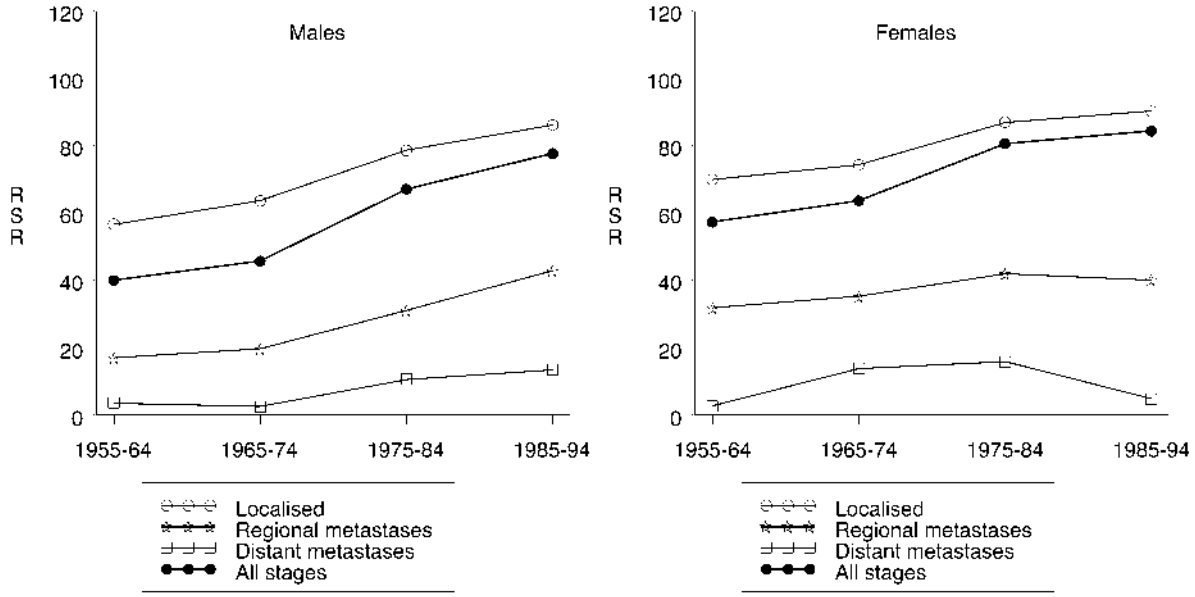

Fig. 114. Melanoma of the skin 1955–1994. Five-year relative survival rates by stage and calendar period of diagnosis for males and females.

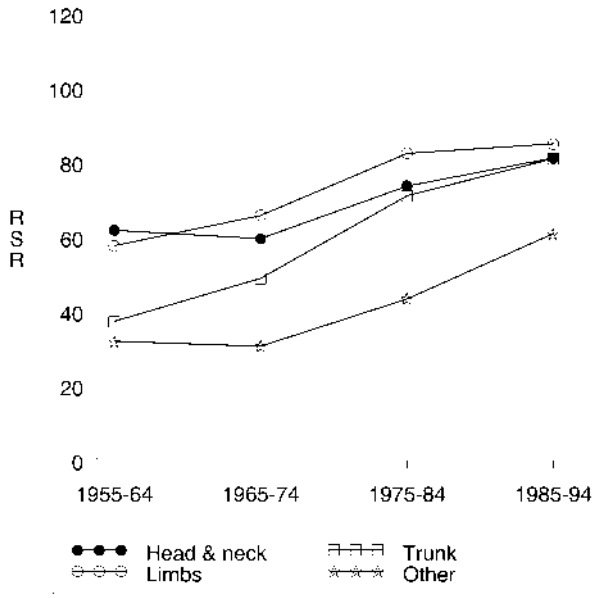

Fig. 115. Melanoma of the skin, both sexes 1955–1994. Five-year relative survival rates by subsite and calendar period of diagnosis.

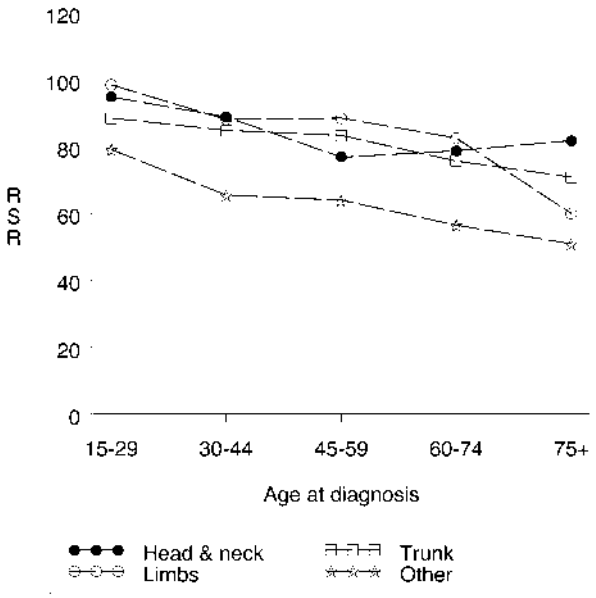

Fig. 116. Melanoma of the skin, both sexes 1985–1994. Five-year relative survival rates by subsite and age at diagnosis.

Squamous cell carcinoma of the skin

Summary 1985–1994	Males	Females
Average annual number of cases	224	271
Microscopically verified (%)	100	100
DCO cases (% excluded)	0.0	0.0
Autopsy cases (% excluded)	0.0	0.1
Mean age at diagnosis (years)	73	77
Relative survival rates (%)		
1-year	97	99
5-year	90	92
10-year	86	99

After exclusion of basal cell carcinomas, 86% of the remaining non-melanoma skin cancers were squamous cell carcinomas in 1985–1994. The prognosis is good: in 1985–1994 the 5-year RSR is 90% in males and 92% in females. Very slight excess mortality due to cancer is observable in the beginning of the follow-up period (Fig. 117). No consistent association between age and survival can be seen (Table 44). Squamous cell carcinomas of the skin with metastases at the time of diagnosis are rare.

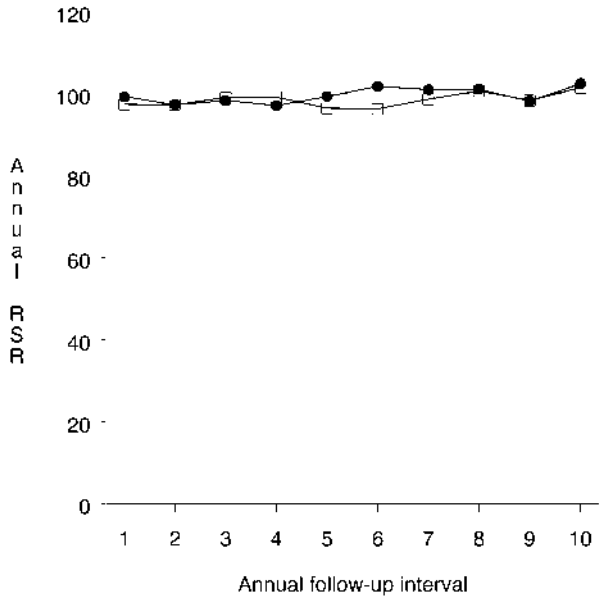

Fig. 117. Squamous cell carcinoma of the skin 1985–1994. Annual (interval-specific) relative survival rates for males (□) and females (●).

Table 43

Melanoma of the skin 1985–1994. Number of cases (n) and cumulative relative survival rates at 1, 5, and 10 years subsequent to diagnosis, stratified by stage, age, and sex. For the 5-year rates, 95% confidence intervals (CI) are given

Stage	Age	Males					Females				
		n	1-year	5-year	95% CI	10-year	n	1-year	5-year	95% CI	10-year
Localized	0–14	2	·	·	·	·	3	·	·	·	·
	15–29	67	100	95	89–101	76	119	100	96	92–100	93
	30–44	273	98	87	82–92	76	347	100	94	91–97	89
	45–59	503	100	87	83–91	86	438	100	93	90–96	90
	60–74	449	101	83	77–90	84	459	99	89	84–94	94
	75+	200	99	78	62–94	·	313	100	76	65–87	100
	All	1 494	100	86	83–89	81	1 679	100	90	88–93	91
Regional metastases	0–14	0	·	·	·	·	0	·	·	·	·
	15–29	4	·	·	·	·	0	·	·	·	·
	30–44	26	93	56	36–77	51	3	·	·	·	·
	45–59	42	84	51	33–69	·	12	92	47	16–78	·
	60–74	34	89	30	9–50	·	15	75	27	1–52	·
	75+	19	65	33	0–69	0	22	92	49	18–81	0
	All	125	85	43	32–54	40	52	87	40	24–57	·
Distant metastases	0–14	1	·	·	·	·	0	·	·	·	·
	15–29	1	·	·	·	·	1	·	·	·	·
	30–44	29	52	19	3–34	·	12	33	0	·	·
	45–59	57	50	11	1–21	·	25	36	0	·	·
	60–74	50	39	14	2–26	·	43	52	6	0–15	·
	75+	31	36	13	0–31	·	24	41	13	0–31	·
	All	169	45	13	7–20	·	105	43	5	0–10	·
All[a]	0–14	3	·	·	·	·	3	·	·	·	·
	15–29	95	99	88	80–95	73	160	99	97	93–100	95
	30–44	447	95	81	76–85	71	463	98	91	88–94	87
	45–59	764	94	80	76–83	77	619	97	87	84–91	84
	60–74	725	94	74	69–79	78	670	95	80	76–85	83
	75+	345	90	67	56–79	·	522	94	70	62–78	81
	All	2 379	94	78	75–80	74	2 437	96	84	82–87	85

[a] 'All' includes all cases, including those with unknown stage.
A '·' indicates that the value was either not estimable or the estimate lacked precision (see Section 6.3).

Basal cell carcinoma of the skin

Summary 1985–1994	Males	Females
Average annual number of cases	1 570	2 172
Microscopically verified (%)	100	100
DCO cases (% excluded)	0.0	0.0
Autopsy cases (% excluded)	0.0	0.0
Mean age at diagnosis (years)	67	69
Relative survival rates (%)		
1-year	101	101
5-year	102	101
10-year	106	102

There is no excess mortality due to the tumour among patients with basal cell carcinoma of the skin (Fig. 118). Consequently, all estimated RSRs are close to 100% (Table 45).

Table 44

Squamous cell carcinoma of the skin 1985–1994. Number of cases (n) and cumulative relative survival rates at 1, 5, and 10 years subsequent to diagnosis, stratified by stage, age, and sex. For the 5-year rates, 95% confidence intervals (CI) are given

Stage	Age	Males					Females				
		n	1-year	5-year	95% CI	10-year	n	1-year	5-year	95% CI	10-year
Localized	0–14	0	·	·	·	·	1	·	·	·	·
	15–29	4	·	·	·	·	0	·	·	·	·
	30–44	21	100	102	·	94	19	100	95	83–101	96
	45–59	139	97	89	81–97	84	75	98	93	86–100	97
	60–74	611	99	94	89–99	88	505	99	94	90–99	94
	75+	775	99	85	76–94	79	1 315	101	89	83–95	101
	All	1 550	99	90	86–95	84	1 915	100	91	87–95	99
Regional metastases	0–14	0	·	·	·	·	0	·	·	·	·
	15–29	0	·	·	·	·	0	·	·	·	·
	30–44	0	·	·	·	·	1	·	·	·	·
	45–59	0	·	·	·	·	2	·	·	·	·
	60–74	7	·	·	·	·	5	·	·	·	·
	75+	15	83	70	15–125	·	13	113	114	59–168	·
	All	22	80	64	27–102	·	21	103	69	35–102	107
Distant metastases	0–14	0	·	·	·	·	0	·	·	·	·
	15–29	0	·	·	·	·	0	·	·	·	·
	30–44	3	·	·	·	·	0	·	·	·	·
	45–59	1	·	·	·	·	0	·	·	·	·
	60–74	3	·	·	·	·	2	·	·	·	·
	75+	10	46	0	·	·	7	·	·	·	·
	All	17	45	0	·	·	9	·	·	·	·
All[a]	0–14	0	·	·	·	·	1	·	·	·	·
	15–29	4	·	·	·	·	1	·	·	·	·
	30–44	34	97	92	81–102	88	23	96	91	79–101	92
	45–59	193	96	90	84–97	92	122	99	94	88–99	91
	60–74	863	97	91	87–96	86	700	99	94	90–98	97
	75+	1 143	98	87	80–95	86	1 865	100	90	85–95	99
	All	2 237	97	90	86–93	86	2 712	99	92	88–95	99

[a] 'All' includes all cases, including those with unknown stage.
A '·' indicates that the value was either not estimable or the estimate lacked precision (see Section 6.3).

Table 45

Basal cell carcinoma of the skin 1985-1994. Number of cases (n) and cumulative relative survival rates at 1, 5, and 10 years subsequent to diagnosis, stratified by age and sex. For the 5-year rates, 95% confidence intervals (CI) are given

Age	Males					Females				
	n	1-year	5-year	95% CI	10-year	n	1-year	5-year	95% CI	10-year
0–14	2	·	·	·	·	5	·	·	·	·
15–29	88	100	98	94–101	99	150	100	100	·	101
30–44	920	100	101	100–101	102	1 129	100	100	99–101	100
45–59	3 006	100	101	100–102	104	3 172	100	100	99–101	101
60–74	6 924	100	102	101–103	107	8 210	100	100	100–101	101
75+	4 757	102	102	98–105	114	9 056	101	102	100–104	104
All	15 697	101	102	101–103	106	21 722	101	101	100–102	102

A '·' indicates that the value was either not estimable or the estimate lacked precision (see Section 6.3).

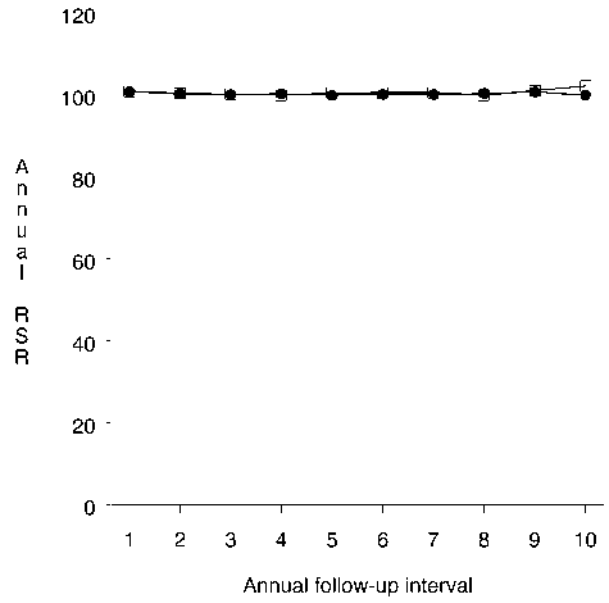

Fig. 118. Basal cell carcinoma of the skin 1985–1994. Annual (interval-specific) relative survival rates for males (□) and females (●).

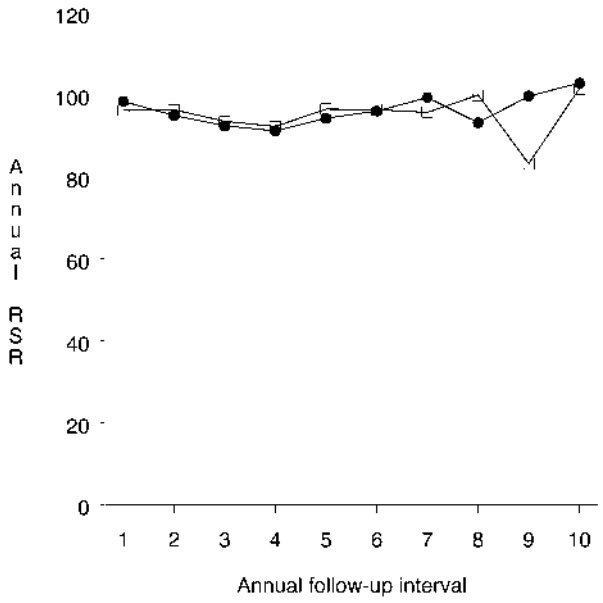

Fig. 119. Cancer of the eye 1985–1994. Annual (interval-specific) relative survival rates for males (□) and females (●).

Cancer of the eye

Summary 1985–1994	Males	Females
Average annual number of cases	27	30
Microscopically verified (%)	64	65
DCO cases (% excluded)	0.8	0.0
Autopsy cases (% excluded)	0.4	0.0
Mean age at diagnosis (years)	54	58
Main histological types (%)		
Melanoma	49	49
None or unknown	36	36
Lymphoma	4	9
Retinoblastoma	8	5
Relative survival rates (%)		
1-year	96	98
5-year	79	75
10-year	65	71

The proportion of histological verification among eye cancers is one of the lowest among all malignant tumours, only 64% or 65% in 1985–1994 (and still lower in the 1990s). This is due to the current practice of treating eye melanomas on the basis of a clinical diagnosis. In addition to the whole group of eye cancers, analyses were made for the following subgroups: melanoma, retinoblastoma and no or unknown histology.

Eye cancer belongs to the group of cancers with favourable prognosis; the 5-year RSR in 1985–1994 is 79% in males and 75% in females. Excess mortality is observable for almost the whole 10-year follow-up period from diagnosis (Fig. 119). The 1-year RSR is already close to 100% in 1985–1994 (Table 46), but no increase is observable in the 5-year RSR after 1975–1984 (Fig. 120). In 1985–1994 the 5-year RSR among children is 100% (Table 46). On the other hand, the oldest patients have the worst prognosis (Fig. 121).

Almost all eye cancers are localized at the time of diagnosis. Therefore, the trend over time in the 5-year RSR for the total group closely follows the curve for localized cancer (Fig. 122).

Not a single death occurred among patients with retinoblastoma diagnosed in 1985–1994 (Table 47). The 5-year RSR for patients with a histologically verified melanoma is 66%, and that for cancers without histology is 89%.

Comment: Many tumours of the eye without histological verification are, in fact, melanomas. For patients diagnosed in 1985–1994, those with histology recorded as melanoma are most likely to have been diagnosed in the late 1980s, whereas most patients without histological confirmation were diagnosed in the early 1990s. This may explain part of the survival difference observed between these two groups.

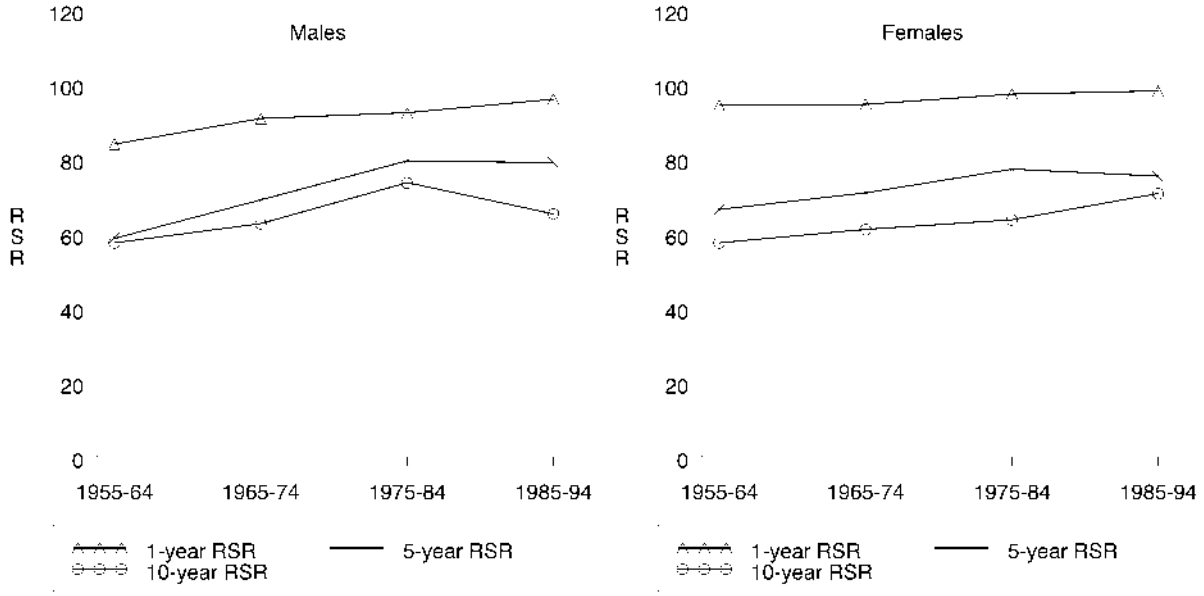

Fig. 120. Cancer of the eye 1955–1994. Relative survival rates by calendar period of diagnosis for males and females.

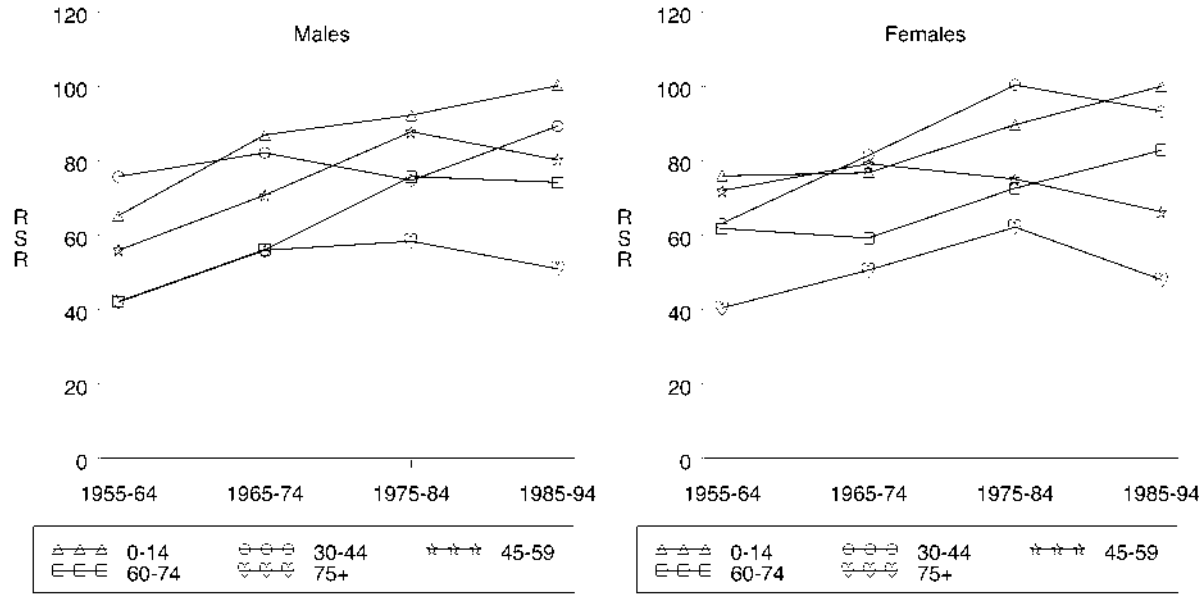

Fig. 121. Cancer of the eye 1955–1994. Five-year relative survival rates by age and calendar period of diagnosis for males and females.

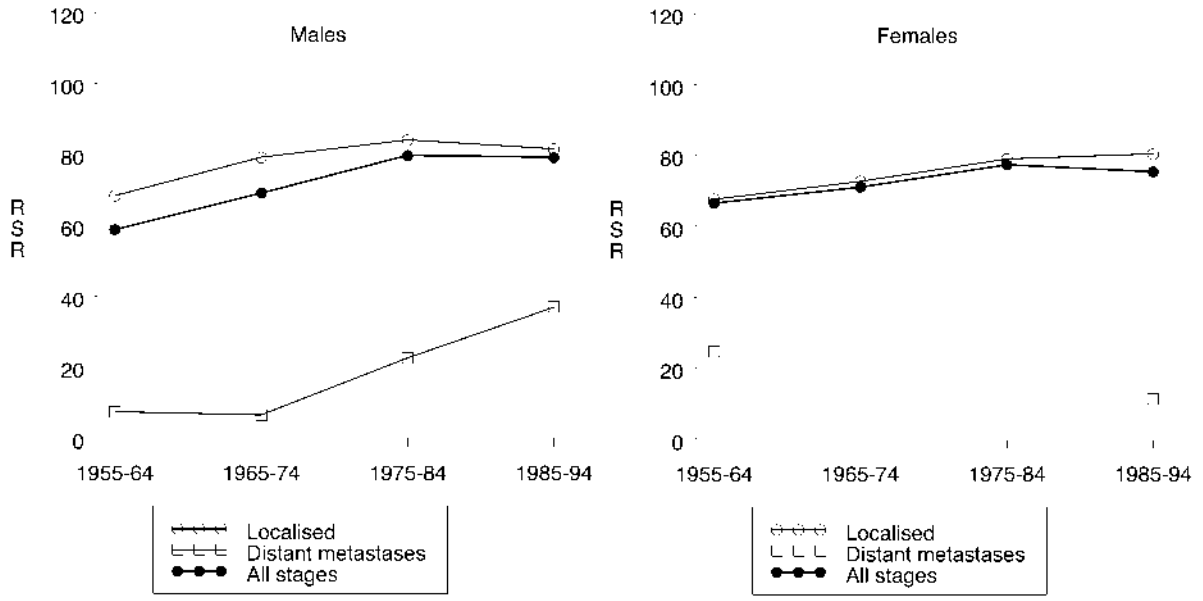

Fig. 122. Cancer of the eye 1955–1994. Five-year relative survival rates by stage and calendar period of diagnosis for males and females.

Table 46

Cancer of the eye 1985–1994. Number of cases (n) and cumulative relative survival rates at 1, 5, and 10 years subsequent to diagnosis, stratified by stage, age, and sex. For the 5-year rates, 95% confidence intervals (CI) are given

Stage	Age	Males					Females				
		n	1-year	5-year	95% CI	10-year	n	1-year	5-year	95% CI	10-year
Localized	0–14	18	100	100	·	100	15	100	100	·	100
	15–29	7	·	·	·	·	6	·	·	·	·
	30–44	32	100	99	92–102	102	23	100	96	86–101	74
	45–59	54	99	80	66–94	·	73	100	67	54–80	67
	60–74	57	102	74	54–94	·	87	102	93	82–103	76
	75+	31	97	62	25–100	·	36	102	57	29–84	·
	All	199	100	82	73–91	59	240	101	80	73–88	74
Regional metastases	0–14	0	·	·	·	·	0	·	·	·	·
	15–29	0	·	·	·	·	0	·	·	·	·
	30–44	1	·	·	·	·	0	·	·	·	·
	45–59	0	·	·	·	·	0	·	·	·	·
	60–74	2	·	·	·	·	0	·	·	·	·
	75+	1	·	·	·	·	0	·	·	·	·
	All	4	·	·	·	·	0	·	·	·	·
Distant metastases	0–14	1	·	·	·	·	0	·	·	·	·
	15–29	0	·	·	·	·	0	·	·	·	·
	30–44	1	·	·	·	·	1	·	·	·	·
	45–59	2	·	·	·	·	2	·	·	·	·
	60–74	4	·	·	·	·	4	·	·	·	·
	75+	4	·	·	·	·	5	·	·	·	·
	All	12	61	37	0–75	·	12	44	11	0–33	·
All[a]	0–14	25	100	100	·	101	16	100	100	·	100
	15–29	9	·	·	·	·	6	·	·	·	·
	30–44	36	100	89	75–102	93	30	97	93	83–101	73
	45–59	66	98	80	68–93	48	89	99	66	55–78	66
	60–74	79	98	74	58–91	84	112	100	83	72–94	71
	75+	48	84	51	22–80	·	51	94	48	24–72	·
	All	263	96	79	71–87	65	304	98	75	69–82	71

[a] 'All' includes all cases, including those with unknown stage.
A '·' indicates that the value was either not estimable or the estimate lacked precision (see Section 6.3).

Table 47

Cancer of the eye 1985–1994. Number of cases (n), 5-year cumulative relative survival rates, and 95% confidence intervals (CI) stratified by histology and age

Age	Melanoma			Retinoblastoma			No or unknown histology		
	n	RSR	95% CI	n	RSR	95% CI	n	RSR	95% CI
0–14	0	·	·	36	100	100–100	3	·	·
15–29	11	88	64–101	0	·	·	3	·	·
30–44	29	86	73–100	0	·	·	32	101	101–101
45–59	89	61	49–73	0	·	·	54	90	79–100
60–74	95	72	59–85	0	·	·	77	90	76–104
75+	55	47	25–69	0	·	·	30	60	20–100
All	279	66	59–74	36	100	100–100	199	89	80–97

Tumours of the brain and spinal cord

Summary 1985–1994	Meningioma		Malignant tumours	
	Males	Females	Males	Females
Average annual number of cases	44	125	139	118
Microscopically verified (%)	99	99	100	100
DCO cases (% excluded)	2.3	1.5	0.6	0.6
Autopsy cases (% excluded)	11.4	8.9	2.7	4.1
Mean age at diagnosis (years)	56	57	43	44
Main histological types (%)				
Glioma (incl. astrocytoma)			92	94
Ependymoma			4	4
Medulloblastoma			3	2
Relative survival rates (%)				
1-year	90	91	63	60
5-year	83	87	39	38
10-year	80	89	33	31

Separate analyses were conducted for meningiomas and for the group of malignant tumours of the brain and spinal cord. Survival rates are also presented in Table 48 for the group of patients with a diagnosed tumour of the brain and spinal cord where the histology is not known to the registry.

Meningiomas. Both intracranial and spinal meningiomas are included, of which 2% were considered to be histologically malignant. Patient survival is favourable, the 5-year RSR in 1985–1994 being 83% in males and 87% in females. Very little excess mortality due to the tumour is observable after the first follow-up year from diagnosis (i.e. after recovery from the operation) (Fig. 123). The 5-year RSR is lowest in the oldest age groups; otherwise no consistent age dependence is observable (Figs. 125 and 126, Table 48). During recent decades, a slow increase in the RSRs has taken place (Fig. 124).

Comment: Undoubtedly, there are diagnosed meningiomas that have never been reported to the Cancer Registry. In addition, undiagnosed symptomless meningiomas exist in the population. It is probable that, due to unreported tumours (with better than average survival), the survival rates reported here are somewhat underestimated.

Malignant tumours of the brain and spinal cord. Benign intracranial and spinal neoplasms (except benign gliomas) are excluded. Thus, this group consists mainly of histologically verified gliomas, ependymomas and medulloblastomas.

Malignant tumours of the brain and spinal cord have a rather unfavourable prognosis. In 1985–1994 the 5-year RSRs are 39% and 38% in males and females, respectively. Excess mortality due to cancer continues for the entire 10-year follow-up period (Fig. 127). Age is a strong prognostic factor: the older the patient, the lower the survival rate (Fig. 129, Table 48). The 5- and 10-year RSRs have improved with time (Fig. 128), particularly for patients aged below 45 years (Fig. 129).

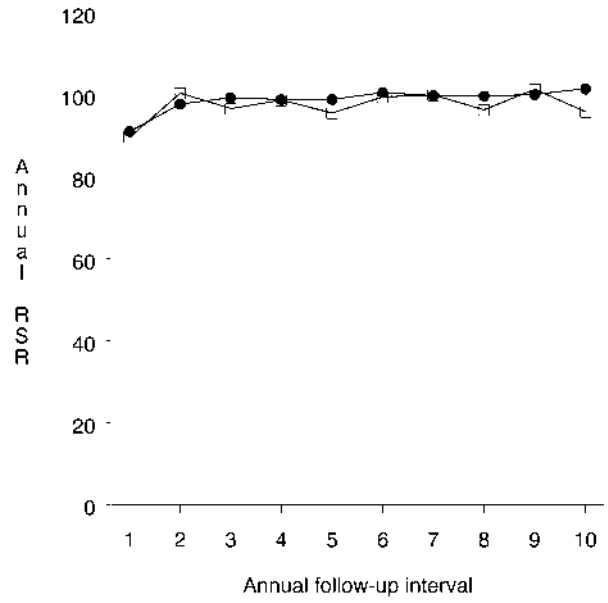

Fig. 123. Meningiomas 1985–1994. Annual (interval-specific) relative survival rates for males (□) and females (●).

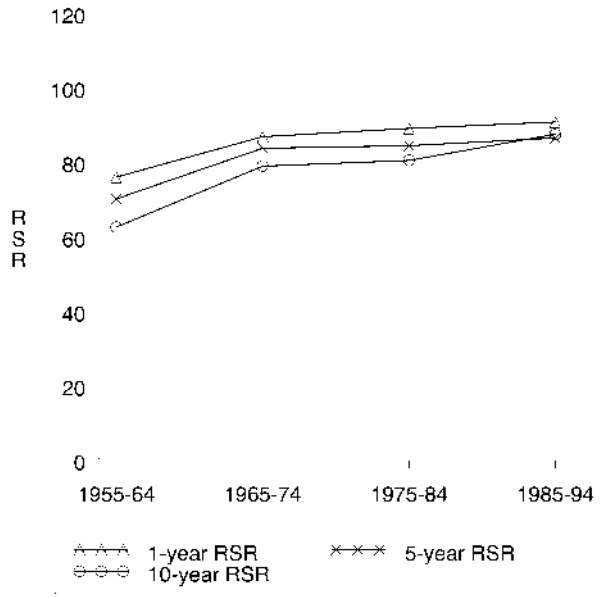

Fig. 124. Meningiomas, both sexes 1955–1994. Relative survival rates by calendar period of diagnosis.

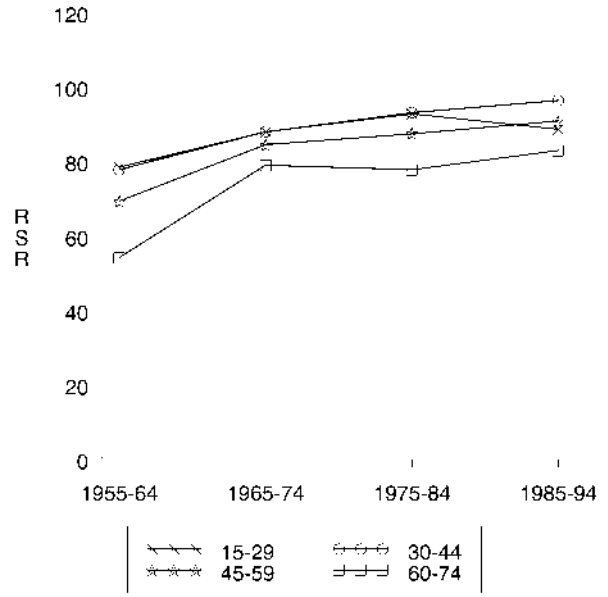

Fig. 125. Meningiomas, both sexes 1955–1994. Five-year relative survival rates by age and calendar period of diagnosis.

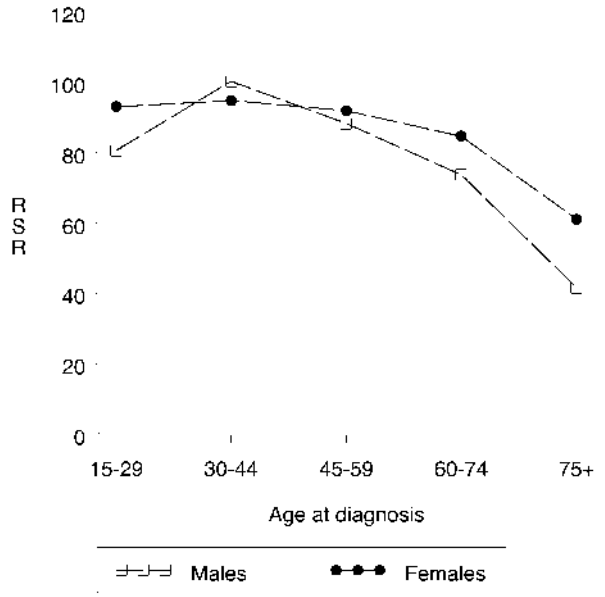

Fig. 126. Meningiomas 1985–1994. Five-year cumulative relative survival rates by sex and age.

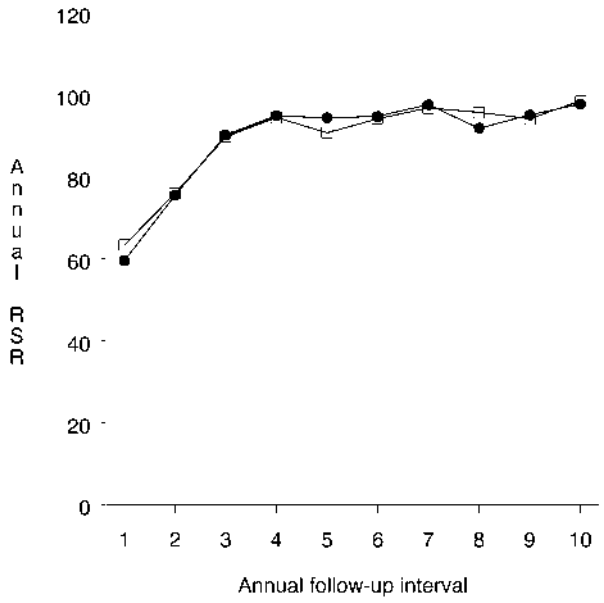

Fig. 127. Malignant tumours of the brain and spinal cord 1985–1994. Annual (interval-specific) relative survival rates for males (□) and females (●).

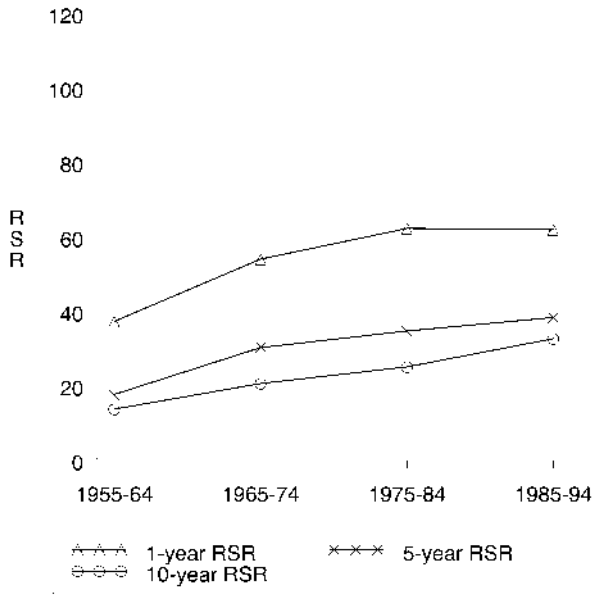

Fig. 128. Malignant tumours of the brain and spinal cord, both sexes 1955–1994. Relative survival rates by calendar period of diagnosis.

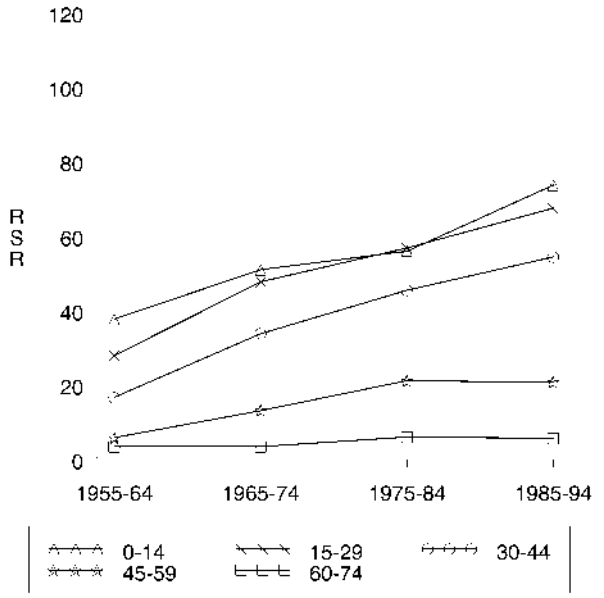

Fig. 129. Malignant tumours of the brain and spinal cord, both sexes 1955–1994. Five-year relative survival rates by age and calendar period of diagnosis.

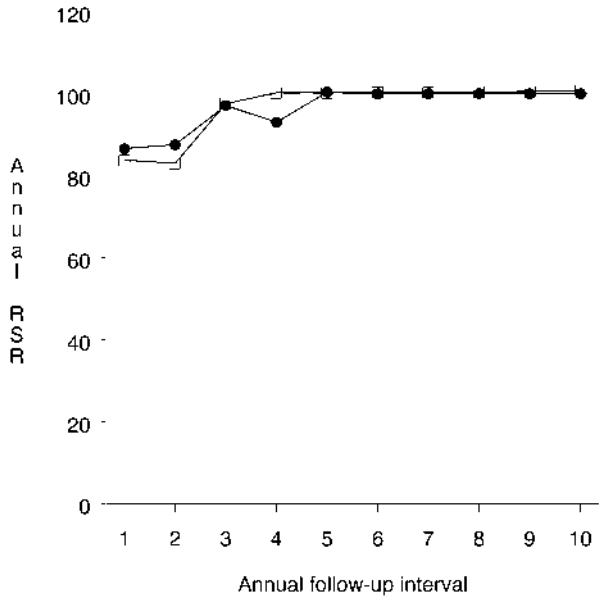

Fig. 130. Cancer of the sympathetic nervous system 1985–1994. Annual (interval-specific) relative survival rates for males (□) and females (●).

Table 48

Cancer of the brain and spinal cord 1985–94. Number of cases (n) and cumulative relative survival rates at 1, 5, and 10 years subsequent to diagnosis, stratified by histology, age, and sex. For the 5-year rates, 95% confidence intervals (CI) are given

Histology	Age	Males					Females				
		n	1-year	5-year	95% CI	10-year	n	1-year	5-year	95% CI	10-year
Malignant gliomas, ependymomas, medulloblastomas	0–14	179	88	74	67–80	73	153	84	73	66–81	65
	15–29	172	90	67	60–75	52	117	89	67	58–76	52
	30–44	296	84	52	46–59	35	250	84	56	49–63	44
	45–59	352	57	20	15–25	15	261	58	22	16–27	14
	60–74	301	26	5	2–8	·	295	24	6	3–9	·
	75+	42	13	0	·	·	49	4	3	0–9	·
	All	1 342	63	39	36–42	33	1 125	60	38	34–41	31
Meningiomas	0–14	3	·	·	·	·	1	·	·	·	·
	15–29	10	80	81	55–101	81	17	100	93	79–100	93
	30–44	69	99	100	97–102	99	190	97	95	91–98	95
	45–59	135	93	87	79–95	88	398	96	92	89–95	92
	60–74	132	84	74	62–86	56	394	90	85	80–90	85
	75+	30	81	42	11–72	·	123	65	60	46–74	92
	All	379	90	83	77–89	80	1 123	91	87	85–90	89
None or unknown	0–14	8	·	·	·	·	6	·	·	·	·
	15–29	10	70	50	19–82	·	4	·	·	·	·
	30–44	16	69	48	21–75	0	8	·	·	·	·
	45–59	34	27	0	·	·	16	44	19	0–39	·
	60–74	78	12	4	0–9	0	82	21	5	0–11	·
	75+	61	7	5	0–13	·	106	10	2	0–5	·
	All	207	23	14	8–20	·	222	22	9	5–14	·

A '·' indicates that the value was either not estimable or the estimate lacked precision (see Section 6.3).

Cancer of the sympathetic nervous system

Summary 1985–1994	Males	Females
Average annual number of cases	7	5
Microscopically verified (%)	100	100
DCO cases (% excluded)	0.0	0.0
Autopsy cases (% excluded)	0.0	2.0
Mean age at diagnosis (years)	7	17
Median age at diagnosis (years)	1	2
Main histological types (%)		
Neuroblastoma	97	98
Ganglioneuroblastoma	3	2
Relative survival rates (%)		
1-year	84	87
5-year	69	69
10-year	71	71

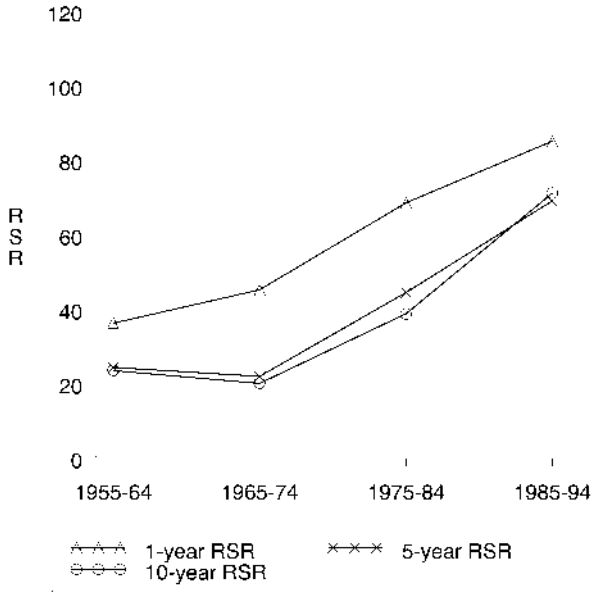

Fig. 131. Cancer of the sympathetic nervous system, both sexes 1955–1994. Relative survival rates by calendar period of diagnosis.

Cancer of the sympathetic nervous system includes neuroblastomas, ganglioneuroblastomas and ganglioneuromas. Most patients are children.

In both males and females, the 5-year RSR in 1985–1994 is 69%. From the fourth follow-up year onwards no excess mortality from the tumour is observed (Fig. 130). A substantial increase in the RSRs is observable since the 1960s (Fig. 131). This holds true for all stages (Fig. 132). Patients with a localized tumour have a much better prognosis than those with advanced cancer (Table 49).

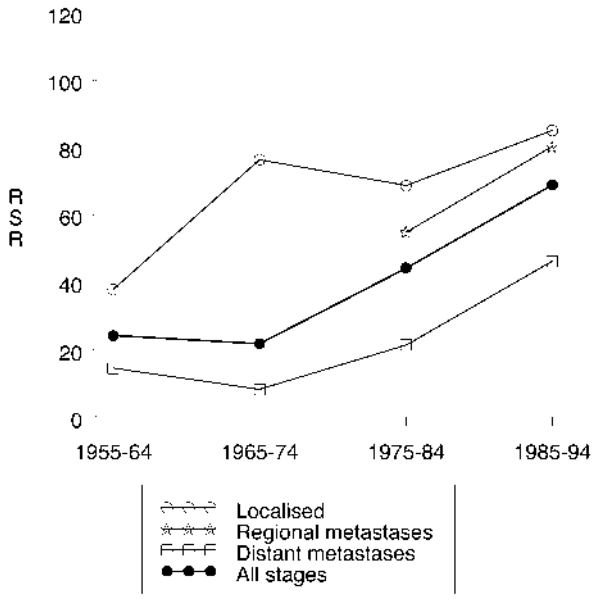

Fig. 132. Cancer of the sympathetic nervous system, both sexes 1955–1994. Five-year relative survival rates by stage and calendar period of diagnosis.

Cancer of the thyroid gland

Summary 1985–1994	Males	Females
Average annual number of cases	59	228
Microscopically verified (%)	99	99
DCO cases (% excluded)	0.3	0.2
Autopsy cases (% excluded)	6.6	2.4
Mean age at diagnosis (years)	53	52
Main histological types (%)		
Papillary carcinoma	58	73
Follicular carcinoma	15	12
Carcinoma NOS	10	6
Medullary carcinoma	6	2
None or unknown	4	3
Relative survival rates (%)		
1-year	85	90
5-year	83	88
10-year	87	90

Cancer of the thyroid gland includes occult papillary carcinomas. The two predominant histological types, papillary and follicular carcinomas, were analysed separately. The number of cases in females is by far larger than that in males.

The prognosis is good. In 1985–1994 the 5-year RSR is 83% for males and 88% for females. No excess mortality exists after the first 3 years of follow-up (Fig. 133). In both sexes, the patients in the youngest age group (15–29 years) have reached a 5-year RSR of 100%, and the survival rate is also very favourable

Table 49

Cancer of the sympathetic nervous system 1985–1994, all ages. Number of cases (n) and cumulative relative survival rates at 1, 5, and 10 years subsequent to diagnosis, stratified by stage and sex. For the 5-year rates, 95% confidence intervals (CI) are given

Stage	Males					Females				
	n	1-year	5-year	95% CI	10-year	n	1-year	5-year	95% CI	10-year
Localized	23	92	86	69–103	93	18	89	84	65–102	86
Regional metastases	7	·	·	·	·	3	·	·	·	·
Distant metastases	27	71	50	31–70	51	16	81	40	14–66	·
All[a]	66	84	69	56–81	71	50	87	69	54–84	71

[a] 'All' includes all cases, including those with unknown stage.
A '·' indicates that the value was either not estimable or the estimate lacked precision (see Section 6.3).

Table 50

Cancer of the thyroid gland 1985–1994. Number of cases (n), 5-year cumulative relative survival rates, and 95% confidence intervals (CI) stratified by histology and age

Age	Papillary carcinoma			Follicular carcinoma		
	n	RSR	95% CI	n	RSR	95% CI
0–14	11	100	100–100	1	·	·
15–29	262	100	98–100	11	100	100–100
30–44	672	100	99–101	49	92	84–100
45–59	530	100	98–101	96	90	82–98
60–74	336	93	89–98	119	75	63–86
75+	127	72	56–89	63	49	28–69
All	1 938	98	96–99	339	80	74–87

among patients aged 30–44 and 45–59 years (Fig. 135, Table 51). The survival rates have substantially increased during the study period of 40 years (Fig. 134).

Patients with papillary carcinoma of the thyroid have a better prognosis than patients with follicular carcinoma, especially elderly patients (Table 50).

Table 51

Cancer of the thyroid gland 1985–1994. Number of cases (n) and cumulative relative survival rates at 1, 5, and 10 years subsequent to diagnosis, stratified by stage, age, and sex. For the 5-year rates, 95% confidence intervals (CI) are given

Stage	Age	Males					Females				
		n	1-year	5-year	95% CI	10-year	n	1-year	5-year	95% CI	10-year
Localized	0–14	2	·	·	·	·	7	·	·	·	·
	15–29	24	100	101	·	102	155	100	100	·	101
	30–44	88	99	99	96–102	102	447	100	100	99–101	100
	45–59	83	98	98	92–105	101	381	100	100	98–102	98
	60–74	54	98	93	78–109	97	237	98	94	89–100	97
	75+	14	95	43	0–92	·	86	83	65	46–83	·
	All	265	99	96	92–101	100	1 313	98	97	96–99	98
Regional metastases	0–14	1	·	·	·	·	7	·	·	·	·
	15–29	13	100	101	·	102	41	100	96	89–100	97
	30–44	19	100	102	·	104	44	100	98	93–101	99
	45–59	19	101	94	77–106	102	20	100	97	86–102	·
	60–74	16	90	92	63–120	·	30	88	77	58–96	73
	75+	3	·	·	·	·	20	96	82	34–129	·
	All	71	97	96	87–106	98	162	97	93	87–99	90
Distant metastases	0–14	0	·	·	·	·	0	·	·	·	·
	15–29	1	·	·	·	·	10	100	100	·	101
	30–44	10	90	80	53–102	82	16	88	60	34–86	61
	45–59	13	47	26	0–56	0	26	81	44	22–66	46
	60–74	44	52	32	15–50	·	101	41	23	13–33	·
	75+	18	26	0	·	·	96	35	22	9–34	·
	All	86	52	38	24–51	·	249	49	32	25–40	·
All[a]	0–14	4	·	·	·	·	14	100	100	·	100
	15–29	43	100	101	·	102	238	100	99	98–100	99
	30–44	142	97	96	92–100	99	622	100	99	97–100	98
	45–59	153	89	87	80–94	82	554	99	96	93–98	93
	60–74	150	77	69	58–79	68	485	81	74	69–79	74
	75+	57	52	36	13–59	·	309	58	43	34–52	·
	All	549	85	83	79–88	87	2 222	90	88	86–89	90

[a] 'All' includes all cases, including those with unknown stage.

A '·' indicates that the value was either not estimable or the estimate lacked precision (see Section 6.3).

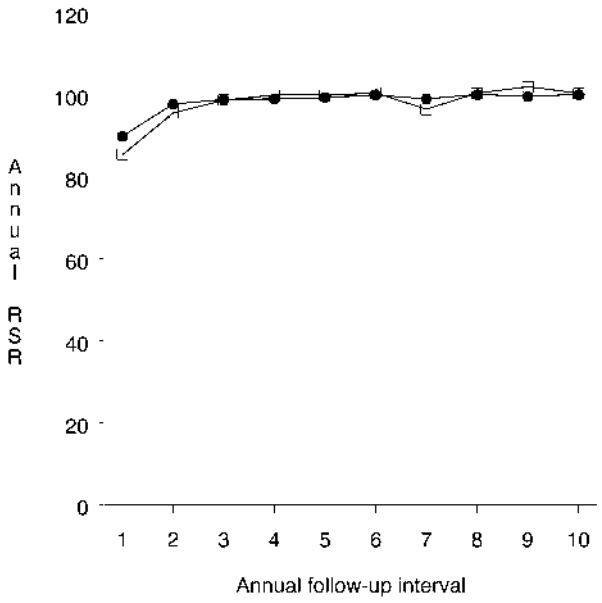

Fig. 133. Cancer of the thyroid gland 1985–1994. Annual (interval-specific) relative survival rates for males (□) and females (●).

Cancer of the bone

Summary 1985–1994	Males	Females
Average annual number of cases	22	19
Microscopically verified (%)	98	95
DCO cases (% excluded)	0.0	1.5
Autopsy cases (% excluded)	0.0	1.5
Mean age at diagnosis (years)	38	47
Main histological types (%)		
Chondrosarcoma	34	35
Osteosarcoma	29	25
Ewing's sarcoma	8	7
Ameloblastoma	6	9
Lymphoma	8	7
Relative survival rates (%)		
1-year	82	83
5-year	59	61
10-year	51	57

Analyses were performed separately for short bones (of the limbs), long bones (of the limbs), and other bones (i.e. skull, spine, sternum, scapula, clavicle, ribs and pelvis). In addition, the survival rates were estimated separately for the three predominant histological types of bone cancer: chondrosarcoma, osteosarcoma and Ewing's sarcoma.

The 5-year RSR in 1985–1994 is approximately 60% in both sexes. A slight excess mortality due to cancer is observable during almost the entire 10-year follow-up period (Fig. 136). The RSRs are lowest among the oldest age groups; otherwise the age-survival pattern is inconsistent

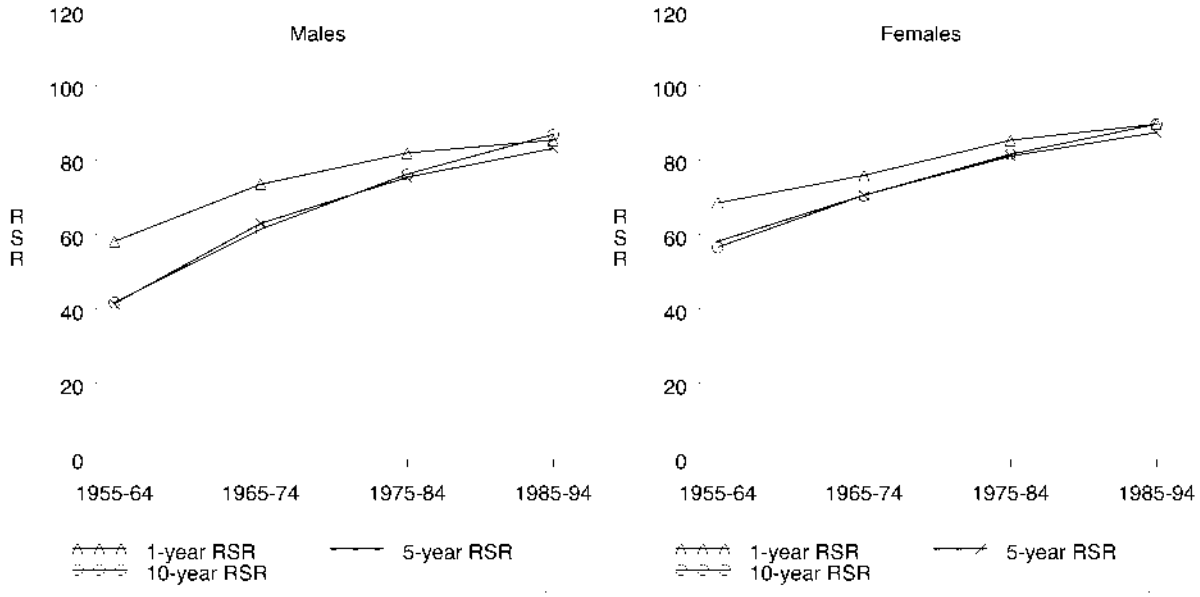

Fig. 134. Cancer of the thyroid gland 1955–1994. Relative survival rates by calendar period of diagnosis for males and females.

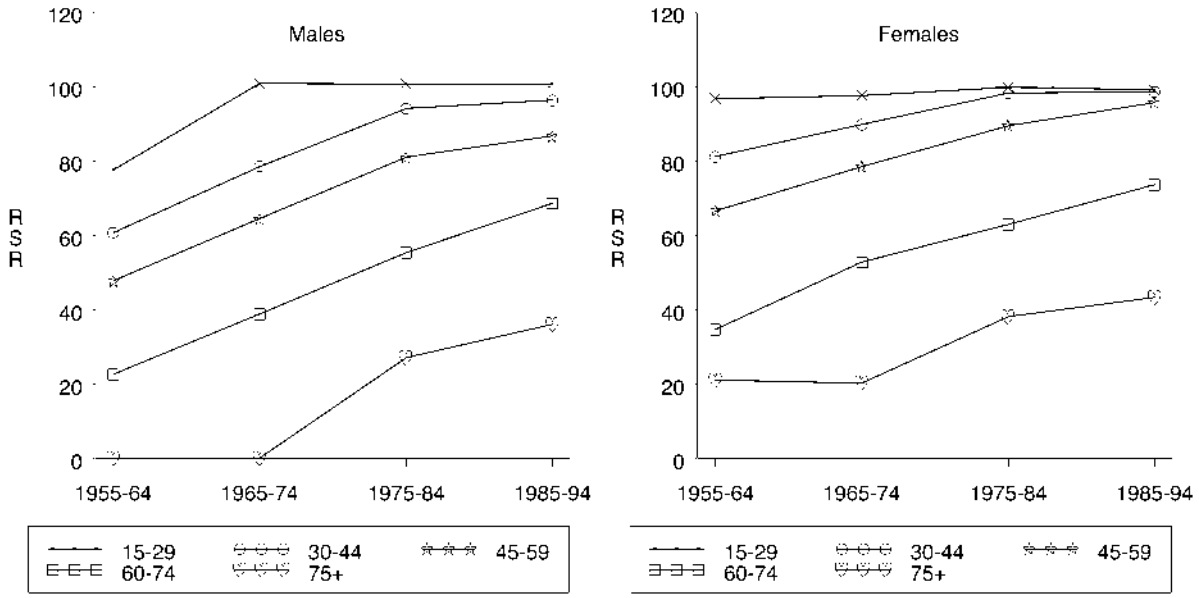

Fig. 135. Cancer of the thyroid gland 1955–1994. Five-year relative survival rates by age and calendar period of diagnosis for males and females.

(Fig. 138, Table 54). The survival rates have increased over time (Fig. 137), especially among patients diagnosed with a localized tumour (Fig. 139). Patient survival is much worse when distant metastases are present than among patients with localized disease (Fig. 139, Table 54).

If bone cancer is located in the short bones of the limbs, the 5-year RSRs are higher than for cancers in the long bones of the limbs or in other bones (Table 53). The trends with time in the 5-year RSR are different for cancers in different bones; the rate is decreasing for short bones, while it is increasing for the two other groups (Fig. 140).

Patients with chondrosarcoma have somewhat higher survival rates than those with osteosarcoma. Ewing's sarcoma carries a much worse prognosis (Table 52).

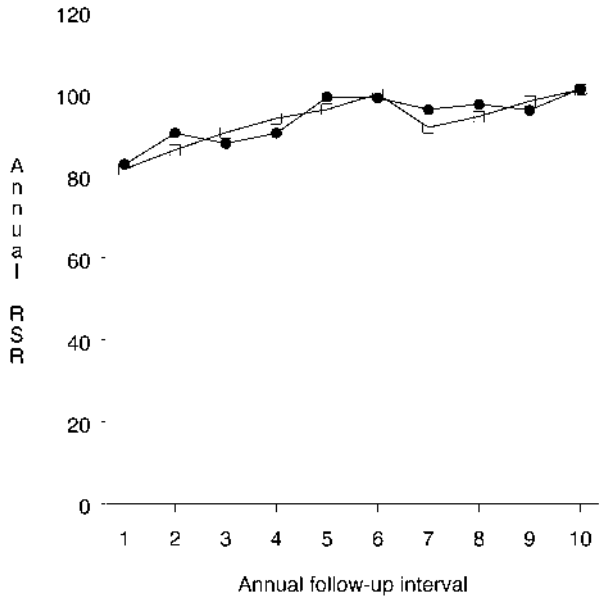

Fig. 136. Cancer of the bone 1985–1994. Annual (interval-specific) relative survival rates for males (□) and females (●).

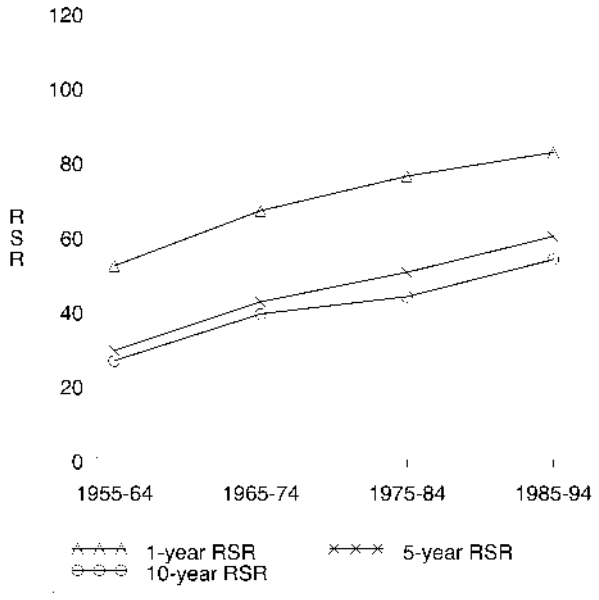

Fig. 137. Cancer of the bone, both sexes 1955–1994. Relative survival rates by calendar period of diagnosis.

Comment: The decrease in the RSR for patients with cancer of the short bones could be due to changes in the diagnostic criteria. Most (chondrous) tumours of the short bones are clinically benign, and the pathologists may have gradually refined the malignancy criteria for these lesions. This would result in changes over time in the composition of the material, an increase in the average malignancy of the tumours and lower survival rates.

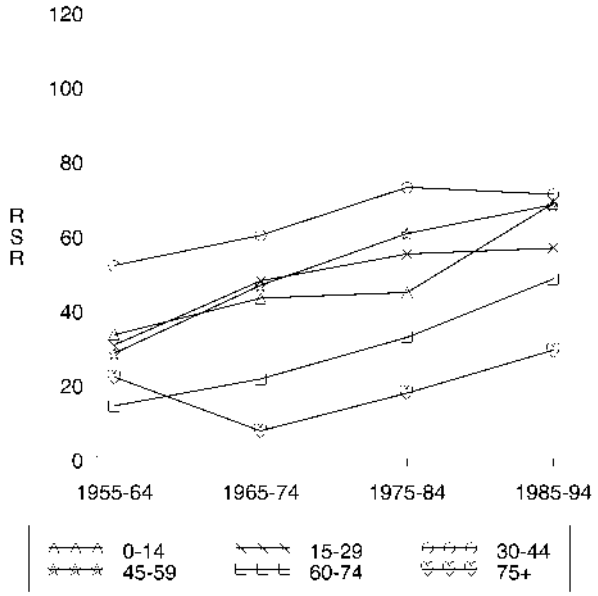

Fig. 138. Cancer of the bone, both sexes 1955–1994. Five-year relative survival rates by age and calendar period of diagnosis.

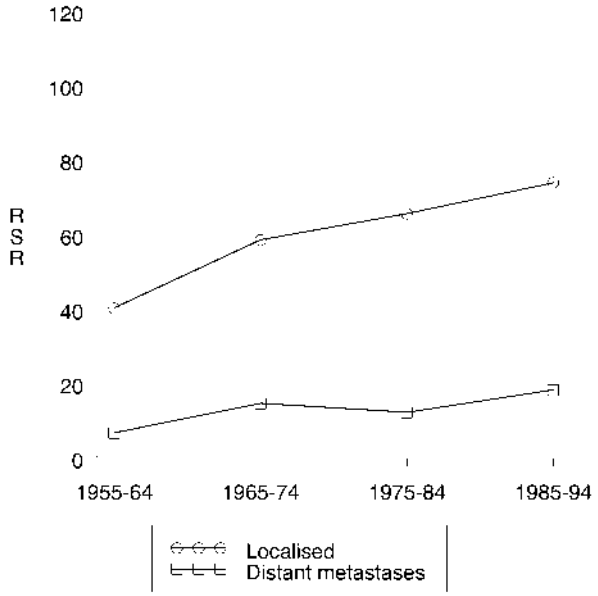

Fig. 139. Cancer of the bone, both sexes 1955–1994. Five-year relative survival rates by stage and calendar period of diagnosis.

Table 52

Cancer of the bone, both sexes 1985–1994. Number of cases (n), 5-year cumulative relative survival rates, and 95% confidence intervals (CI) stratified by histology and age

Age	Chondrosarcoma			Osteosarcoma			Ewing's sarcoma		
	n	RSR	95% CI	n	RSR	95% CI	n	RSR	95% CI
0–14	4	·	·	24	70	51–89	5	·	·
15–29	20	68	43–93	49	61	45–76	21	32	11–54
30–44	32	76	59–93	14	57	27–88	3	·	·
45–59	37	77	62–93	10	73	42–103	3	·	·
60–74	37	58	38–78	8	·	·	0	·	·
75+	11	55	5–105	7	·	·	0	·	·
All	141	69	60–79	112	57	47–68	32	38	19–57

Table 53

Cancer of the bone, both sexes 1985–1994. Number of cases (n), 5-year cumulative relative survival rates, and 95% confidence intervals (CI) stratified by subsite and age

Age	Short bones			Long bones			Other bones		
	n	RSR	95% CI	n	RSR	95% CI	n	RSR	95% CI
0–14	0	·	·	37	70	54–87	8	·	·
15–29	0	·	·	64	58	45–72	41	53	35–71
30–44	5	·	·	28	74	57–92	35	69	52–86
45–59	3	·	·	28	53	33–74	48	75	60–89
60–74	4	·	·	27	42	19–64	43	52	34–70
75+	2	·	·	14	0	0–0	22	39	7–70
All	14	73	40–107	198	57	49–65	197	61	53–70

Table 54

Cancer of the bone 1985–1994. Number of cases (n) and cumulative relative survival rates at 1, 5, and 10 years subsequent to diagnosis, stratified by stage, age, and sex. For the 5-year rates, 95% confidence intervals (CI) are given

Stage	Age	Males					Females				
		n	1-year	5-year	95% CI	10-year	n	1-year	5-year	95% CI	10-year
Localized	0–14	23	100	77	56–98	78	9	·	·	·	·
	15–29	34	94	61	43–79	48	24	100	68	48–88	68
	30–44	14	100	72	46–97	73	17	94	74	51–98	75
	45–59	24	97	86	67–104	·	21	91	85	66–102	67
	60–74	9	·	·	·	·	23	93	78	54–102	·
	75+	6	·	·	·	·	8	·	·	·	·
	All	110	96	73	63–83	62	102	95	75	64–85	66
Regional metastases	0–14	0	·	·	·	·	0	·	·	·	·
	15–29	0	·	·	·	·	0	·	·	·	·
	30–44	0	·	·	·	·	1	·	·	·	·
	45–59	0	·	·	·	·	0	·	·	·	·
	60–74	0	·	·	·	·	0	·	·	·	·
	75+	0	·	·	·	·	1	·	·	·	·
	All	0	·	·	·	·	2	·	·	·	·
Distant metastases	0–14	3	·	·	·	·	4	·	·	·	·
	15–29	14	64	22	0–46	·	5	·	·	·	·
	30–44	6	·	·	·	·	5	·	·	·	·
	45–59	8	·	·	·	·	4	·	·	·	·
	60–74	8	·	·	·	·	8	·	·	·	·
	75+	2	·	·	·	·	7	·	·	·	·
	All	41	47	8	0–21	·	33	46	26	9–43	·
All[a]	0–14	30	90	69	50–88	69	15	87	66	42–91	67
	15–29	65	89	53	39–67	45	40	95	61	44–78	61
	30–44	37	95	66	48–84	68	31	87	76	59–93	76
	45–59	43	80	65	49–82	·	36	86	71	54–88	63
	60–74	33	59	43	23–64	·	41	77	51	32–70	·
	75+	13	43	42	0–85	0	25	57	20	0–44	·
	All	221	82	59	51–67	51	188	83	61	52–69	57

[a] 'All' includes all cases, including those with unknown stage.

A '·' indicates that the value was either not estimable or the estimate lacked precision (see Section 6.3).

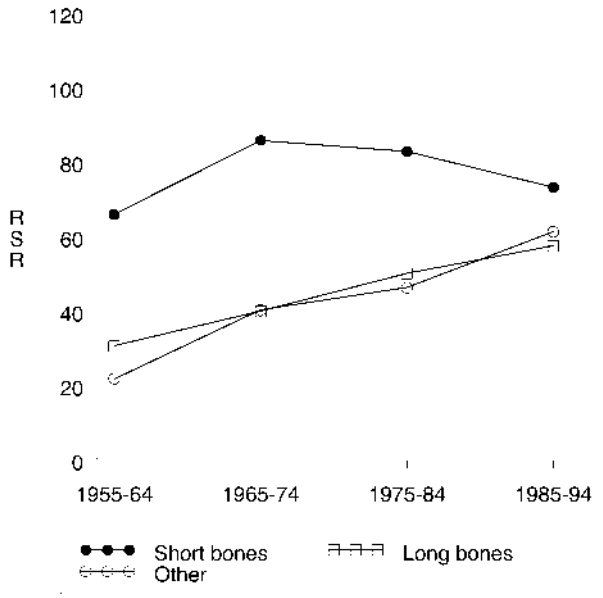

Fig. 140. Cancer of the bone, both sexes 1955–1994. Five-year relative survival rates by subsite and calendar period of diagnosis.

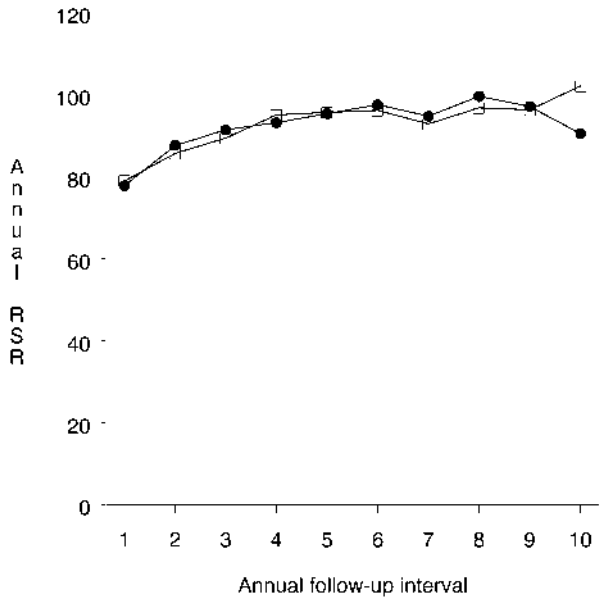

Fig. 141. Cancer of the soft tissue 1985–1994. Annual (interval-specific) relative survival rates for males (□) and females (●).

Cancer of the soft tissue

Summary 1985–1994	Males	Females
Average annual number of cases	59	66
Microscopically verified (%)	99	99
DCO cases (% excluded)	0.2	0.3
Autopsy cases (% excluded)	0.8	1.1
Mean age at diagnosis (years)	55	58
Main histological types (%)		
Fibrosarcoma/malignant fibrous histiocytoma	36	37
Liposarcoma	20	14
Sarcoma NOS	11	13
Leiomyosarcoma	11	13
Rhabdomyosarcoma	5	3
Relative survival rates (%)		
1-year	79	78
5-year	56	57
10-year	50	49

Fibrosarcoma/malignant fibrous histiocytoma, liposarcoma and leiomyosarcoma are the three most common specific histological subgroups.

In 1985–1994 the 5-year RSR is 56% for males and 57% for females. There is continuous excess mortality due to cancer during the entire 10-year follow-up period (Fig. 141). Only a modest increase with time has taken place in the RSRs (Fig. 142). This holds true for almost all age groups (Fig. 143) and for almost all stages (Fig. 144). Stage is a strong prognostic factor (Table 55). In general, the rates for old patients with advanced disease are low, but among children aged 0–14 years the outcome is relatively favourable, especially among girls (Fig. 145, Table 55).

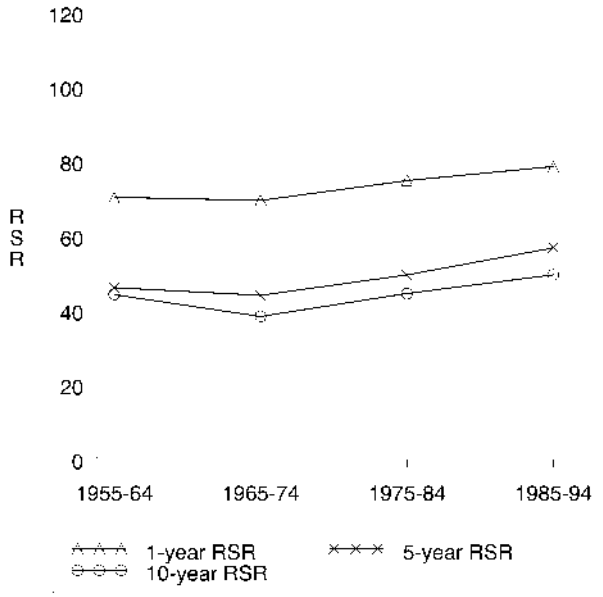

Fig. 142. Cancer of the soft tissue, both sexes 1955–1994. Relative survival rates by calendar period of diagnosis.

Table 55

Cancer of the soft tissue 1985–1994. Number of cases (n) and cumulative relative survival rates at 1, 5, and 10 years subsequent to diagnosis, stratified by stage, age, and sex. For the 5-year rates, 95% confidence intervals (CI) are given

Stage	Age	Males					Females				
		n	1-year	5-year	95% CI	10-year	n	1-year	5-year	95% CI	10-year
Localized	0–14	18	100	63	39–87	63	19	100	100	·	·
	15–29	18	100	82	62–101	83	24	100	81	64–98	82
	30–44	55	95	80	68–92	79	38	100	85	73–98	75
	45–59	50	101	79	65–93	69	43	98	73	56–89	75
	60–74	100	93	79	66–91	·	101	93	70	58–82	·
	75+	49	88	55	26–85	·	79	80	49	27–70	·
	All	290	95	76	69–83	71	304	92	73	65–80	58
Regional metastases	0–14	1	·	·	·	·	0	·	·	·	·
	15–29	0	·	·	·	·	1	·	·	·	·
	30–44	2	·	·	·	·	0	·	·	·	·
	45–59	4	·	·	·	·	2	·	·	·	·
	60–74	6	·	·	·	·	3	·	·	·	·
	75+	1	·	·	·	·	2	·	·	·	·
	All	14	58	30	2–58	·	8	·	·	·	·
Distant metastases	0–14	6	·	·	·	·	8	·	·	·	·
	15–29	10	80	20	0–46	·	12	67	17	0–38	·
	30–44	14	57	18	0–40	0	13	62	24	0–51	·
	45–59	23	35	5	0–14	·	16	56	26	3–48	·
	60–74	34	30	7	0–17	0	47	41	19	6–32	·
	75+	20	34	0	0–0	·	33	43	18	0–37	·
	All	107	45	11	4–19	0	129	52	23	14–31	25
All[a]	0–14	30	93	53	33–72	53	37	100	89	76–100	73
	15–29	40	90	66	50–82	67	50	88	63	48–78	56
	30–44	100	86	66	55–76	61	79	91	68	57–80	59
	45–59	121	79	56	45–66	50	98	86	57	46–69	59
	60–74	187	72	51	41–60	·	212	73	52	44–60	33
	75+	105	75	50	31–68	·	171	64	42	29–56	·
	All	583	79	56	51–61	50	647	78	57	52–62	49

[a] 'All' includes all cases, including those with unknown stage.
A '·' indicates that the value was either not estimable or the estimate lacked precision (see Section 6.3).

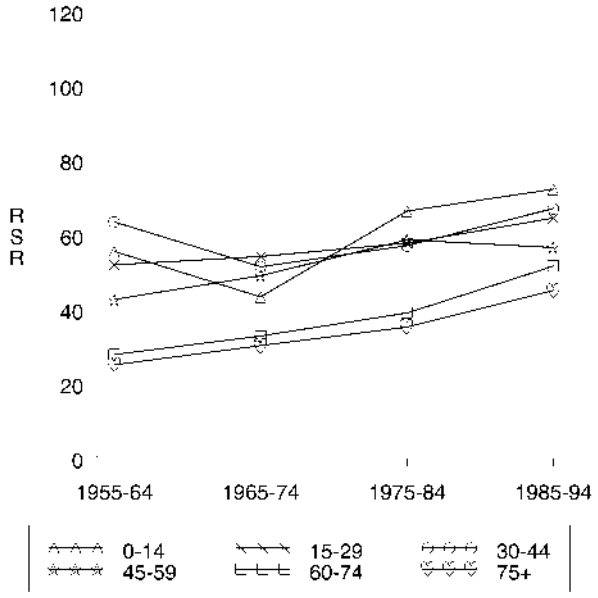

Fig. 143. Cancer of the soft tissue, both sexes 1955–1994. Five-year relative survival rates by age and calendar period of diagnosis.

Non-Hodgkin's lymphomas, nodal

Summary 1985–1994	Males	Females
Average annual number of cases	219	237
Microscopically verified (%)	99	98
DCO cases (% excluded)	0.8	0.6
Autopsy cases (% excluded)	4.0	3.8
Mean age at diagnosis (years)	59	65
Relative survival rates (%)		
1-year	70	67
5-year	47	47
10-year	38	38

This section presents the results for non-Hodgkin's lymphomas which originated in the lymph nodes. A separate analysis was conducted for lymphomas originating in organs other than lymph nodes, which is reported in the next section.

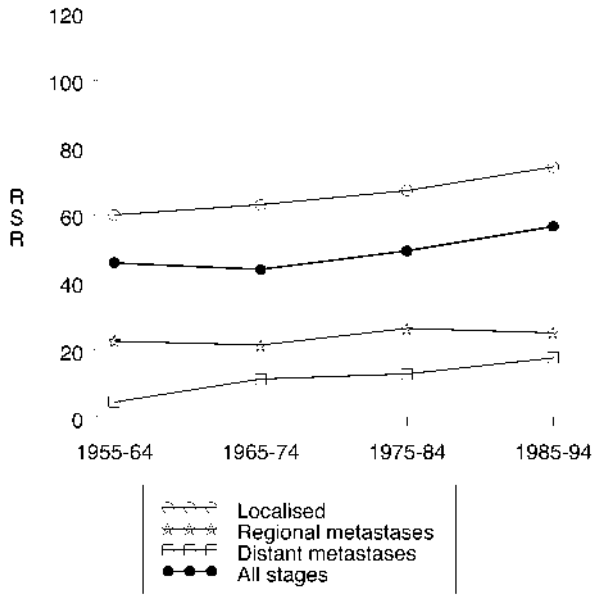

Fig. 144. Cancer of the soft tissue, both sexes 1955–1994. Five-year relative survival rates by stage and calendar period of diagnosis.

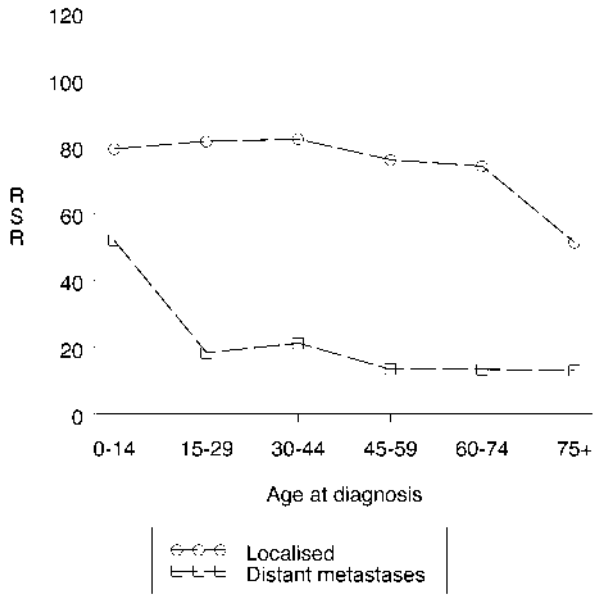

Fig. 145. Cancer of the soft tissue, both sexes 1985–1994. Five-year relative survival rates by stage and age.

No difference exists in 1985–1994 between males and females in the 5-year RSR, which is 47%. Excess mortality due to cancer exists throughout the 10-year follow-up period (Fig. 146). Patient survival has consistently improved over time since the 1970s (Figs. 147 and 149). This increase has been more pronounced among children aged 0–14 years and has already reached 100% for localized tumours in this age group (Fig. 150, Table 56). On the other hand, only a slight improvement is observable among the oldest patients aged 75+ years (Fig. 148). Among these elderly patients, those with metastasized disease have a rather poor prognosis (Fig. 150).

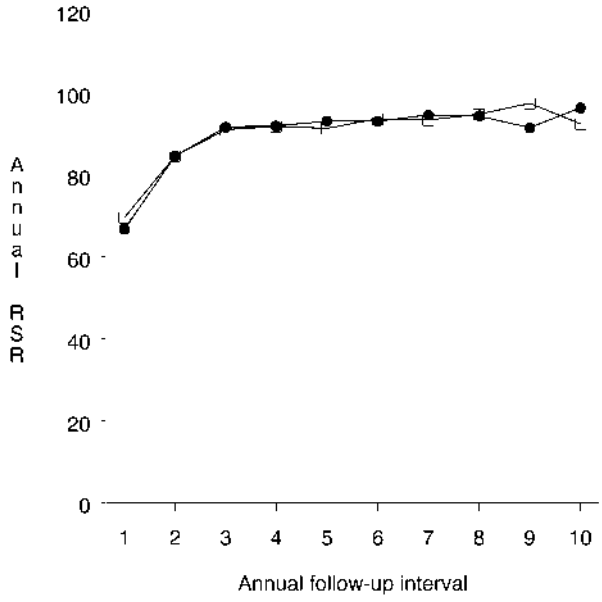

Fig. 146. Non-Hodgkin's lymphomas, nodal 1985–1994. Annual (interval-specific) relative survival rates for males (□) and females (●).

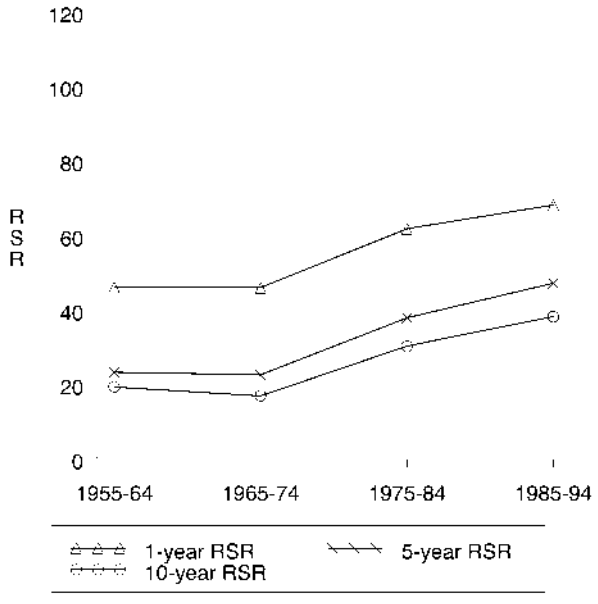

Fig. 147. Non-Hodgkin's lymphomas, nodal, both sexes 1955–1994. Relative survival rates by calendar period of diagnosis.

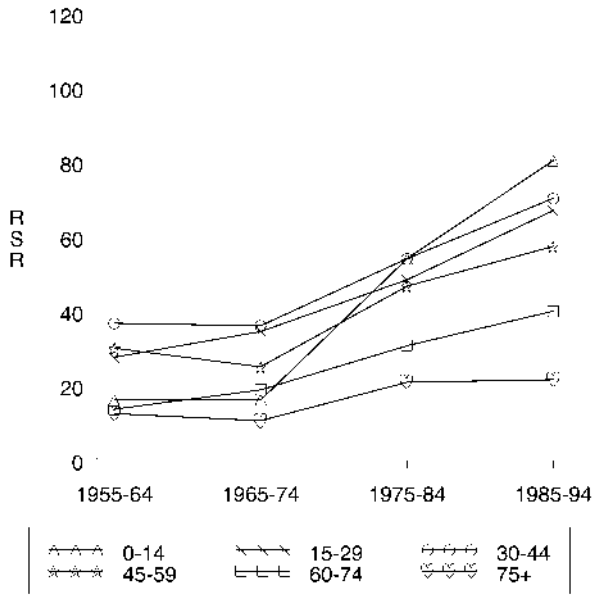

Fig. 148. Non-Hodgkin's lymphomas, nodal, both sexes 1955–1994. Five-year relative survival rates by age and calendar period of diagnosis.

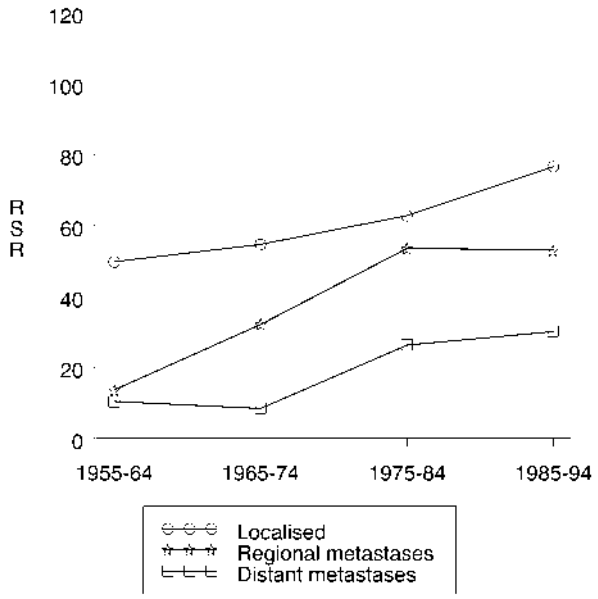

Fig. 149. Non-Hodgkin's lymphomas, nodal, both sexes 1955–1994. Five-year relative survival rates by stage and calendar period of diagnosis.

Table 56

Non-Hodgkin's lymphomas, nodal 1985–1994. Number of cases (n) and cumulative relative survival rates at 1, 5, and 10 years subsequent to diagnosis, stratified by stage, age, and sex. For the 5-year rates, 95% confidence intervals (CI) are given

Stage	Age	Males					Females				
		n	1-year	5-year	95% CI	10-year	n	1-year	5-year	95% CI	10-year
Localized	0–14	10	100	100	·	100	2	·	·	·	·
	15–29	14	93	85	64–101	85	12	100	92	76–100	92
	30–44	37	92	91	80–101	·	27	96	91	78–101	77
	45–59	68	89	77	64–90	69	50	98	96	89–102	94
	60–74	72	95	71	55–88	·	99	86	69	57–82	60
	75+	39	78	55	26–85	·	79	78	59	39–79	0
	All	240	90	77	68–85	61	269	88	77	69–84	66
Regional metastases	0–14	7	·	·	·	·	4	·	·	·	·
	15–29	5	·	·	·	·	3	·	·	·	·
	30–44	12	100	93	76–102	76	8	·	·	·	·
	45–59	21	86	61	36–85	·	10	90	92	73–103	·
	60–74	19	66	31	5–56	·	25	69	49	22–75	·
	75+	16	69	0	0–0	·	28	70	32	5–60	·
	All	80	81	54	40–68	43	78	76	52	36–68	·
Distant metastases	0–14	17	71	71	49–93	71	11	73	73	46–100	73
	15–29	21	81	37	14–60	·	7	·	·	·	·
	30–44	71	79	47	34–60	38	54	76	51	36–65	·
	45–59	132	73	32	23–42	24	105	74	44	33–55	29
	60–74	220	51	22	15–29	22	233	52	28	22–35	23
	75+	128	34	9	1–17	·	193	25	10	4–16	·
	All	589	58	29	24–34	28	603	51	31	26–35	23
All[a]	0–14	49	88	82	70–94	82	21	76	76	58–95	76
	15–29	78	81	59	47–71	57	58	90	78	66–89	74
	30–44	272	88	68	62–75	53	216	90	72	66–79	60
	45–59	559	81	54	49–60	33	417	84	61	55–66	43
	60–74	733	63	37	32–42	28	838	68	42	38–46	33
	75+	398	46	16	10–23	·	717	45	24	19–29	·
	All	2 089	70	47	44–50	38	2 267	67	47	44–50	38

[a] 'All' includes all cases, including those with unknown stage.

A '·' indicates that the value was either not estimable or the estimate lacked precision (see Section 6.3).

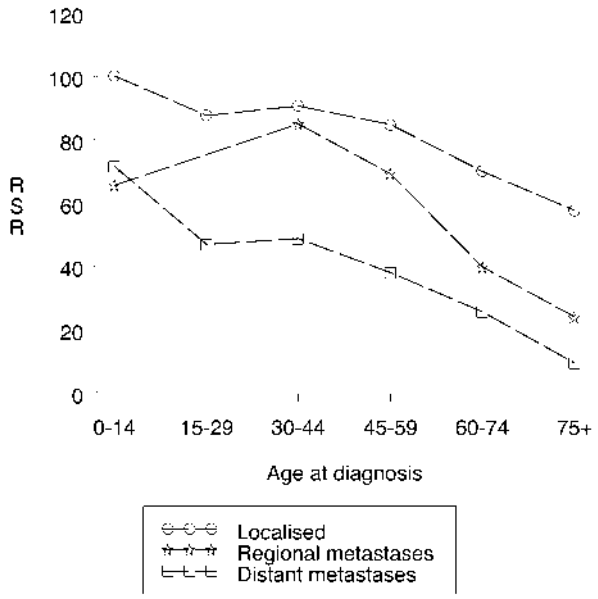

Fig. 150. Non-Hodgkin's lymphomas, nodal, both sexes 1985–1994. Five-year relative survival rates by stage and age.

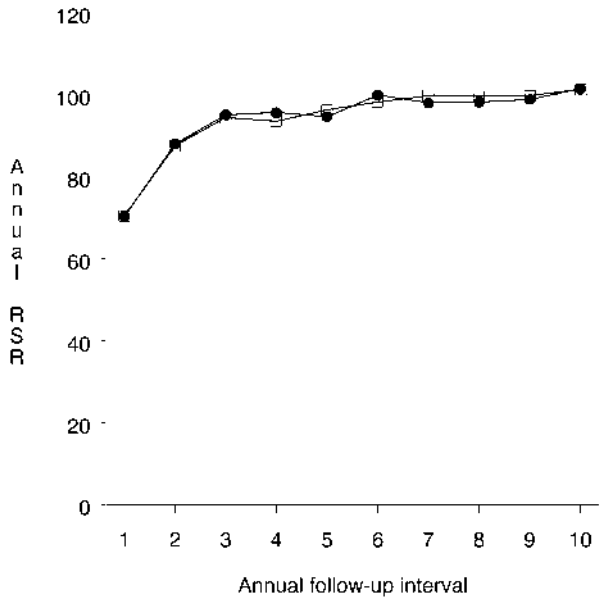

Fig. 151. Non-Hodgkin's lymphomas, extra-nodal 1985–1994. Annual (interval-specific) relative survival rates for males (□) and females (●).

Non-Hodgkin's lymphomas, extra-nodal

Summary 1985–1994	Males	Females
Average annual number of cases	98	108
Microscopically verified (%)	100	100
DCO cases (% excluded)	0.0	0.0
Autopsy cases (% excluded)	2.3	2.7
Mean age at diagnosis (years)	61	66
Relative survival rates (%)		
1-year	71	70
5-year	55	55
10-year	57	56

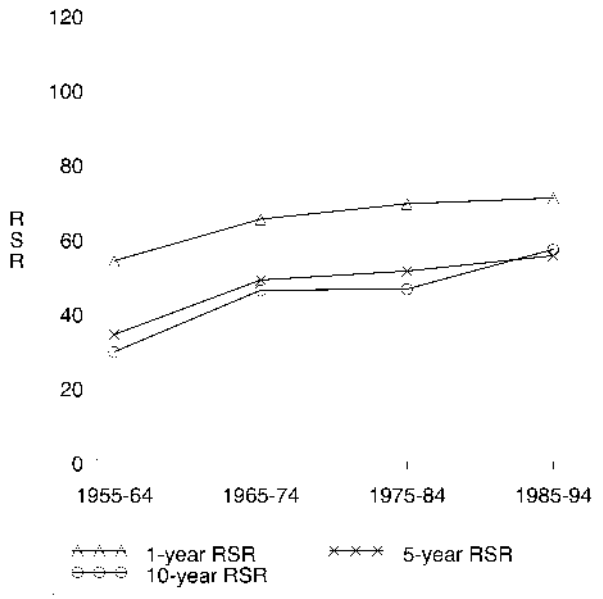

Fig. 152. Non-Hodgkin's lymphomas, extra-nodal, both sexes 1955–1994. Relative survival rates by calendar period of diagnosis.

In this section, patients with non-Hodgkin's lymphomas originating in organs other than lymph nodes are grouped together and analysed separately. These patients have also been included in cancers of the respective organs of origin. A separate analysis was conducted for lymphomas originating in the lymph nodes, which is reported in the previous section.

The survival of patients with extra-nodal non-Hodgkin's lymphoma is better than that of patients with nodal non-Hodgkin's lymphoma, the 5-year RSRs in 1985–1994 being 55% and 47%, respectively, with no difference between the sexes. No excess mortality due to cancer exists after 5 years of follow-up (Fig. 151). An increase is observable in the 5-year RSR with time, particularly in patients aged below 30 years at diagnosis (Figs. 152 and 153). In general, younger

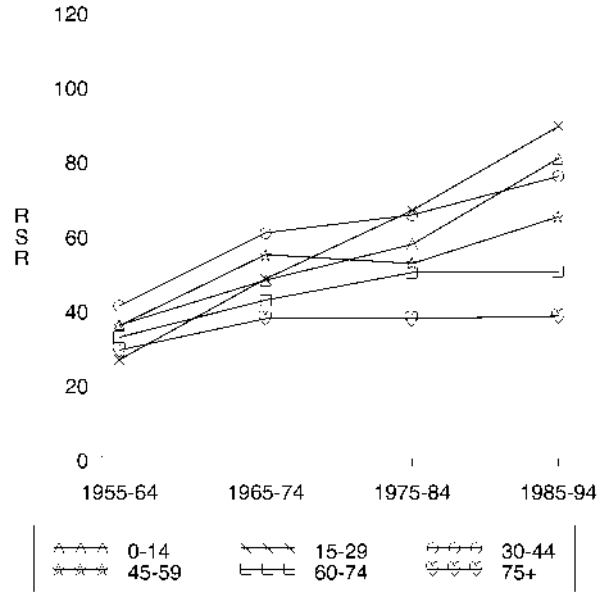

Fig. 153. Non-Hodgkin's lymphomas, extra-nodal, both sexes 1955–1994. Five-year relative survival rates by age and calendar period of diagnosis.

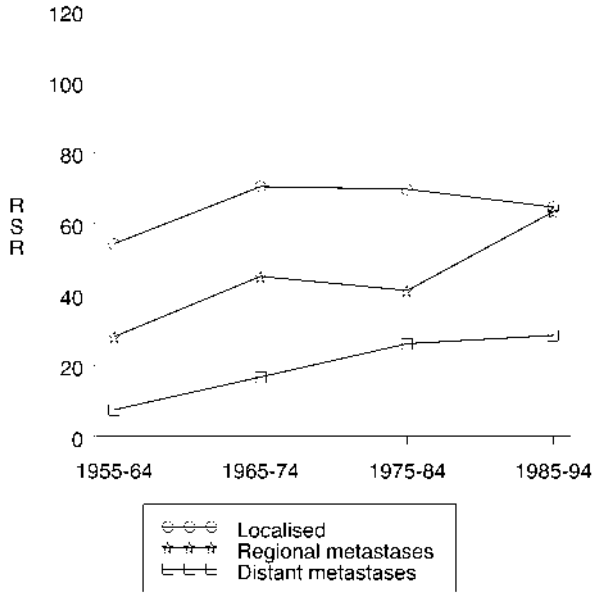

Fig. 154. Non-Hodgkin's lymphomas, extra-nodal, both sexes 1955–1994. Five-year relative survival rates by stage and calendar period of diagnosis.

Table 57

Non-Hodgkin's lymphomas, extra-nodal 1985–1994. Number of cases (n) and cumulative relative survival rates at 1, 5, and 10 years subsequent to diagnosis, stratified by stage, age, and sex. For the 5-year rates, 95% confidence intervals (CI) are given

Stage	Age	Males					Females				
		n	1-year	5-year	95% CI	10-year	n	1-year	5-year	95% CI	10-year
Localized	0–14	9	·	·	·	·	3	·	·	·	·
	15–29	13	100	101	·	101	7	·	·	·	·
	30–44	29	93	88	74–101	90	34	85	78	63–94	79
	45–59	86	92	68	56–81	73	68	90	69	56–82	67
	60–74	146	75	54	43–66	48	164	79	62	53–71	68
	75+	56	68	46	22–70	·	109	71	56	39–72	·
	All	339	81	65	57–72	70	385	80	65	58–71	66
Regional metastases	0–14	0	·	·	·	·	0	·	·	·	·
	15–29	2	·	·	·	·	4	·	·	·	·
	30–44	5	·	·	·	·	7	·	·	·	·
	45–59	25	81	80	62–99	87	6	·	·	·	·
	60–74	15	69	52	18–87	·	37	77	52	32–72	·
	75+	10	88	19	0–54	·	30	79	73	41–105	0
	All	57	78	60	44–76	70	84	83	65	51–80	52
Distant metastases	0–14	1	·	·	·	·	3	·	·	·	·
	15–29	5	·	·	·	·	2	·	·	·	·
	30–44	19	58	42	18–65	·	6	·	·	·	·
	45–59	37	66	32	14–49	·	18	84	41	14–68	·
	60–74	82	48	24	12–35	0	95	50	28	18–39	·
	75+	40	25	13	0–30	·	69	30	16	4–28	·
	All	184	49	28	20–37	·	193	48	29	21–37	·
All[a]	0–14	14	86	78	55–100	78	7	·	·	·	·
	15–29	29	90	90	79–101	91	24	92	88	74–100	88
	30–44	89	87	77	67–87	79	69	84	74	63–85	65
	45–59	235	80	61	54–69	61	166	90	69	61–78	68
	60–74	398	67	47	41–54	43	431	72	52	46–58	55
	75+	196	52	31	19–43	·	356	54	41	33–49	·
	All	961	71	55	50–59	57	1 053	70	55	51–59	56

[a] 'All' includes all cases, including those with unknown stage.

A '·' indicates that the value was either not estimable or the estimate lacked precision (see Section 6.3).

patients experience a better survival than older patients during the last decade (Fig. 153, Table 57).

Relative survival is worst among patients with advanced cancer (Fig. 154). During the most recent decade, almost no difference in survival is found between patients with localized cancer and those with regional metastases (Fig. 154).

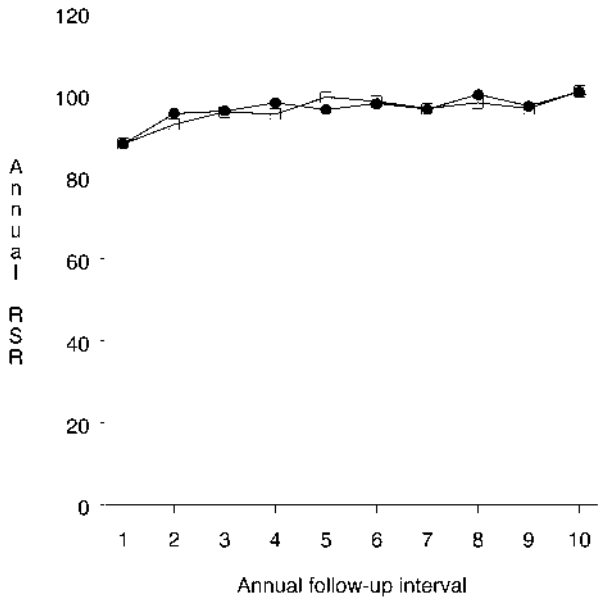

Fig. 155. Hodgkin's disease 1985–1994. Annual (interval-specific) relative survival rates for males (□) and females (●).

Hodgkin's disease

Summary 1985–1994	Males	Females
Average annual number of cases	67	55
Microscopically verified (%)	100	100
DCO cases (% excluded)	0.3	0.4
Autopsy cases (% excluded)	1.9	3.5
Mean age at diagnosis (years)	42	44
Relative survival rates (%)		
1-year	88	88
5-year	77	79
10-year	74	77

Male and female patients with Hodgkin's disease have an almost equal 5-year RSR, 77% and 79%, respectively. There is a slight excess mortality during the entire 10-year follow-up period (Fig. 155). Patient survival has increased markedly with time (Fig. 156), an increase that has occurred among all age groups (Fig. 157) and all stages (Fig. 158). A consistent association between age and prognosis is seen: the older the patients, the lower the survival rates (Fig. 157). Among children and young adults, the overall 5-year RSR is now higher than 90% (Table 58).

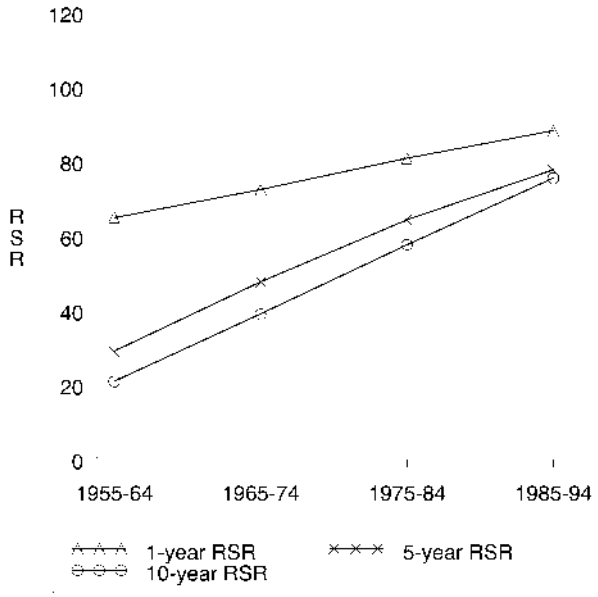

Fig. 156. Hodgkin's disease, both sexes 1955–1994. Relative survival rates by calendar period of diagnosis.

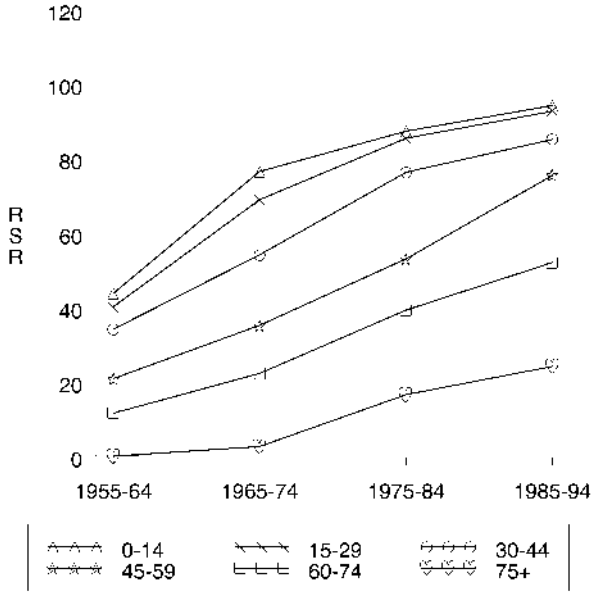

Fig. 157. Hodgkin's disease, both sexes 1955–1994. Five-year relative survival rates by age and calendar period of diagnosis.

Table 58

Hodgkin's disease 1985–1994. Number of cases (n) and cumulative relative survival rates at 1, 5, and 10 years subsequent to diagnosis, stratified by stage, age, and sex. For the 5-year rates, 95% confidence intervals (CI) are given

Stage	Age	Males					Females				
		n	1-year	5-year	95% CI	10-year	n	1-year	5-year	95% CI	10-year
Localized	0–14	6	·	·	·	·	4	·	·	·	·
	15–29	22	100	101	·	95	21	100	100	·	100
	30–44	30	100	98	90–102	92	22	100	101	·	101
	45–59	19	101	93	75–106	·	17	100	96	82–102	90
	60–74	18	98	76	45–107	·	12	93	71	37–106	·
	75+	4	·	·	·	·	18	78	56	17–94	·
	All	99	97	93	85–101	87	94	94	89	80–98	89
Regional metastases	0–14	4	·	·	·	·	3	·	·	·	·
	15–29	11	100	101	·	102	12	100	100	·	101
	30–44	10	90	68	36–100	70	7	·	·	·	·
	45-59	7	·	·	·	·	4	·	·	·	·
	60–74	3	·	·	·	·	5	·	·	·	·
	75+	4	·	·	·	·	4	·	·	·	·
	All	39	89	74	58–91	80	35	95	86	70–102	92
Distant metastases	0–14	9	·	·	·	·	3	·	·	·	·
	15–29	22	100	76	57–95	77	17	100	93	80–100	94
	30–44	37	84	69	52–85	71	28	93	73	55–91	73
	45–59	22	92	73	51–95	79	16	75	59	32–87	·
	60–74	19	44	13	0–31	·	15	54	48	18–79	·
	75+	11	21	0	·	·	14	15	11	0–31	·
	All	120	78	62	51–72	70	93	74	64	53–76	69
All[a]	0–14	31	100	97	90–100	97	22	95	91	78–100	·
	15–29	159	98	89	84–95	80	150	99	97	93–100	90
	30–44	196	94	82	76–89	82	124	98	90	83–96	89
	45–59	118	90	77	67–86	64	77	91	74	63–86	72
	60–74	103	77	51	38–64	·	75	76	53	39–67	45
	75+	46	34	9	0–23	0	77	52	32	16–48	·
	All	653	88	77	72–81	74	525	88	79	74–83	77

[a] 'All' includes all cases, including those with unknown stage.
A '·' indicates that the value was either not estimable or the estimate lacked precision (see Section 6.3).

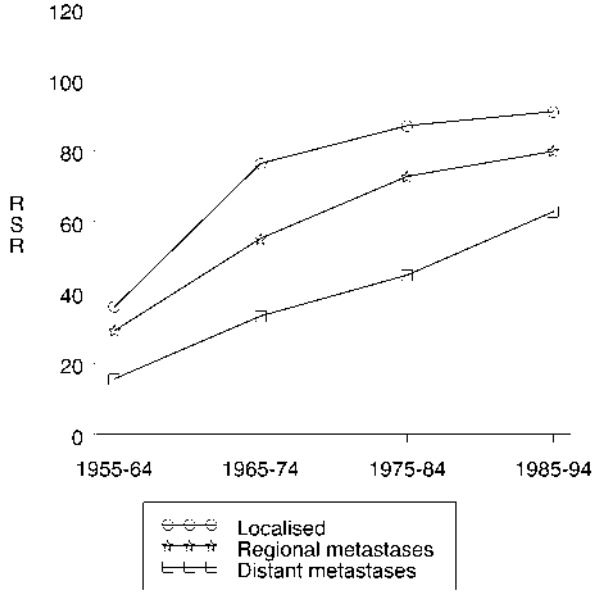

Fig. 158. Hodgkin's disease, both sexes 1955–1994. Five-year relative survival rates by stage and calendar period of diagnosis.

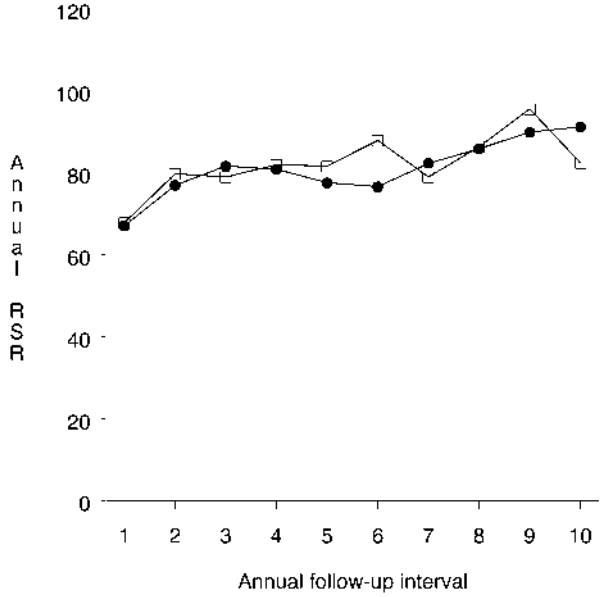

Fig. 159. Multiple myeloma 1985–1994. Annual (interval-specific) relative survival rates for males (□) and females (●).

Multiple myeloma

Summary 1985–1994	Males	Females
Average annual number of cases	112	134
Microscopically verified (%)	80	78
DCO cases (% excluded)	2.7	3.1
Autopsy cases (% excluded)	2.0	2.0
Mean age at diagnosis (years)	68	71
Relative survival rates (%)		
1-year	68	67
5-year	30	28
10-year	16	14

The prognosis of patients with multiple myeloma is rather poor, the 5-year RSR being only 30% in males and 28% in females in 1985–1994. There is a clear excess mortality due to cancer during the entire 10-year follow-up period (Fig. 159). The favourable time trends in the survival rates that occurred earlier have not continued into the 1980s and 1990s (Fig. 160); the curves for each of the age groups show similar patterns (Fig. 161). The 5-year RSRs are higher among younger patients than among the older ones (Fig. 161, Table 59).

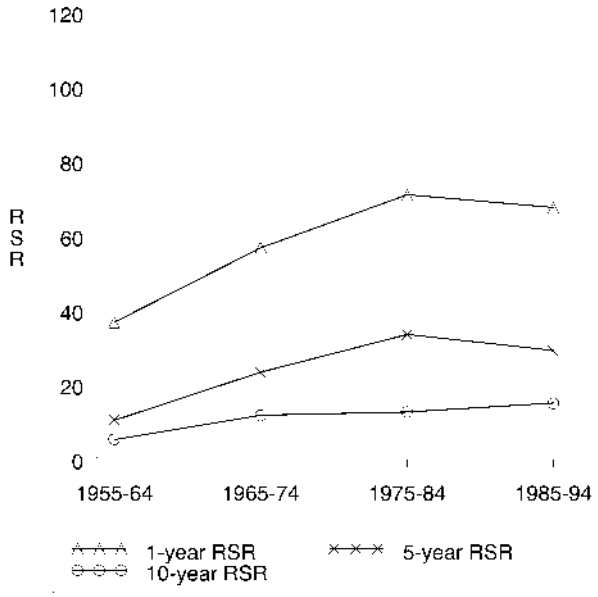

Fig. 160. Multiple myeloma 1955–1994. Relative survival rates by calendar period of diagnosis.

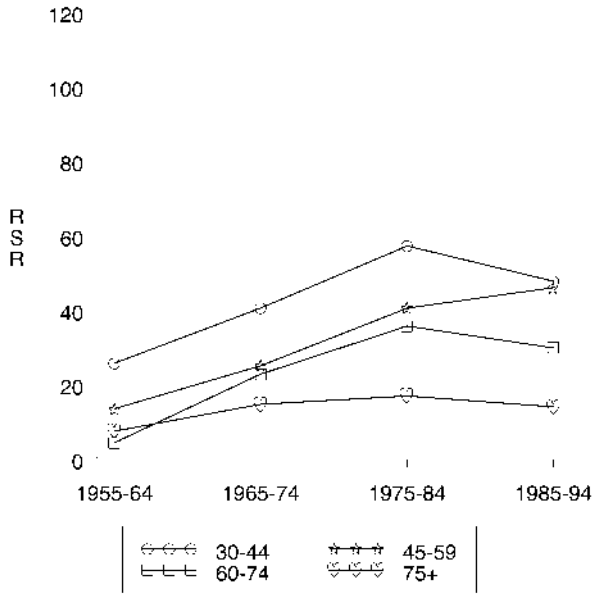

Fig. 161. Multiple myeloma 1955–1994. Five-year relative survival rates by age and calendar period of diagnosis.

Table 59

Multiple myeloma 1985–1994. Number of cases (n) and cumulative relative survival rates at 1, 5, and 10 years subsequent to diagnosis, stratified by age, and sex

Age	Males					Females				
	n	1-year	5-year	95% CI	10-year	n	1-year	5-year	95% CI	10-year
0–14	0	·	·	·	·	0	·	·	·	·
15–29	3	·	·	·	·	0	·	·	·	·
30–44	35	92	51	32–71	·	29	90	43	22–64	44
45–59	200	85	49	40–57	25	155	84	42	33–52	21
60–74	492	70	26	21–31	·	562	76	33	28–38	15
75+	339	50	16	9–23	·	520	50	13	8–17	·
All	1 069	68	30	27–34	16	1 266	67	28	25–31	14

A '·' indicates that the value was either not estimable or the estimate lacked precision (see Section 6.3).

Leukaemia

Summary 1985–1994	Males	Females
Average annual number of cases	228	212
Microscopically verified (%)	98	97
DCO cases (% excluded)	2.8	3.9
Autopsy cases (% excluded)	2.5	2.5
Mean age at diagnosis (years)	57	59
Main histological types (%)		
CLL	33	27
AML	26	32
ALL	18	18
Leukaemia, other	11	13
CML	11	10
Relative survival rates (%)		
1-year	64	60
5-year	40	38
10-year	28	30

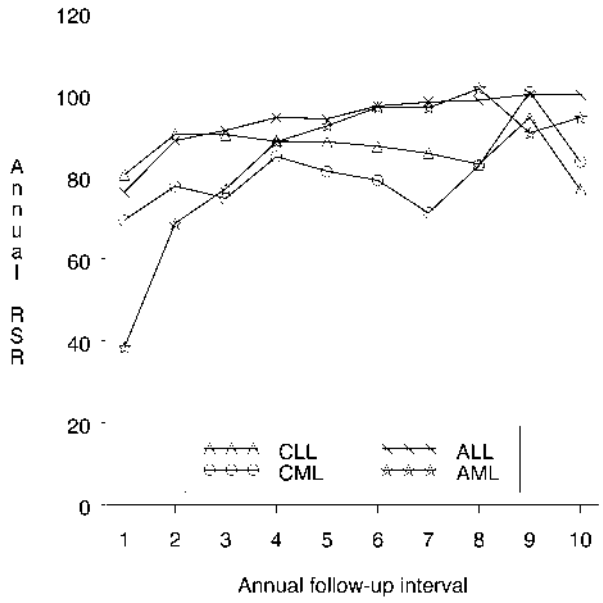

Fig. 162. Leukaemia 1985–1994. Annual (interval-specific) relative survival rates by cell type.

Patients with leukaemia were first analysed as a single group. In addition, analyses were performed separately for the four main types of leukaemia: acute lymphatic (ALL), acute myeloid (AML), chronic lymphatic (CLL), chronic myeloid (CML) and the rest ('leukaemia, other').

Leukaemia causes excess mortality due to cancer for at least 10 years after diagnosis (Fig. 162). An increase in the survival rate is observable over time (Fig. 163). This is especially true for children, among whom the improvement in prognosis is remarkable and distinctly faster than that in the other age groups (Fig. 164). In 1985–1994 the 5-year RSR is highest for ALL (55% for males and 59% for females) and CLL (53% for males and 54% for females) (Table 60). Much lower rates are observable for AML (19% in males

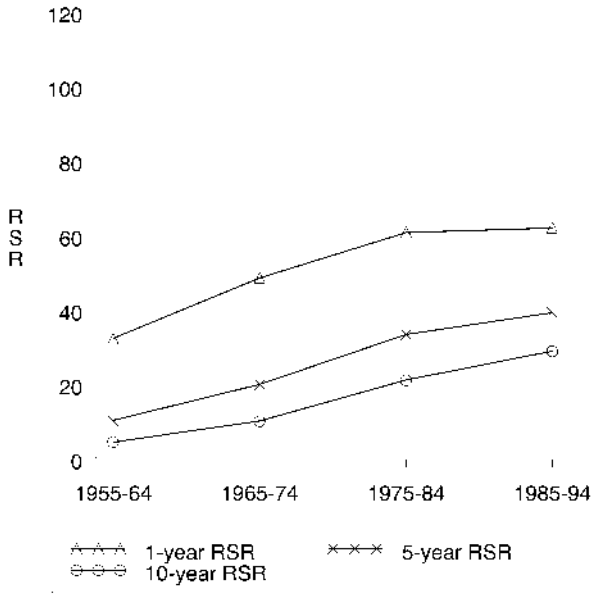

Fig. 163. Leukaemia, both sexes 1955–1994. Relative survival rates by calendar period of diagnosis.

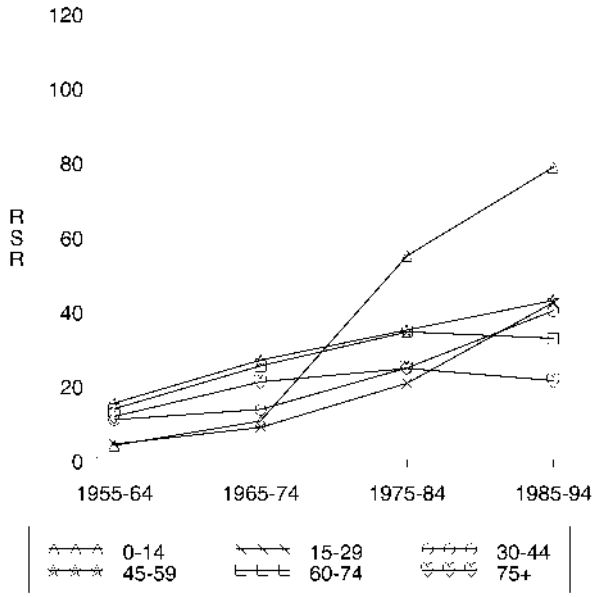

Fig. 164. Leukaemia, both sexes 1955–1994. Five-year relative survival rates by age and calendar period of diagnosis.

and 18% in females). Within all four specific types of leukaemia, the survival is worse when the patients are older (Fig. 165).

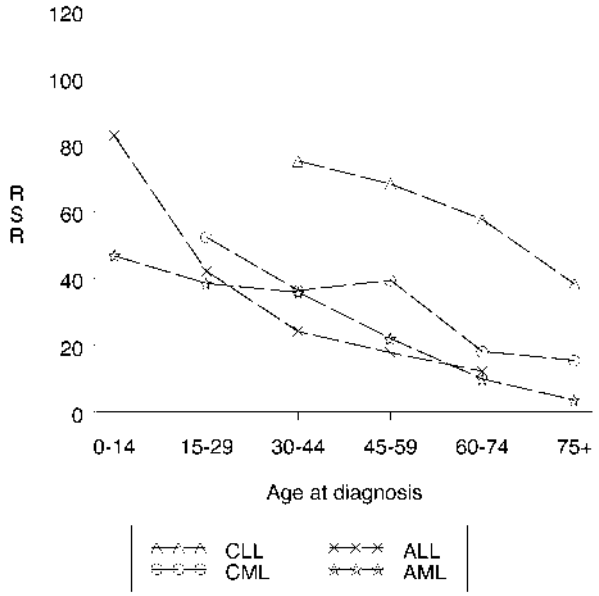

Fig. 165. Leukaemia, both sexes 1985–1994. Five-year relative survival rates by age and cell type.

Table 60

Leukaemia 1985–1994. Number of cases (n) and cumulative relative survival rates at 1, 5, and 10 years subsequent to diagnosis, stratified by cell type, age, and sex. For the 5-year rates, 95% confidence intervals (CI) are given

Cell type	Age	Males					Females				
		n	1-year	5-year	95% CI	10-year	n	1-year	5-year	95% CI	10-year
ALL	0–14	206	96	82	76–88	77	204	95	84	78–90	81
	15–29	65	85	46	32–59	46	36	72	36	18–54	36
	30–44	42	60	16	3–29	17	24	63	37	17–57	37
	45–59	20	56	0	0–0	·	34	62	28	11–45	14
	60–74	39	16	9	0–20	·	38	43	15	2–28	11
	75+	24	14	·	·	·	24	9	·	·	·
	All	396	76	55	49–60	54	360	77	59	53–65	58
AML	0–14	22	50	30	10–50	30	30	77	59	40–77	59
	15–29	34	85	43	25–60	·	33	67	34	17–51	34
	30–44	77	70	36	24–48	27	51	59	36	22–51	37
	45–59	98	48	24	15–34	·	110	53	19	10–28	11
	60–74	197	35	9	4–14	12	221	33	10	6–15	·
	75+	137	10	2	0–7	·	183	11	4	0–8	0
	All	565	41	19	15–23	19	628	36	18	14–21	16
CLL	0–14	0	·	·	·	·	0	·	·	·	·
	15–29	0	·	·	·	·	0	·	·	·	·
	30–44	21	100	75	54–96	52	4	100	76	32–119	·
	45–59	106	95	66	55–77	30	64	94	71	57–85	58
	60–74	335	85	56	48–63	18	217	87	60	52–69	38
	75+	248	65	36	25–46	11	254	70	41	31–50	17
	All	710	81	53	48–59	21	539	80	54	48–60	34
CML	0–14	5	80	·	·	·	4	75	75	32–118	·
	15–29	12	92	42	10–74	·	10	100	64	30–98	·
	30–44	42	74	34	18–50	21	23	100	40	17–63	41
	45–59	57	74	35	20–50	19	51	79	44	29–59	10
	60–74	65	71	16	3–29	·	67	71	19	8–31	·
	75+	60	34	10	0–22	·	52	55	20	4–37	·
	All	241	65	27	19–34	15	207	74	33	25–41	13

A '·' indicates that the value was either not estimable or the estimate lacked precision (see Section 6.3).

8 SOCIAL CLASS AND CANCER PATIENT SURVIVAL

The following section summarizes the results of a recent study of social class differences in cancer patient survival in Finland (18). The study included all reported cases of the 12 most common cancer types occurring in Finland between 1971 and 1985 among persons born 1906–1945 and resident in Finland at the time of the 1970 population census. In total, 106661 patients were included in the study. Information on the social class of each case was obtained from the 1970 population census by record linkage using the unique personal identification number given to every resident of Finland since 1967 (19). The social class indicator was based on a person's own occupation, except for housewives, who were classified according to their husband's occupation. Retired persons were classified according to their previous occupation. The classification consisted of four groups: I (highest) included employers and higher administrative personnel, II consisted of lower administrative personnel and self-employed persons, III of skilled workers, and IV (lowest) of unskilled workers (20, 21). Farmers were assigned to social classes I–IV based on farm size. Unlike the results presented in other sections of this volume, autopsy and DCO cases were included in the study of social class differences in patient survival. The motivation for this was that social class could have attributed to the cancer not being diagnosed earlier, during the lifetime of the patient.

Both observed survival rates and corrected (cause-specific) survival rates were used in the analysis. Only small differences in results were found between these two methods and, as such, only the results using corrected survival rates are reported here. Life table regression methods (22) were used to estimate the relative risk of death due to cancer in each social class compared to social class IV. The estimates were based on the first 5 years of follow-up and were adjusted for age and calendar period of diagnosis.

Table 61 shows the estimated relative risks of death due to cancer for social class I (the highest social class) compared to social class IV (the lowest social class). A relative risk of 0.80, for example, indicates that patients in class I are subject to a 20% lower risk of death due to cancer than patients in social class IV.

Patients in the highest social class have superior survival rates to those in the lowest social class for most cancer sites (Table 61). The detailed results published in the *American Journal of Epidemiology* (18) show that patients in social class IV generally have much lower survival rates than the other three social classes. Although patients in social class I generally experience the best survival, the differences between classes I, II and III are often small in comparison to the lower rates of patients in class IV.

Leon & Wilkinson (23) suggested four possible explanations for social class differences in cancer patient survival: (i) differences in delay prior to treatment, (ii) differences in efficacy of treatment, (iii) differences in histological type of the tumour, and (iv) socioeconomic influences on health resistance. The fact that the highest rate of diagnosis at autopsy and the lowest rate of histological confirmation were found in social class IV suggests that social class differences play a role in the process leading to the diagnosis of cancer, although the exact nature of the mechanism is unclear. Social class differences could conceivably occur in health behaviour, for example, delay in seeking medical attention. With the Finnish public healthcare system being funded by universal health insurance, and being almost free, access to healthcare should not be a contributing factor to social class differences in cancer patient survival. There may, however, be social class differences in the utilization of healthcare, which may, in turn, affect the delay in cancer diagnosis.

Detailed discussion of the theory of socioeconomic inequities in cancer patient survival can be found in the Ph.D. theses of Karjalainen (24) and Schrijvers (25) and associated articles (26–32). Methodological issues in comparing cancer patient survival between social classes, including examples

Table 61

Relative risks (RR) and 95% confidence intervals (CI) of death due to cancer in social class I compared to social class IV for cases diagnosed in Finland during 1971–1985 (18)

Site	RR	95% CI
Males		
Stomach	0.79	0.68–0.92
Colon	0.96	0.75–1.22
Rectum	0.65	0.50–0.85
Pancreas	0.85	0.69–1.04
Lung	0.99	0.90–1.09
Prostate	0.79	0.66–0.93
Kidney	0.61	0.48–0.78
Bladder	0.46	0.34–0.61
Skin[a]	0.99	0.52–1.87
Brain	0.79	0.59–1.05
Non-Hodgkin's lymphoma	0.71	0.54–0.92
Leukaemia	0.84	0.64–1.11
Females		
Stomach	0.85	0.70–1.02
Colon	0.82	0.67–1.02
Rectum	0.56	0.42–0.74
Pancreas	0.85	0.67–1.08
Lung	1.02	0.83–1.26
Breast	0.75	0.65–0.86
Cervix uteri	0.58	0.39–0.89
Corpus uteri	0.51	0.36–0.72
Ovary	0.82	0.67–1.01
Kidney	1.00	0.75–1.33
Brain	0.68	0.51–0.91
Non-Hodgkin's lymphoma	0.81	0.59–1.13

[a] Excludes melanoma and basal cell carcinoma.

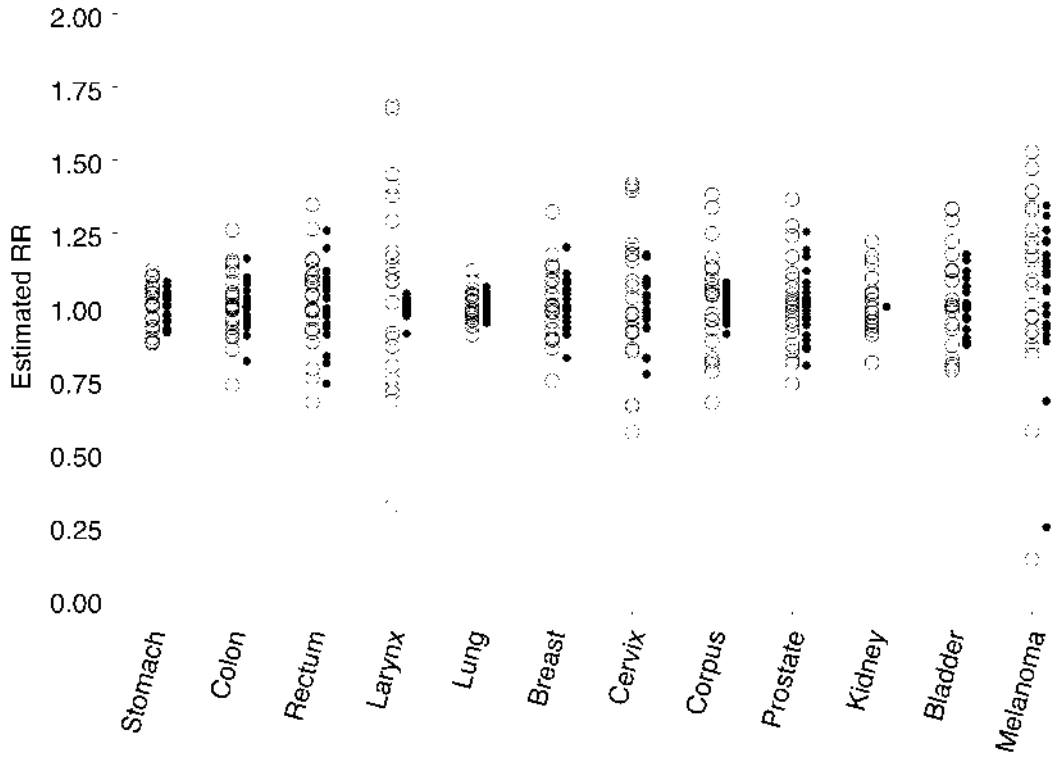

Fig. 166. Crude (○) and adjusted (●) region-specific estimates of the relative risk of excess mortality due to cancer, by site, for 22 healthcare districts in Finland 1977–1991. The estimates are based on a regression model controlling for age, sex, follow-up and an age × follow-up interaction (34).

from Finland, are discussed by Dickman et al. (33). Social class was not used as a prognostic factor in any of the other analyses presented in this supplement.

9 REGION OF RESIDENCE AND CANCER PATIENT SURVIVAL

The following section summarizes the results of a recent study of regional differences in cancer patient survival in the Nordic countries, and is based on slightly different data to those used to produce the other results presented in this volume. In an equitable healthcare system, there should be no systematic differences in cancer patient survival between patient groups defined by region of residence. The recent Nordic study (34) examined equity in the healthcare system with regard to cancer patient care by estimating the level of systematic regional variation in cancer survival in Finland. A specific aim of the study was to identify those cancer sites which exhibit high levels of systematic regional variation in survival, and hence inequity.

Karjalainen (24, 26) listed three factors that may account for observed regional differences in cancer patient survival: inequity, confounding variables, and random variation. The study reported in this section estimated the amount of systematic variation in regional survival by controlling for confounding variables and estimating the level of random variation.

The open circles (○) in Fig. 166 represent the crude estimates of the relative risks of excess mortality due to cancer in each of the 22 Finnish healthcare districts compared to the national average. For example, a relative risk of 1.4 indicates that the excess risk of death due to cancer is 40% higher in the given healthcare district than the national average. Relative risks less than 1.0 indicate that the excess risk of death due to cancer in the healthcare district is less than the national average. We cannot, however, make inferences based on these results, since the observed rates will vary due to both systematic and random factors. The closed circles (●) represent so-called second-stage estimates of the relative risks, which are adjusted to remove the expected random variation. These estimates represent the systematic component of the regional variation in cancer patient survival. The method of adjusting maintains the ordering of the healthcare districts with respect to the relative risks.

Table 62

Number and percentage of potentially savable cancer deaths during 2008–2012 obtainable by eliminating regional variation in cancer survival in Finland (34)

Site	Savable deaths	%
Stomach	88	2.0
Colon	180	4.5
Rectum	137	6.5
Larynx	5	1.8
Lung trachea	71	0.6
Breast	187	2.7
Cervix uteri	16	9.1
Corpus uteri	30	3.5
Prostate	173	3.3
Kidney	0	0.0
Urinary bladder	65	4.3
Melanoma	231	24.3
Total (12 selected cancers)	1 185	2.9

There was no evidence of systematic regional variation in survival for cancer of the kidney, as indicated by all second-stage estimates being equal to one. Cancer of the larynx initially appeared to exhibit the highest level of regional variation in survival, but most of this could be ascribed to random variation.

In order to provide a readily interpretable measure of the amount of systematic regional variation, an estimate was made of the number of lives which could be saved during 2008–2012 if regional variation in cancer survival were eliminated (Table 62). It is assumed that regional variation in survival is eliminated by improving survival rates in those regions with poor survival up to the 95th percentile of the range of systematic variation, such that there is a net improvement in survival across all regions. It was estimated that 1185 cancer deaths could be prevented among the 12 sites studied, which amounted to 2.9% of the total cancer deaths predicted for these sites.

Systematic regional variation in cancer patient survival was present in each of the four countries studied, although the level of variation differed according to site. There were only minor differences in the results for males and females. Eliminating regional variation in survival in all countries would prevent an estimated 5271 (2.5%) cancer deaths in the 12 study sites during the 5-year period 2008–2012. The corresponding number of deaths was 1282 (2.1%) for Denmark, 1185 (2.9%) for Finland, 724 (1.9%) for Norway and 2079 (2.9%) for Sweden.

The amount of systematic regional variation in patient survival provides a measure of the level of inequity in the healthcare system for cancer patients and can highlight areas where there is potential for cancer control programs to be effective. Region of residence was not used as a prognostic factor in any of the other analyses presented in this supplement.

10 SURVIVAL OF CANCER PATIENTS WITHIN EUROPE

The EUROCARE project (35) is being conducted as a concerted action of the European Union. The centre of coordination is in Milan, Italy. The aim of the study is to compare cancer patient survival between areas of population-based cancer registration in Europe and to relate it to patterns of care and cancer control. The descriptive part of the study was published as an IARC Monograph (35), but the studies relating the descriptive results to the patterns of care and cancer control are ongoing.

Eleven countries—Denmark, Estonia, Finland, France, Germany (West), Italy, The Netherlands, Poland, Spain, Switzerland and the United Kingdom (England and Scotland)—participated in the published part of the study. The registries for Denmark, Estonia and Finland, as well as the Childhood Cancer Registry of West Germany, covered the whole population of those countries, and the participating British registries covered slightly less than 50% of the UK population. The Swiss registries covered more than 10% of the Swiss population, but otherwise the coverage varied between 3% (West Germany) and 7% (The Netherlands). Where the coverage was small, the registries were more likely to cover urban and affluent areas in a country, thus making the results not necessarily representative of the entire country. For example, three countries were represented by a single regional cancer registry: the Saarland represented the West German adult population, Eindhoven represented The Netherlands, and Cracow represented Poland. The registries of Basel and Geneva represented Switzerland.

The total material consisted of 800000 patients diagnosed mainly in the years 1978–1985. There were some problems in the comparability of definitions and practices, and in data quality. For example, a small part of the difference between the Swiss and the other survival rates could be accounted for by the fact that the follow-up of the foreign-born resident population was not complete. Systematic studies into many of these factors suggested that the effects of these factors were not large in magnitude.

The study excluded sites where comparability was assessed to be most problematic. The major sites excluded were cancers of the lip, liver, gallbladder, prostate, urinary bladder, skin and thyroid, as well as non-Hodgkin's lymphomas and multiple myeloma.

In general, Finland's rates belonged to the highest recorded in the study (Table 63). The lowest rates were recorded in Poland, Estonia and England. Denmark, France, Germany, Italy and Spain had intermediate rates, whereas The Netherlands and Switzerland, like Finland, had the highest rates. In general, the variation between countries was largest when tumour stage was most important as a prognostic factor. When tumours were subject to cytotoxic treatment, the differences were smaller, and then

Table 63

Five-year relative survival rates (%), by site and sex, in selected countries that participated in the EUROCARE study (35)

Site	DK	ENG	EST	FIN	F	D	I	NL	PL	CH
Males										
Oesophagus	5	5	3	6	5	7	4	..	..	6
Stomach	12	8	15	16	17	19	16	18	7	23
Colon	37	35	29	48	45	46	37	47	18	50
Rectum	35	35	28	41	38	38	32	39	12	49
Pancreas	3	2	2	2	3	6	2	4	5	3
Larynx	58	65	45	61	46	61	60	72	55	60
Lung	6	6	6	9	9	8	6	11	5	12
Kidney	31	36	20	36	41	53	47	39	19	47
Hodgkin's disease	64	64	50	59	..	..	60	..	..	..
Childhood leukaemia	50	50	..	51	..	68	55	..	..	..
Females										
Oesophagus	7	8	14	10	..	3	1	..	..	6
Stomach	15	9	15	17	21	22	21	20	16	24
Colon	40	34	33	45	45	41	44	47	20	57
Rectum	40	36	35	45	45	40	34	46	25	57
Pancreas	1	2	1	2	5	4	7	5	6	2
Lung	6	5	8	10	13	10	11	..	10	12
Breast	68	63	59	74	71	68	71	70	44	76
Cervix uteri	61	55	55	62	64	61	64	63	51	65
Corpus uteri	76	70	64	77	66	76	75	78	57	76
Ovary	26	26	22	34	31	32	29	32	24	37
Kidney	31	33	25	41	42	53	47	43	30	43
Hodgkin's disease	70	67	53	69	..	..	55	..	..	..
Childhood leukaemia	62	58	..	65	..	73	49	..	..	..

DK: Denmark, ENG: England, EST: Estonia, FIN: Finland, F: France, D: Germany, I: Italy, NL: The Netherlands, PL: Poland, CH: Switzerland.
A '..' indicates that the data are missing or inadequate.

Denmark and Italy were also included among the countries with high survival rates. The differences between countries decreased with time, but the time span of the study was short (1978–1985).

A subsequent study (36) showed that Finland, Iceland, Norway and Sweden shared a similar high level of survival, whereas the Danish rates were somewhat lower. These differences in patient survival between the Nordic countries are real, and not due to technical factors (37). Less intense diagnostic activity in Denmark may be one of the reasons for the difference in patient survival between Denmark and the other countries. For prostatic cancer, this lower activity might even be beneficial (38).

The EUROCARE and Nordic population-based survival comparisons are subject to many other factors that are very difficult to control for. These include, for example, the histological types of the tumours and the host factors of the population, in addition to the main factors under study: the patterns of care and cancer control.

The main analyses presented in this supplement utilize similar patient selection criteria and similar methodology to the EUROCARE (35) and Nordic (36) studies of cancer patient survival. The survival figures presented in this volume are generally slightly higher, since they are based on more recent data (1955–1994 compared to 1978–1984 in EUROCARE and 1958–1987 in the Nordic project).

11 DISCUSSION

The study of survival of cancer patients is essential for monitoring the effectiveness of cancer control. The nationwide cancer survival rates presented in this publication provide public health authorities with a basis for monitoring cancer patient care in Finland, as well as evaluating the impact of cancer when estimates are made of the various resources required for cancer treatment, follow-up and rehabilitation. Furthermore, this publication provides clinicians with reference survival figures for patients of a given age and sex, diagnosed with cancer in a given site at a given stage. These analyses would not be possible without the existence of a population-based cancer registry. The Finnish Cancer Registry is well-established and maintains data of the highest quality (see Data Quality section), resulting in highly reliable estimates of patient survival.

The previous monograph describing cancer patient survival in Finland was published by the Finnish Cancer Registry in 1981 and covered patients diagnosed in 1953–1974. In the current publication, cancer patient survival up to the year 1995 has been assessed. The results give insight into the effect of prognostic factors, such as age, sex, tumour stage, histology, and calendar period of diagnosis.

Patient survival has improved over time for most anatomical sites. The main exception is in cancer of the cervix uteri, where patient survival has decreased slightly from 1965–1974 to 1985–1994 due to the selective prevention of less aggressive tumours through cytologic screening. The increasing survival rates reflect improvements that have taken place in various areas of cancer control, from health education and early diagnosis to treatment and aftercare. From a public health point of view, the observed consistent increases in the survival rates of cancers at different primary sites are encouraging and strongly support the idea that some of the cancers which previously had a poor prognosis may gradually become curable.

Patient survival differs significantly between males and females in only a small number of sites. The differences that do exist can usually be explained by differences in the stage, histology, or subsite of the tumours diagnosed in males and females. For example, the differences in patient survival between males and females diagnosed with melanoma of the skin can be explained, in part, by differences in the stage distribution, and to a lesser extent, subsite. The predominant subsite for females is the limbs, whereas for males it is the trunk, a site associated with a slightly lower survival rate.

Young patients generally have superior survival rates than do older patients, even after adjusting for deaths due to other causes using the relative survival rate. Age and sex-specific rates have been presented in this publication in order to show the age differences in patient survival. It is not possible, however, to show age-specific rates in all instances. The graphs showing trends in the 1-, 5- and 10-year relative survival rates are based on the survival rates for all ages combined, as are the graphs showing trends in stage-specific relative survival rates. The average age of the patients is increasing with time, which influences estimates of the trend in patient survival. For example, if patient survival was lower in the older age groups and the age-specific survival rates remained constant over time, but the average age at diagnosis increased over time, then the estimated relative survival rates would decrease over time. This would give a false impression, since there would have been no change in patient survival (the age-specific survival rates remained constant).

One method of controlling for changing age patterns of the patients is to estimate age-standardized survival rates (39). We have not presented age-standardized survival rates (except for gynaecological cancers) in this volume. As an illustration, the difference between the crude and age-standardized relative survival rates for all sites combined is shown in Fig. 167. Due to the ageing of the patients, the crude rates slightly underestimate the improvement in patient survival over time.

The age-standardized rates presented in Fig. 167 were estimated by direct standardization using the age distribution of the patients diagnosed during the most recent time period (1985–1994) as the standard population. The age-adjusted relative survival rates for the earlier time periods are therefore interpreted as the hypothetical relative survival rate we would have observed if the age distribution of the patients was the same as in the most recent time period. We might therefore expect the crude and age-standardized rates to be identical for the most recent time period, although it is clear that this is not the case in Fig. 167. The discrepancy is due to the phenomenon described by Hakulinen (40), whereby relative survival rates estimated for all ages combined are biased towards the relative survival rate of the youngest age group (which usually has the best survival rate). This phenomenon can also be seen in Table 51 for cancer of the thyroid gland among females for all stages and all ages. The 5-year RSR is 88%, while the 10-year RSR is slightly higher at 90%, although the age-specific 10-year RSRs are all lower than the corresponding age-specific 5-year RSRs (the 10-year RSR for females aged 75 + was 42.7%, which was not shown in the table due to its large standard error).

Multiple primary neoplasms in the same person were analysed as independent tumours (The Finnish Cancer Registry section and Material section). A recent study showed that among the 470000 patients registered at the Finnish Cancer Registry with a malignant neoplasm diagnosed during 1953–1993, approximately 20000 subsequent neoplasms were observed (41). That is, during the period 1953–1993, 490000 tumours were registered among 470000

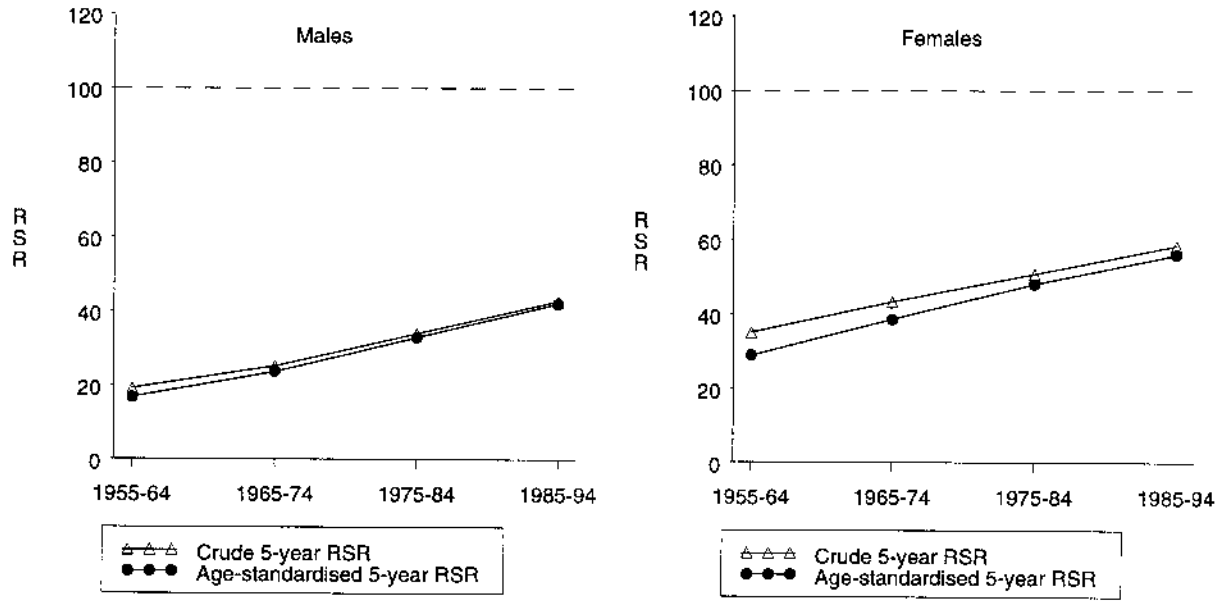

Fig. 167. Cancer at all sites 1955–1994. Crude and age-standardized 5-year relative survival rates by calendar period of diagnosis for males and females.

individuals. It can therefore be estimated that, in the analysis for all cancer sites combined presented in the current study, the reported number of cases is approximately 4% higher than the number of patients among whom these cancers were diagnosed. Another recent Finnish study showed that the estimated patient survival rates are not affected by the exclusion or inclusion of subsequent primary neoplasms.

Trends in survival rates are rarely due to a single cause and must be interpreted with care. It is possible, for example, to improve patient survival through earlier diagnosis without changing the time of death (Fig. 1). An improvement in patient survival over time will usually be due to a combination of the following four components:

1. Increased lead time due to early diagnosis as a result of improved diagnostic techniques or screening programs;
2. Delay in the time of death due to the improved potential for cure made possible by the earlier diagnosis;
3. Delay in the time of death due to improvements in treatment; and
4. Overdiagnosis of early subclinical lesions and their inclusion in the group of clinical cancers.

Item 4 above refers to the situation where, as a result of advances in diagnostic techniques and/or the introduction of screening programs, an increased number (and proportion) of less malignant tumours are detected, thereby improving overall survival rates. In previous years, these tumours would not have progressed, and the patients would have died without the tumour being detected. There are additional possible explanations for trends in cancer patient survival other than the four main ones listed above. For example, changes in risk factors can lead to changes in the distribution of the biological type of incident tumours, which leads to a trend in survival rates.

It is not possible to determine absolutely the extent to which each of the four components has contributed to an observed improvement in patient survival. Additional analysis strategies, which are beyond the scope of this publication, do exist which can assist in the understanding of reasons for survival differences (42). Regression models can be used to study changes in survival while simultaneously controlling for several prognostic factors. Furthermore, recently developed mixed models enable the analysis of the two major components of patient survival: the survival function for the patients who eventually die of the disease and the survival function for the patients who are cured.

Trends in stage-specific survival rates are especially difficult to interpret due to possible improvements in diagnostic techniques and changes in the definition of diagnostic entities. The so-called 'stage migration' phenomenon described by Feinstein et al. (43) is a well-known example of this. The authors noted that stage-specific survival rates for lung cancer patients improved over time, but overall survival remained constant. They determined that this was due to improvements in diagnostic techniques, which resulted in a 'migration' or reclassification of patients with metastatic disease out of stage I into stages II and III in the most recent cohort. That is, in the earlier periods, the group classified as stage I included a number of cases that were actually

non-localized. In the later time periods, it was possible to classify such cases as non-localized, thereby producing an artifactual improvement in patient survival for both the localized and non-localized groups. In the current publication, results are annotated where it is thought that this type of process may have influenced them.

The survival figures in this report, which describe the average fate of patients diagnosed with a given cancer, can be used as reference values for clinical studies. They do not, however, reflect the impact of cancer on the entire population. The cases with zero survival, i.e. diagnoses made after the time of death, were excluded, meaning that the relative survival rates reported here are slightly higher than those for all persons diagnosed with cancer.

The continuing improvement in cancer patient survival over time is a positive indicator of the high quality of cancer patient care in Finland. However, there is still room for further improvement and patient survival should be continually monitored to ensure these trends continue. The present study imparts an overview of cancer patient survival in Finland, and is not intended to provide a definitive analysis of cancer patient survival for each site. Excellent opportunities exist for further in-depth studies of cancer patient survival due to the high quality of the data maintained by the Finnish Cancer Registry. The Finnish Cancer Registry is committed to utilizing these data to their fullest potential and welcomes proposals from interested researchers.

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