Cancer survival in Western Australian residents, 1982-1997

A report of the Western Australian Cancer Registry

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and

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Summary

The Western Australian Cancer Registry has operated since 1981 to provide reliable population-based cancer data for use in the planning of health care services and in the prevention and treatment of cancer. Annually, the Registry publishes a report dealing with patterns of cancer incidence and mortality in Western Australians and other selected topics; this is its first report concerning cancer survival. In the interests of providing a useful "baseline" and reference, and with some concern for lengthiness, this report is designed primarily as an overview of the available data, with a minimum of discussion of associated issues.

Relative survival is a measure of how long persons with cancer might expect to live, as a proportion of their expected survival time if they did not have the cancer. It is expressed in terms of a percentage or proportion, rather than in months or years, and is a common way of expressing cancer survival, used widely by cancer registries and epidemiologists worldwide.

Relative survival was assessed for Western Australian residents who had a cancer diagnosis between 1982 and 1997, and the results have been organized in the same way as in the Registry's annual incidence reports, with groupings based on primary site, or tissue type, of tumours.

Results have first been summarized graphically to allow identification of cancer types with the best outcomes, for males and females and for persons of different ages. Details concerning individual cancer types have been presented in tabular and graphical forms, with priority given, where possible, to cancers diagnosed most recently, in the period 1994-1997. Relevant comparisons have been made where possible, using selected survival results from other States and the USA.

As the Registry collects information relating to the extent of disease only for breast cancer and melanoma, a separate section is devoted to this issue, using lung cancer information from a hospital-based cancer registry.

Relative survival was similar in males and females for most cancers, however males appeared to have better survival for cancers of the bladder and kidney. Relative survival was poorest for mesothelioma, and for primary cancers of the liver, pancreas, lung, gallbladder, oesophagus and brain. Survival appeared best for Hodgkin's lymphoma, testicular and thyroid cancers, cutaneous melanoma and cancers of the lip.

For many cancers, relative survival was significantly higher in younger persons. In males, survival after Hodgkin's lymphoma was lower for those over 70 years of age. In females, survival after thyroid cancer was reduced in those over 70. Relative survival after gynaecological cancers - cervix, uterus and ovary - was high at 75-93% in the young, but was reduced in older women, especially for ovarian cancer.

Comparisons of survival in different areas are fraught with technical pitfalls and should be treated with caution as time periods, ages and coding methods may differ. Despite such

possible influences, relative survival appeared to be similar in Western Australia and New South Wales, South Australia and the USA for most cancer types. Results for all areas were especially similar for cervical, uterine, ovarian and thyroid cancers, and for childhood leukaemia. Survival in Western Australia appeared better than elsewhere for melanoma and Hodgkin's lymphoma. However, survival was lower for adult leukaemia, in association with incomplete notification in the earlier years of the Registry's operation.

The Western Australian population is small (approximately 1.8 million in 1998; 10% of the Australian population), and this imposes some limitations on statistical analyses. For many individual cancer types, trends were observed which were not statistically significant, but which were consistent with improvements in outcomes with time: relative survival generally improved in more recent years. Although this commonly-observed phenomenon can be partly due to lack of knowledge of very recent deaths, the Registry has good access to death information Australia-wide and the results do suggest that actual outcomes are improving with time.

Similarly, survival results also suggested better outcomes for smaller breast tumours and thinner melanomas, and the survival and staging information from the hospital-based cancer registry indicated that survival was better after lung cancer, for tumours with limited spread.

The operations of hospital-based cancer registries within major hospitals is expected to allow treatment-based analyses in future years. While more conclusive results in this State also depend upon the collection of larger numbers of cases, and the availability of staging information for more tumour types, the evidence presented supports efforts directed towards the early detection of cancers as a way of improving outcomes.

Acknowledgments

This report was written by Timothy Threlfall (Senior Medical Officer, Health Information Centre, HDWA) and Kate Brameld (Research Associate, Centre for Health Services Research, Department of Public Health, The University of Western Australia). The work of the other staff of the Registry, vital to reports such as these, is gratefully acknowledged. We also thank Dr Michael Byrne, Dr David Joske and Ms Helen Lund for providing lung cancer survival data from the hospital-based cancer registry at Sir Charles Gairdner Hospital

Thanks are due to members of the Cancer Registry's Scientific Advisory Committee and Prof. D'Arcy Holman, UWA, for valuable discussion in the planning phase. On a more technical level, Dr Guy Hédelin, author of Relsurv, gave valuable advice as workers in several States conferred while developing our individual capacities for using the program. To those others, but especially Rajah Supramaniam (New South Wales), David Lawrence (UWA) and Anh-Minh Nguyen (South Australia), we express our appreciation.

1. Introduction and overview

The Western Australian Cancer Registry

The Western Australian Cancer Registry is a population-based cancer registry established in 1981 when the notification of cancers by pathologists and haematologists became mandatory; notification by radiation oncologists commenced in the early 1990s. The Registry was established in recognition of the potential importance of reliable population-based cancer data in the planning of services and in the prevention and treatment of cancer. Surveillance of cancer extends beyond State and national boundaries and this Registry cooperates with others including other State registries and the National Cancer Statistics Clearing House (NCSCH) (a central collection for the whole of Australia based at the Australian Institute of Health and Welfare in Canberra). Data are provided to the NCSCH, the Australian Mesothelioma Register in Sydney, the Australian Paediatric Cancer Registry in Brisbane, and the International Agency for Research on Cancer in Lyon, France, for inclusion in Australian statistics published nationally and world-wide.

The Registry is a full member of the Australasian Association of Cancer Registries which includes all Territory and State cancer registries, and the International Association of Cancer Registries. The Australasian Association meets annually to discuss matters such as comparability of data between areas in Australia and involvement in Australia-wide cancer research projects.

Scope of this report

This report is based on cancers diagnosed in Western Australians between 1982 and 1997, and presents statistics related to survival of the persons concerned. Data are presented for as many cancer types as practicable, and in as much detail as the analytical methods would permit, separately for males and for females. These data serve as a basis for comparison of the effects of different cancer types, and an attempt has been made to facilitate comparisons based on sex and on age at diagnosis.

While the report is long and the text has been kept to a minimum, some data from other geographic areas have been included for the purpose of allowing comparisons between cancer survival in Western Australia and elsewhere.

In a final section, survival data are presented based on disease subtype and extent of disease, for breast cancer, lung cancer and cutaneous melanoma.

Meaning of survival analysis

Survival analysis is aimed at estimating what proportion of a given group of persons will be alive after a given time, or how long they might expect to survive, in absolute terms.

Relative survival analysis aims at assessing the impact of a specific cause of excess mortality, such as cancer, and its results indicate instead, how long someone might survive, compared to the "general population". Ideally, the general population can be matched to the "disease" cases by sex, at least, ideally by age as well, and even better by year of "diagnosis" (as life expectancy continues, in most countries, to increase).

A survival "rate" is often used to refer to what is really a survival proportion, e.g. 20% indicates 20% of persons survive after a given period. In relative survival analysis the result is a ratio of two such proportions, i.e. (observed survival proportion) / (expected survival proportion). A relative survival of 100% would indicate that persons with disease do not die any more rapidly, as they age, than unaffected persons, but a result of less than 100% indicates that the disease is shortening life even when other causes of death are accounted for.

Spread of disease

Survival analysis can provide an assessment of the likely impact of cancer upon individuals - hence the advantage in breaking the data down by sex and age - but is maybe at its most useful when correlated with stage of disease, or with treatment given, so that the effects of different strategies can be evaluated.

The Western Australian Cancer Registry does not routinely collect data relating to the staging of tumours, and most presentations are accordingly limited to those which combine tumours at all stages of development. Enhancing the Registry's access to staging information represents a single, important, achievable way to enhance the usefulness of the methods applied in the course of writing this report. As well as additional detail for melanoma and for breast cancer, this report includes stage-specific lung cancer data from a hospital-based cancer registry (Section 5).

Presentation of results

It has been common practice among authors of survival reports to cite a single survival figure for a cancer, representing a combination of male and female cases, 15-20 years of history and all age groups combined. Such an approach may be appropriate when case numbers are small, and there are no underlying sex or age differences or trends in survival. However, such statistics are less helpful when a person of known sex and age presents, now, with a request for information about the likely impact of their disease. Accordingly, the use of statistics based on the whole period 1982-1997, with age groups combined, has been kept to a minimum, and the results from the more recent period 1994-1997 have been given prominence. Separate figures have been given for males and for females throughout, and have been used for comparisons where relevant data were available.

Interpretation of results

The limitations of a small population are evident in many of the analyses in this report; there are many visual patterns showing consistent trends which are appealing and fit with plausible explanations, but show low levels of statistical significance. Such assessments are made on the basis of survival confidence intervals that overlap each other, or relative risks with a confidence interval that includes 1 (e.g. 0.80 - 1.05).

There are underlying trends not shown in the presentations, such as the apparent doubling of prostate cancer incidence between 1992 and 1995. Screening programs may affect survival results via true improvement of survival prospects, but also by adding a lead time bias which adds to survival times. Trends in the level of willingness to treat a cancer, which may be dependent on age and other disease, may affect survival results especially in the elderly.

A bias less often mentioned, however, is one which tends to make more recent diagnoses fare better than those in the past. This appearance may be real, and due to improvements in early detection and treatment, but may also result from loss to follow-up, and the slowness with which information arrives from other States or countries. Enhancement of the Registry's ability to access the National Death Index is expected to reduce concerns over this potential source of artefact.

2. Methods

Cancer types and restrictions

The analyses in this report are based on "incident cancers" as defined by the standardized rules for cancer incidence reporting, i.e. only the first tumour of a particular "type" is reported, in incidence statistics, for each person. "Type" for this purpose is defined on the basis of the primary tumour site (topography) code and/or its tissue type (morphology) code, as described in IARC Technical Report number 19, "Comparability and Quality Control in Cancer Registration".[1]

The practical implication of this rule is that only the earliest tumour of any given type is included in these analyses, for each individual. However, a person with more than one tumour type may be included in several analyses.

While a person's survival may clearly be influenced by one or more tumour types, or two tumours of similar type, the adjustment of the analyses to account for this is beyond the scope of this report. However, this applies to less than 5% of persons in the analyses.

Data extraction and manipulation

Data were extracted from a database containing records of invasive malignancies diagnosed in Western Australian residents during the period 1982 to 1997. Tumours diagnosed while a person was not a resident of Western Australia were excluded from analysis.

"Death certificate only" cases (those for whom the tumour record was based only on a death notification, for which no independent substantiation could be obtained) were excluded from analyses. However, persons who died at the time of diagnosis, or soon after, were included, with a survival time of zero being defaulted to 0.01 months to permit analysis (a survival time of zero cannot be used with the Relsurv program).

Software

Analyses performed for this report used the Relsurv (Version 2.0c) program written by Guy Hedelin,[2] which provides a shell for the analysis of stratified data files in conjunction with matching population-based hazard files. It uses both actuarial and proportional hazards methodology, calculates expected survival based on the hazard file, and models the relative survival. The modelling method does produce results which may be unexpected; for example, 5-year survival based on data less than 5 years old. Estimates based on such modelling should be treated as estimates, with reference to the confidence intervals, and with some caution. Relative risks for different subgroups of the study population are available via the inclusion of other variables such as age group, sex and diagnosis period, as covariables in the data file - if there are sufficient numbers of observations and “events” in each cell of the analysis.

Survival program setup

For the use of the Relsurv program, as a minimum, the data file contains a survival time in months for each individual, and a variable indicating whether the survival time was based on death, or an analysis cut-off date (the "censoring" date). When a hazard is available for each year of life, the age at diagnosis may also be included, and when there is a hazard file available for each year covered by the analysis, the year of diagnosis may be added.

The data files used in the current analyses, which were done separately for each sex, included as main variables **survival time** (in months, to 2 decimal places), **died** (1 for died, 0 for censored), **index age** (based on age at diagnosis) and **index year** (based on year of diagnosis). Additional

covariables were included to allow the production of separate survival curves for different age groups and for persons diagnosed in different calendar periods.

The relative survival method requires the use of a "hazard", whereby the risk of death from all causes is used as a basis for comparing the observed death rate at a given age, with that expected in the general population. Life tables for Western Australia from the Australian Bureau of Statistics were used, containing, for each sex, a hazard for each year of life from 0 to 99 years. These tables were manipulated to produce a "cohort" hazard file, whereby as a person ages, their expected hazard is taken from progressively older ages, and from progressively more recent life tables, to account for the general improvement in life expectancy in the population.

The method used is similar to that used in a recent report from New South Wales, however the hazard file and data file structures differed so as to permit the inclusion of persons of any age in the analyses. This method produces a large hazard file in which there are, intermingled with the data from the available life tables, 100 additional years worth of "dummy" hazard data (hazard figures of zero were used). The alternative method used in the NSW report produces a smaller hazard file, but cannot be used to calculate an expected hazard for a person born after the year of the first life table in the reference set, hence cannot be used for an all-cases analysis for all cancer types. With this exception, the two methods have been found to give identical results.

The hazard values in the tables were the hazard values from the Australian Bureau of Statistics (ABS) life tables (qx) transformed to give the "instantaneous hazard" by the formula
q'x = -1*Ln(1-qx).

Early life tables from ABS were based on single calendar years, however after 1994 these tables have been based on three years; the last available file, used to provide the hazards for both 1997 and 1998, was based on the years 1995 to 1997. It should be noted that the changes in the life tables between successive years are very small.

Comparisons

Comparisons of survival in different areas are based on a small number of data sets thought to be of relevance, and because such analyses are time consuming and done in response to local needs, even these are not exactly equivalent to our own analyses, in terms of period, cancer types or methodology.

Information sources are indicated in the references section at the end of this report. The comparisons were based on:
Western Australia - the period 1982-1997, ages 15+ except where indicated.
South Australia - 1977-1998, ages 15+.[α]
New South Wales - 1980-1995, ages 15+, excluding persons 90 years and older at diagnosis.[β 4]
USA - data from the SEER[γ] program,[3] period 1973-1996, ages 15+, without confidence intervals, and with differences in age and tumour groupings as noted in relevant sections.[2]

[α] South Australian data supplied on request by South Australian Cancer Registry.
[β] "Survival from Cancer in New South Wales in 1980 to 1995"; see Reference 4.
[γ] SEER - Surveillance, Epidemiology and End Results; see Reference 3

3. Graphical summaries for cancers diagnosed in the period 1994-1997

In this section, survival data are shown for several cancers on each graph, to allow the reader to develop an overview. To preserve a visual pattern of cancer types in the order in which they are dealt with in other sections, most cancer types are listed even if an age-group analysis of the 1994-1997 data was not possible, and a bar is blank. For clarity, 95% confidence intervals have not been shown.

In Figure 3.1, male-female differences are indicated for the most recent diagnosis period, using all ages combined. For most cancers, survival was similar in males and females, however males appeared to have better survival for bladder and renal cancers.

Relative survival for most cancer types has been shown in context with actual, observed or "absolute" survival data, in Fig. 3.2. Relative survival figures are always higher than the corresponding absolute figures, but differences are low for some cancers, especially those that occur earlier in life (childhood leukaemia and testicular cancer). Survival, however measured, was lowest for mesothelioma, and for primary cancers of the liver, pancreas, lung, gallbladder, oesophagus and brain. Survival appeared best for Hodgkin's lymphoma, testicular and thyroid cancers, cutaneous melanoma and cancers of the lip.

Figures 3.3 - 3.6 show summary relative survival figures for all cancer types, separately for males and females, for different age groups. This give a guide to the impacts of different cancers at different ages, and it will be apparent that while incidence rates and relative survival differ with age, patterns of prominent cancer types, at this summary level, are very similar.

In males, survival was best for cancers of the lip, testicular cancer, cutaneous melanoma and Hodgkin's lymphoma, and for prostate cancer in the older age groups; relative survival after Hodgkin's lymphoma was lower for males over 70 years of age.

In females, relative survival was best for cutaneous melanoma and cancers of the thyroid, although relative survival after thyroid cancer was reduced in those over 70 years of age. In young women, relative survival after gynaecological cancers - cervix, uterus and ovary - was high at 75-93%, but survival was reduced in the oldest age group, especially for ovarian cancer. It should be recalled that cervical cancer occurs predominantly in the young, in contrast to uterine and ovarian cancers.

Figure 3.1 Five-year relative survival by cancer type, 1994-1997: males and females

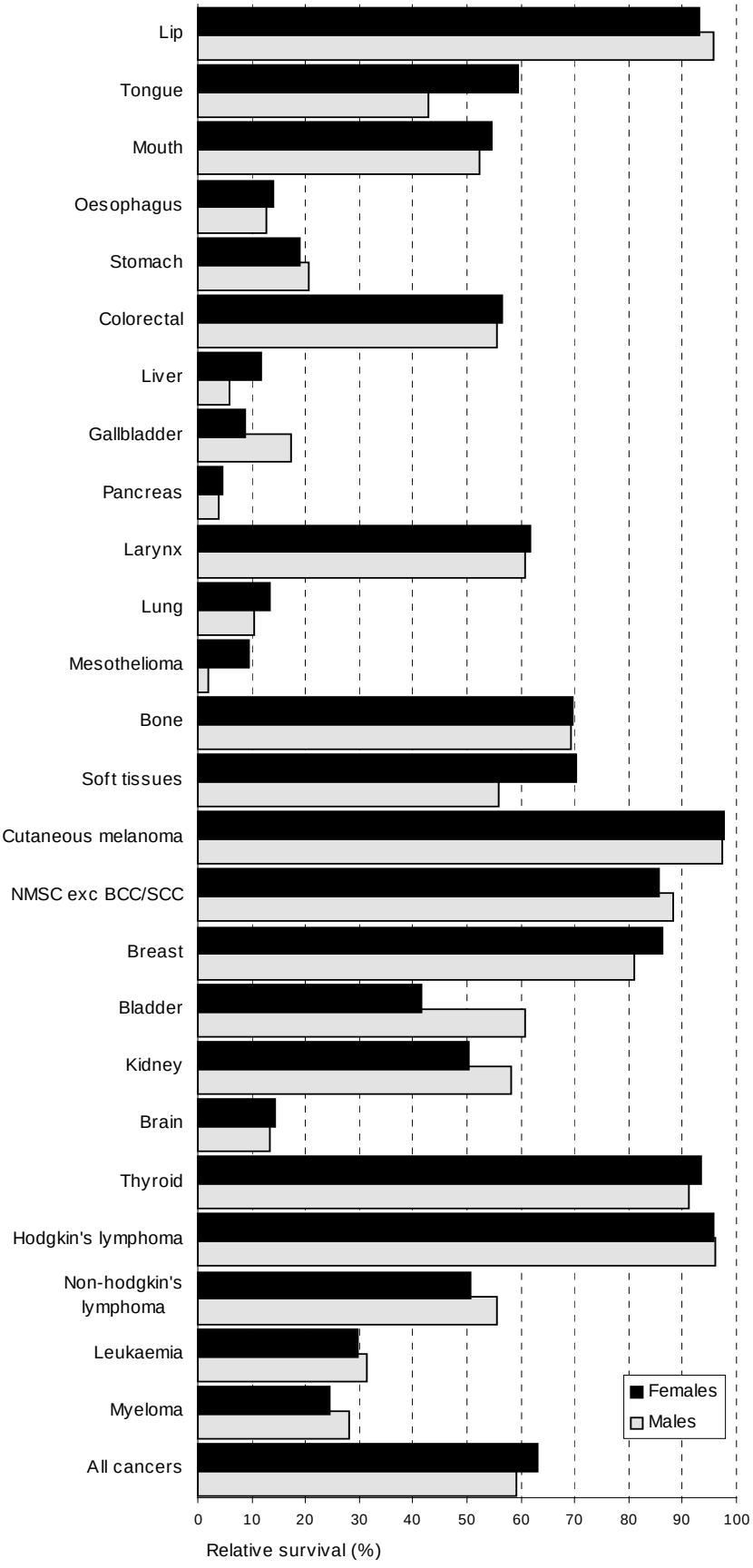


Figure 3.2 Five-year survival by cancer type, 1994-1997: relative and actual survival

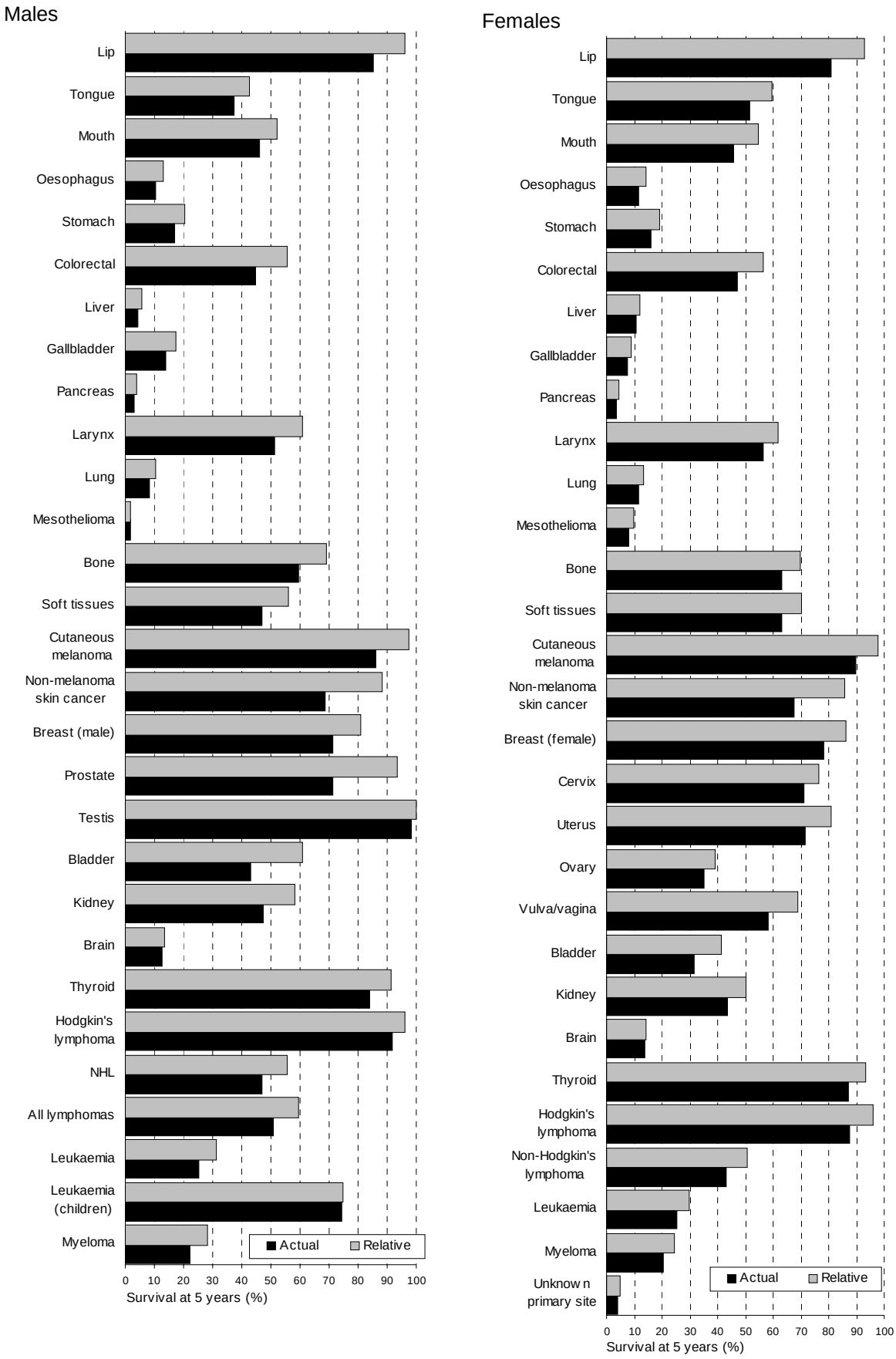


Figure 3.3 Five-year relative survival by cancer type, 1994-1997: persons aged 15-39 years at diagnosis

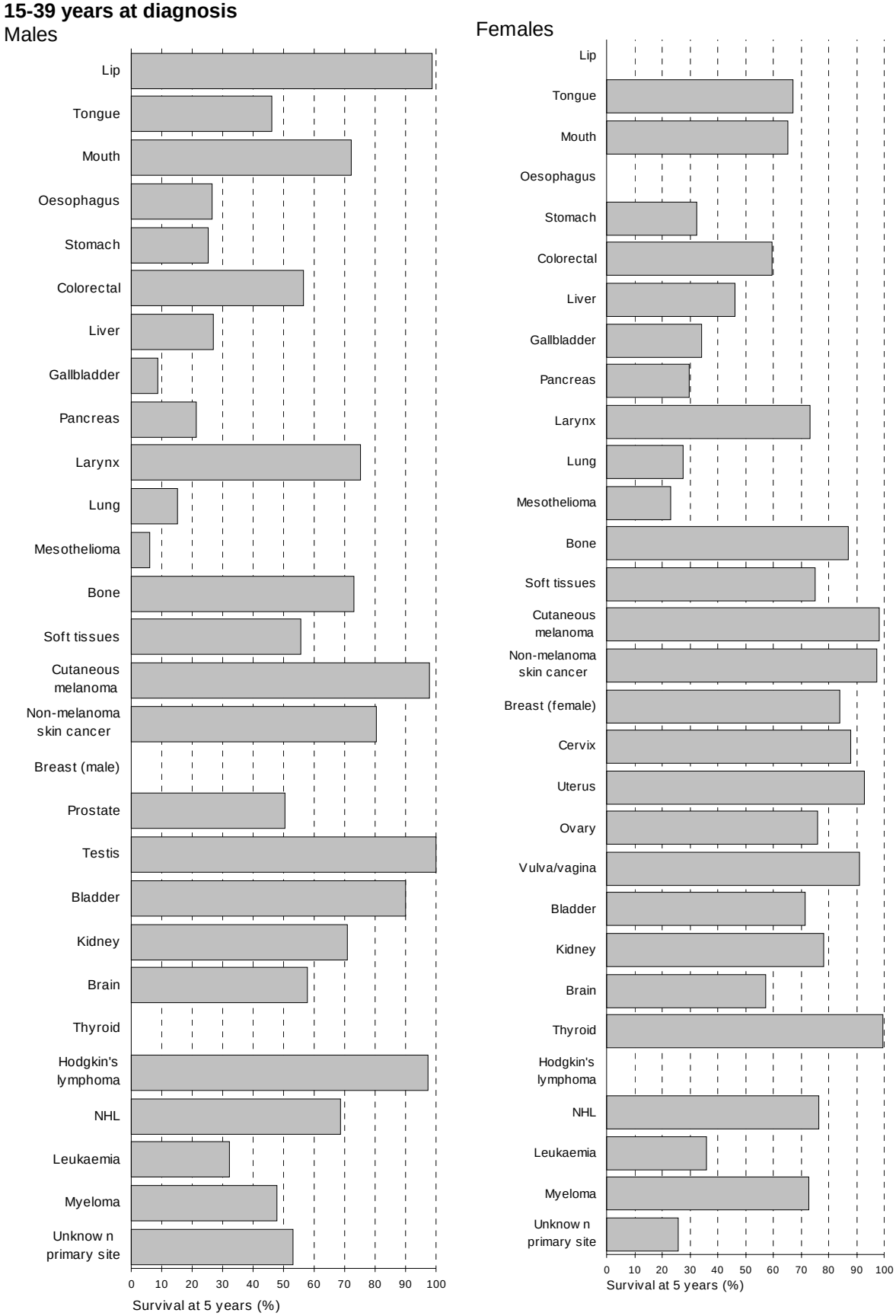


Figure 3.4 Five-year relative survival by cancer type, 1994-1997: persons aged 40-54 years at diagnosis

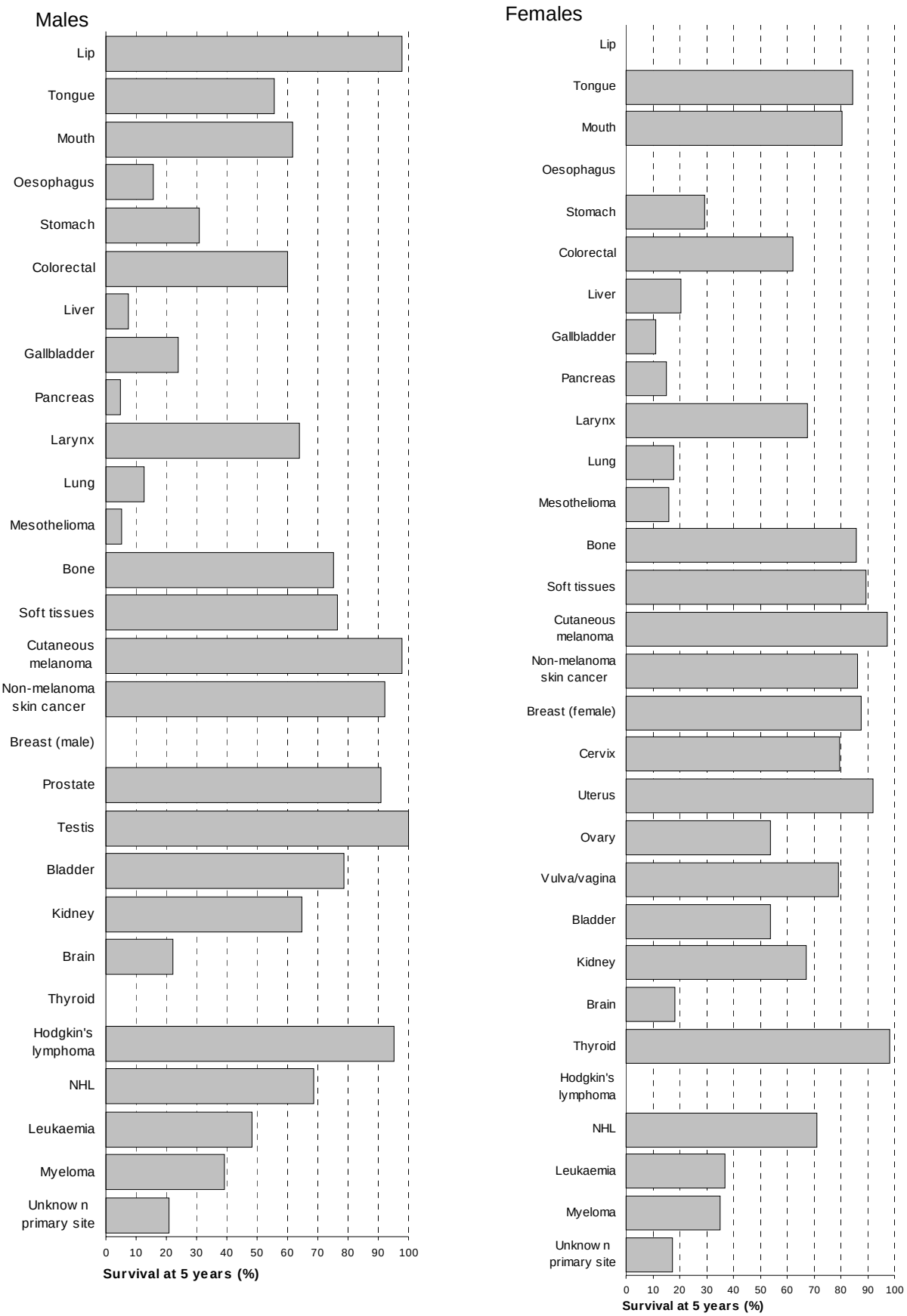


Figure 3.5 Five-year relative survival by cancer type, 1994-1997: persons aged 55-69 years at diagnosis

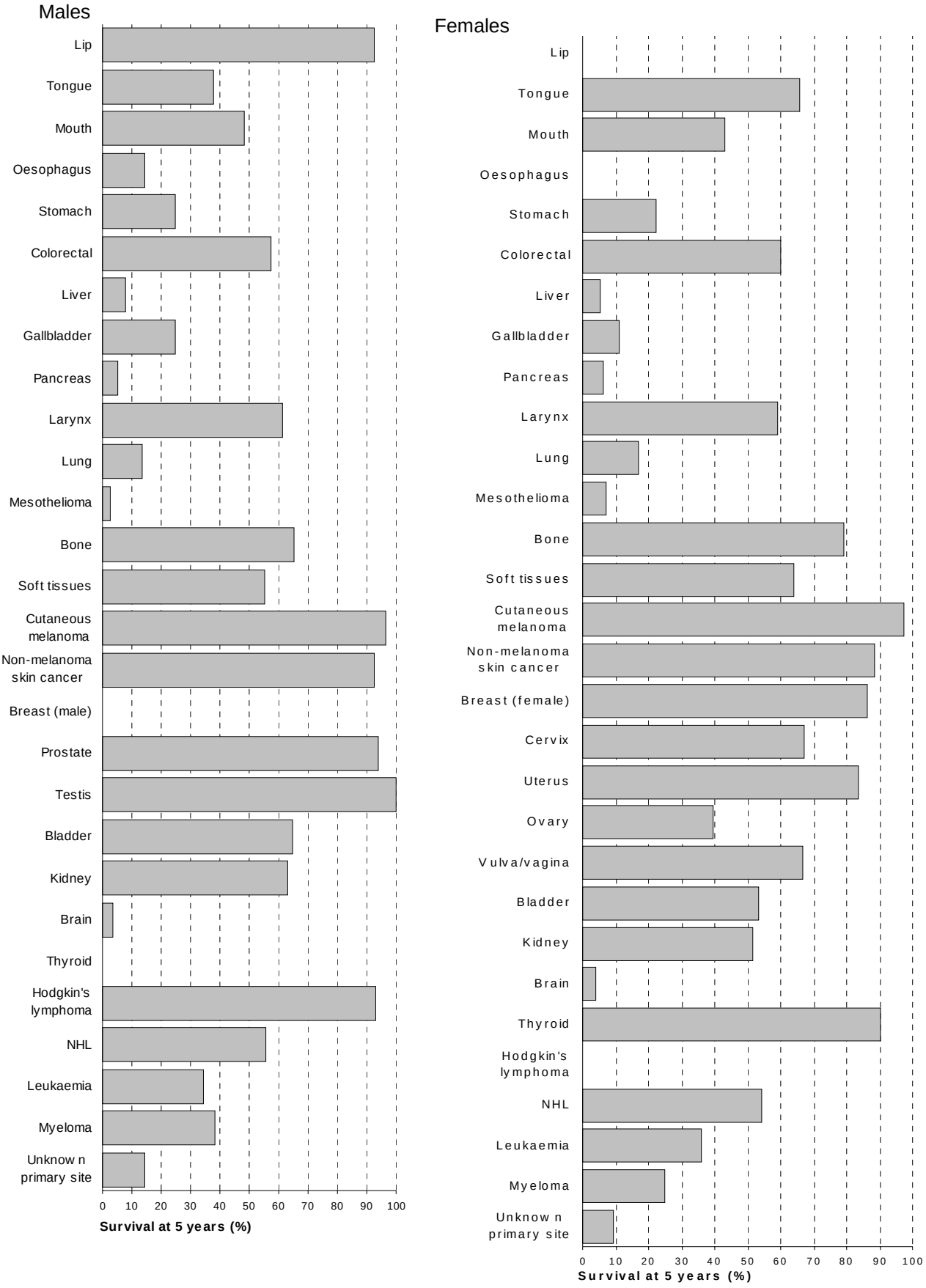
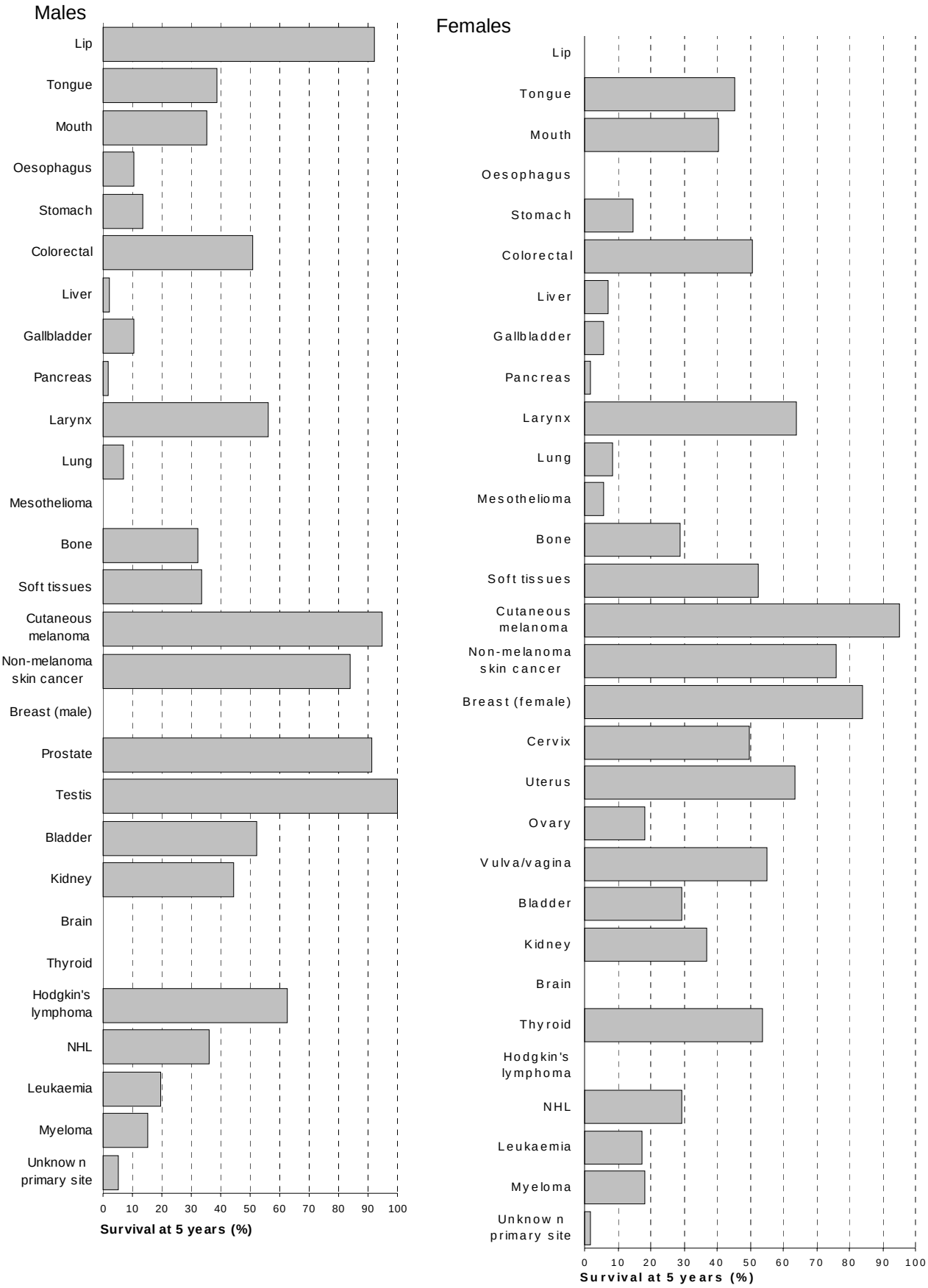


Figure 3.6 Five-year relative survival by cancer type, 1994-1997: persons aged 70 years and over at diagnosis



4. Detailed statistics by cancer type, 1982-1997 for males and for females

4.1 Guide to the individual-cancer tables and graphs

Layout has been standardized for ease of accessibility. So that graphs and tables for each cancer type and sex are easily accessible when reading the descriptive text, each new cancer section commences on a left-hand page. As not all types of analysis were possible for each cancer, some pages have been left blank intentionally. "Survival", unless explicitly noted, refers to **relative survival** throughout this section.

Each section commences with relative survival and confidence intervals for relevant sexes based on diagnoses in the entire period 1982-1997.

For the graphical presentations for each sex, firstly the **most recent data** are presented with confidence intervals by age group in table form (usually part A), followed by a graph without confidence intervals for clarity (part B). To remind the reader of the level of morbidity associated with each cancer type, age-adjusted incidence and mortality rates are presented in part C. For lip, for example (see next page), incidence is low, but far higher than mortality; for pancreatic cancer (page 46), more often fatal, mortality is almost as high as incidence.

Graphs need care as not all axes extend to zero; the vertical scales have been selected for greatest clarity, hence they do vary.

The numbers of cases and of deaths in section D give an indication of the relevance and reliability of the survival analysis itself. Analysis depends upon the presence of "events" (i.e. deaths) in each cell of an analysis, whether it be broken down by period, by age, or both; and analysis may be mathematically impossible, or give misleading results, where the number of events in any "cell" is too small.

Analysis by age group for the entire period 1982-1997 is presented for the majority of cancer types in Part 2 of each presentation. Relative risks of non-survival have been arbitrarily based on the lowest age group for simplicity. Likewise, to show the significance of historical trends for all ages combined, relative risks for a **period-based analysis** (usually Part 3) have been based on the period 1982-1985 as a baseline.

For some cancers, parts of the standard presentation have been omitted because analyses were either not mathematically possible or because they were grossly misleading due to the circumstances of the amount, or the distribution, of the underlying data.

Comparisons are based, where relevant, on the population-based data indicated in the Methods section, and proportions are indicated with error bars indicating 95% confidence intervals where available. Any marked overlap between the ranges shown for two areas indicates that differences are unlikely to be statistically significant.

4.2 Lip

The five-year relative survival of Western Australians with cancers of the lip diagnosed in the period 1982-1997 was 95.8% (95% c.i. 93.8 – 98.0) for males, and 91.8% (87.1 – 96.6) for females.

Males

Age at diagnosis

Relative survival following lip cancer is high and age group differences are not apparent in the first few years following diagnosis. At five-years, relative survival appeared better in the young but this difference was not statistically significant. There was a small decrease in survival with increasing time since diagnosis, from 99.1% at 1 year to 95.9% at 5 years, not statistically significant.

For diagnoses in the period 1982-1997, survival in persons aged either 55-69 or 70 years and over (90.4% and 90.5% respectively) was significantly lower than in the 15-39 year group (98.1%).

Period of diagnosis

For all age groups combined, 5-year survival has remained fairly constant since 1982, reaching 95.9% for cases diagnosed in 1994-1997.

1. Recent data: Persons aged 15 years or over at diagnosis, 1994-1997

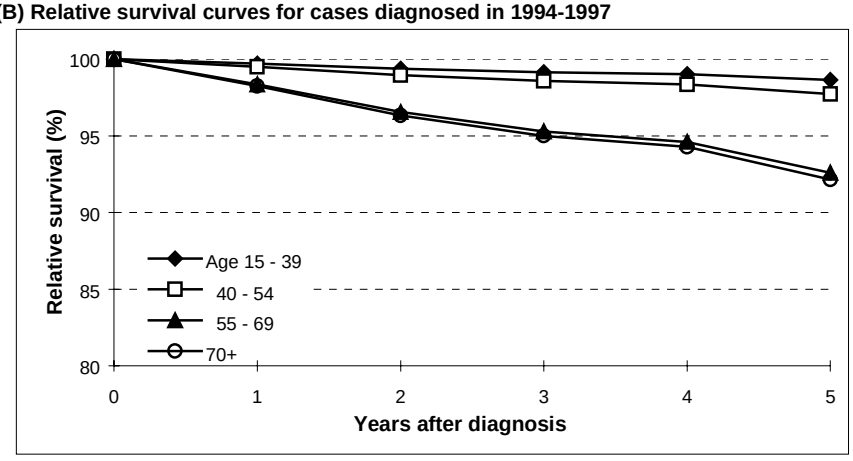
(A) Cases diagnosed in 1994-1997: relative survival (%)

Age at diagnosis	Years after diagnosis 1 year	2 years	3 years	4 years	5 years
15 - 39	99.7 *(99.2 - 100.0)*	99.4 *(98.4 - 100.0)*	99.2 *(97.8 - 100.0)*	99.0 *(97.4 - 100.0)*	98.6 *(96.4 - 100.0)*
40 - 54	99.5 *(98.8 - 100.0)*	99.0 *(97.5 - 100.0)*	98.6 *(96.6 - 100.0)*	98.4 *(96.0 - 100.0)*	97.7 *(94.6 - 100.0)*
55 - 69	98.4 *(96.5 - 100.0)*	96.5 *(92.8 - 100.0)*	95.3 *(90.4 - 100.0)*	94.6 *(89.1 - 100.0)*	92.6 *(85.1 - 100.0)*
70+	98.2 *(95.9 - 100.0)*	96.3 *(92.1 - 100.0)*	95.0 *(89.4 - 100.0)*	94.3 *(87.8 - 100.0)*	92.1 *(83.3 - 100.0)*
All (Ages 15+)	99.1 *(98.0 - 100.0)*	98.0 *(96.0 - 99.9)*	97.5 *(95.1 - 99.8)*	96.8 *(93.9 - 99.7)*	95.9 *(92.2 - 99.7)*

(C) Age-adjusted rates, 1994-1997 (per 100,000)

Incidence	Mortality
4.1	0
11.1	0
19.2	1.0
37.8	0.4
10.2	0.2

(B) Relative survival curves for cases diagnosed in 1994-1997

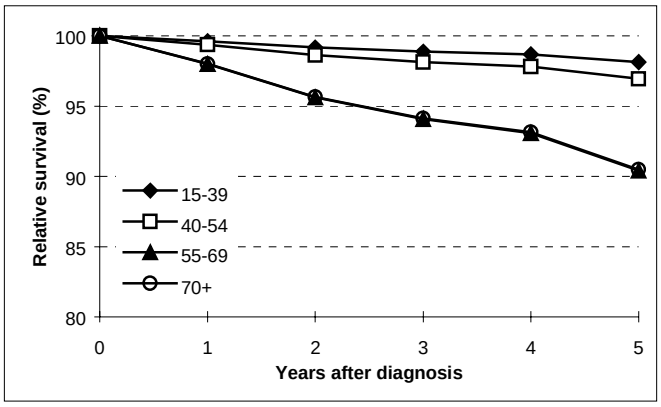


(D) Survival analysis, 1994-1997

	Cases	Deaths*
Age 15-39	63	2
Age 40-54	80	3
Age 55-69	77	8
Age 70+	77	19
All (age 15+)	297	32

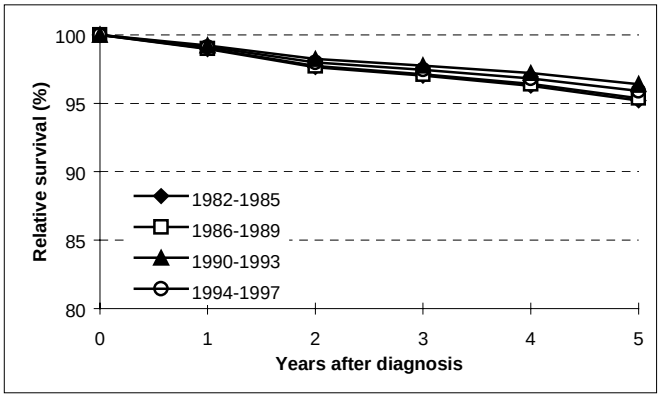
** Case follow-up to 30/06/1999*

2. Historical data (diagnosis 1982 to 1997): relative survival (%) by age at diagnosis



Age at diagnosis	R. Surv. at 5 years (%)	Relative risk**
15 - 39 yr	98.1	(1.00)
40 - 54	96.9	1.69 (0.33 - 8.64)
55 - 69	90.4	5.65 (1.38 - 23.12)
70 and over	90.5	6.01 (1.17 - 31.00)

3. Historical data (ages 15 - 70+): relative survival (%) by period of diagnosis



Period of diagnosis	R. Surv. at 5 years (%)	Relative risk**
1982 - 1985	95.2	(1.00)
1986 - 1989	95.4	1.18 (0.27 - 5.10)
1990 - 1993	96.4	1.13 (0.25 - 5.07)
1994 - 1997	95.9	0.80 (0.17 - 3.81)

*** Risk takes both age and period into acccount*

Females

Age at diagnosis

There were insufficient cases for analysis to be performed by age.

Period of diagnosis

There was a small decrease in survival with increasing time since diagnosis, from 99.4% at 1 year to 93.0% at 5 years. There appears to be an upward trend in five-year survival, however, significance tests were not able to be performed on these data.

1. Recent data: Persons aged 15 years or over at diagnosis, 1994-1997

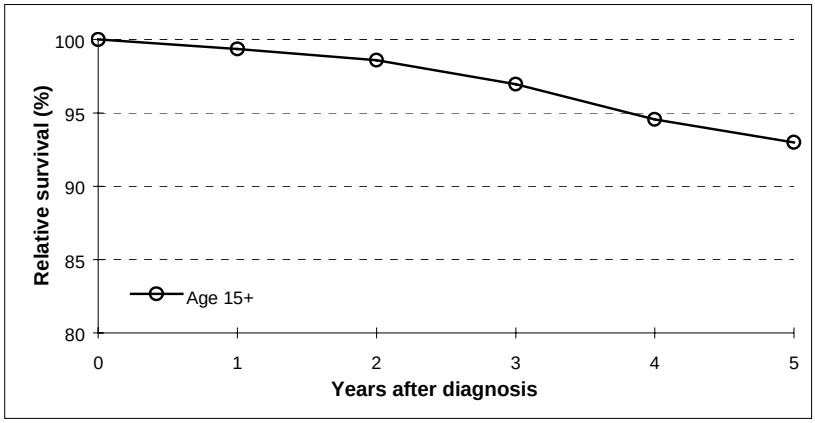
(A) Cases diagnosed in 1994-1997: relative survival (%)

Age at diagnosis	Years after diagnosis 1 year	2 years	3 years	4 years	5 years
All (Ages 15+)	99.4	98.6	97.0	94.6	93.0

(C) Age-adjusted rates, 1994-1997 (per 100,000)

Incidence	Mortality
3.9	0.2

(B) Relative survival curves for cases diagnosed in 1994-1997

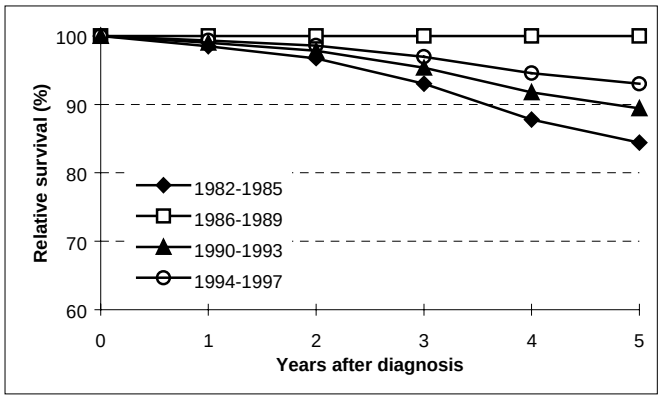


(D) Survival analysis, 1994-1997:

	Cases	Deaths*
Age 15-39	17	0
Age 40-54	20	0
Age 55-69	39	7
Age 70+	55	11
All (age 15+)	131	18

** Case follow-up to 30/06/1999*

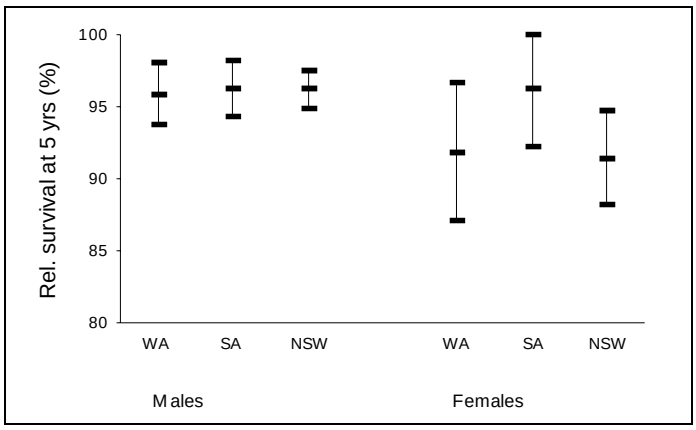
2. Historical data (ages 15 - 70+): relative survival (%) by period of diagnosis



Period of diagnosis	R. Surv. at 5 years (%)
1982 - 1985	84.4
1986 - 1989	100.0
1990 - 1993	89.4
1994 - 1997	93.0

Comparisons

Relative survival for cancers of the lip, in males, was similar in the three States considered. Among females, survival appeared lower in Western Australia than in South Australia, but similar to that in New South Wales. No suitable American data were available for comparison.



4.3 Tongue

The five-year relative survival of Western Australians with cancers of the tongue diagnosed in the period 1982-1997 was 39.1% (33.0 – 45.2) for males, and 50.5% (40.9 – 60.2) for females.

Males

Age at diagnosis

In recent cases, relative survival at one year decreased from 79.3% in the 40-54 year age group to around 68% in persons aged 55-69 or 70 years and over, however the difference was not statistically significant. For cases diagnosed in the period 1982-1997, 5-year relative survival was highest in the 40-54 year age group at 51.7%, decreasing to 34-35% in the two older age groups, but the decrease was not statistically significant. There were insufficient data to report on the 15-39 year age group. Survival decreased with time since diagnosis for all age groups combined, from 71.1% at one year to 42.8% at five-years.

Period of diagnosis

For all age groups combined, there was a consistent but statistically non-significant improvement in relative survival between 1982-85 and 1994-97.

Cancer of the tongue (males)

1. Recent data: Persons aged 15 years or over at diagnosis, 1994-1997

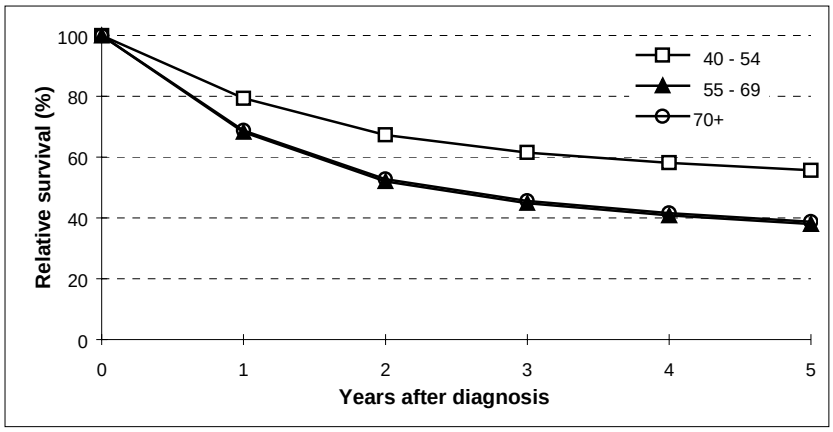
(A) Cases diagnosed in 1994-1997: relative survival (%)

Age at diagnosis	Years after diagnosis 1 year	2 years	3 years	4 years	5 years
40 - 54	79.3 *(70.9 - 87.8)*	67.3 *(55.5 - 79.1)*	61.5 *(48.3 - 74.7)*	58.1 *(44.2 - 72.0)*	55.6 *(41.2 - 70.1)*
55 - 69	68.3 *(59.0 - 77.5)*	52.1 *(40.6 - 63.6)*	44.9 *(32.7 - 57.0)*	40.8 *(28.4 - 53.3)*	38.0 *(25.3 - 50.7)*
70+	68.8 *(57.5 - 80.0)*	52.7 *(38.5 - 67.0)*	45.6 *(30.5 - 60.7)*	41.6 *(26.1 - 57.1)*	38.8 *(22.9 - 54.6)*
All (Ages 15+)	71.1 *(63.1 - 79.1)*	56.0 *(45.9 - 66.1)*	49.2 *(38.4 - 60.0)*	45.4 *(34.2 - 56.6)*	42.8 *(31.2 - 54.3)*

(C) Age-adjusted rates, 1994-1997 (per 100,000)

Incidence	Mortality
3.2	1.6
10.9	6.2
10.9	5.8
3.2	1.8

(B) Relative survival curves for cases diagnosed in 1994-1997



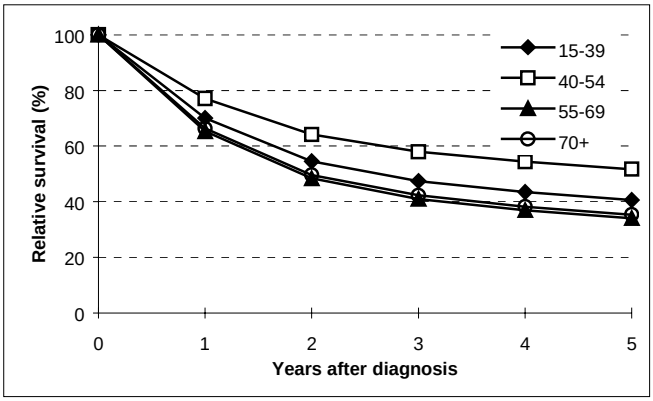
(D) Survival analysis, 1994-1997

	Cases	Deaths*
Age 15-39	3	1
Age 40-54	22	10
Age 55-69	43	26
Age 70+	23	13
All (age 15+)	91	50

** Case follow-up to 30/06/1999*

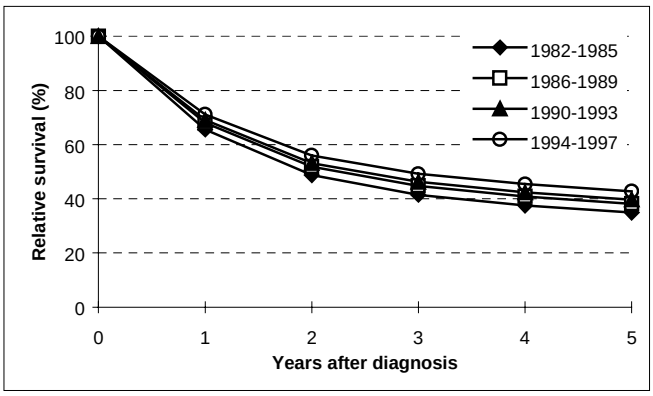
Cancer of the tongue (males)

2. Historical data (diagnosis 1982 to 1997): relative survival (%) by age at diagnosis



Age at diagnosis	R. Surv. at 5 years (%)	Relative risk**
15 - 39 yr	40.6	(1.00)
40 - 54	51.7	0.75 (0.36 - 1.59)
55 - 69	34.0	1.24 (0.62 - 2.48)
70 and over	35.3	1.22 (0.58 - 2.57)

3. Historical data (ages 15 - 70+): relative survival (%) by period of diagnosis



Period of diagnosis	R. Surv. at 5 years (%)	Relative risk**
1982 - 1985	34.9	(1.00)
1986 - 1989	38.2	0.90 (0.58 - 1.40)
1990 - 1993	39.7	0.84 (0.55 - 1.29)
1994 - 1997	42.8	0.78 (0.50 - 1.21)

*** Risk takes both age and period into acccount*

Females

Age at diagnosis

In recent cases, relative survival at one year has decreased with increasing age, from 94.5% in the 40-54 year age group, to 76.6% in the 70 years and over age group. The differences between the 40-54 years and 70 years and over age groups were significant after two to five-years follow-up. There were insufficient data to report on the 15-39 year age group.

Considering all cases diagnosed in the period 1982-1997, five-year survival was highest in the 40-54 year age group (76.8%), falling to 33.8% in the 70 years and over age group.

Survival decreased with time since diagnosis for all ages combined, from 83.0% at one year to 59.5% at five-years.

Period of diagnosis

There was minimal change between 1982-85 and 1991-94, but relative survival was best for more recent cases diagnosed 1994-97; the confidence intervals however indicate the difference was not statistically significant.

Cancer of the tongue (females)

1. Recent data: Persons aged 15 years or over at diagnosis, 1994-1997

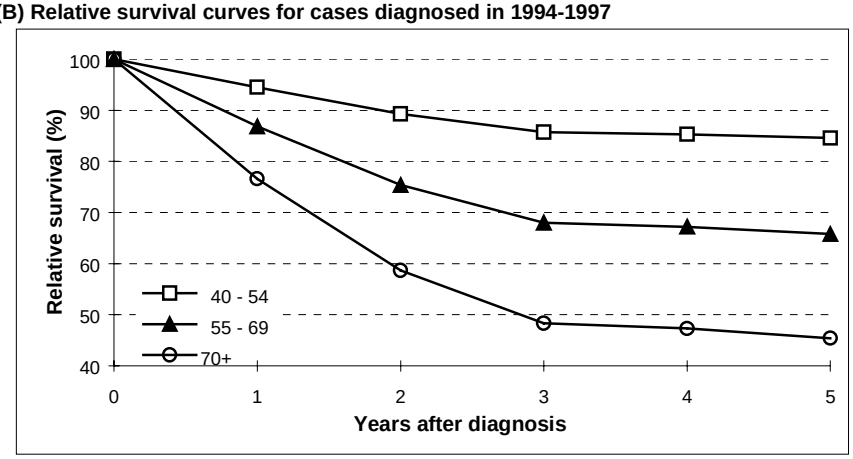
(A) Cases diagnosed in 1994-1997: relative survival (%)

Age at diagnosis	Years after diagnosis 1 year	2 years	3 years	4 years	5 years
40 - 54	94.5 *(88.7 - 100.0)*	89.3 *(78.7 - 100.0)*	85.7 *(71.9 - 99.5)*	85.3 *(71.1 - 99.5)*	84.6 *(69.8 - 99.4)*
55 - 69	86.8 *(78.0 - 95.6)*	75.4 *(61.3 - 89.5)*	68.0 *(51.0 - 85.0)*	67.2 *(49.7 - 84.8)*	65.8 *(47.6 - 84.0)*
70+	76.6 *(64.4 - 88.8)*	58.7 *(41.3 - 76.1)*	48.3 *(29.0 - 67.7)*	47.3 *(27.7 - 66.9)*	45.4 *(25.5 - 65.3)*
All (Ages 15+)	83.0 *(73.9 - 92.0)*	70.0 *(56.5 - 83.4)*	61.9 *(46.1 - 77.7)*	61.0 *(44.9 - 77.2)*	59.5 *(42.8 - 76.1)*

(C) Age-adjusted rates, 1994-1997 (per 100,000)

Incidence	Mortality
1.1	0.1
4.7	1.6
7.7	2.7
1.5	0.4

(B) Relative survival curves for cases diagnosed in 1994-1997



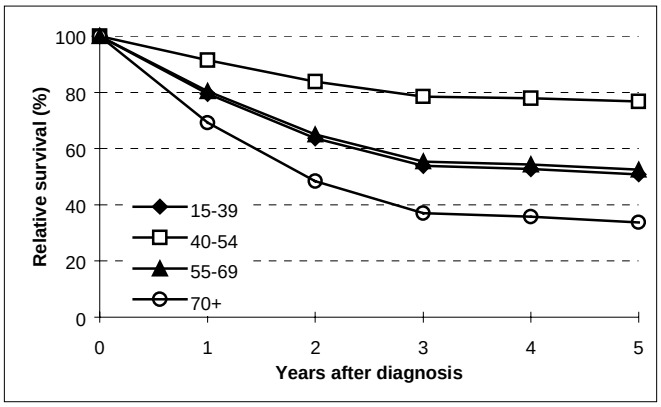
(D) Survival analysis, 1994-1997

	Cases	Deaths*
Age 15-39	1	0
Age 40-54	7	1
Age 55-69	18	8
Age 70+	23	12
All (age 15+)	49	21

** Case follow-up to 30/06/1999*

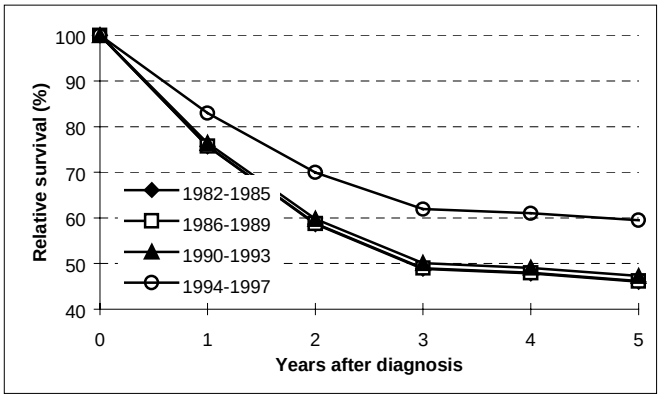
Cancer of the tongue (females)

2. Historical data (diagnosis 1982 to 1997): relative survival (%) by age at diagnosis



Age at diagnosis	R. Surv. at 5 years (%)	Relative risk**
15 - 39 yr	50.8	(1.00)
40 - 54	76.8	0.42 (0.12 - 1.50)
55 - 69	52.5	1.05 (0.39 - 2.83)
70 and over	33.8	1.98 (0.75 - 5.26)

3. Historical data (ages 15 - 70+): relative survival (%) by period of diagnosis

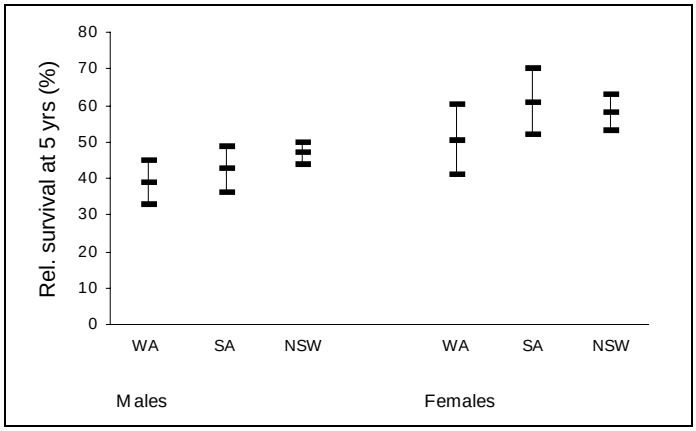


Period of diagnosis	R. Surv. at 5 years (%)	Relative risk**
1982 - 1985	46.0	(1.00)
1986 - 1989	46.2	0.96 (0.44 - 2.12)
1990 - 1993	47.3	1.09 (0.53 - 2.26)
1994 - 1997	59.5	0.58 (0.27 - 1.25)

*** Risk takes both age and period into acccount*

Comparisons

Relative survival for cancers of the tongue was broadly similar in the three States considered; no comparable American data were available.



4.4 Mouth

The five-year relative survival of Western Australians with cancers of the mouth diagnosed in the period 1982-1997 was 47.0% (41.4 – 52.7) for males, and 53.7% (44.8 – 62.6) for females.

Males

Age at diagnosis

In recent cases, relative survival at 1 year declined with increasing age, from 86.0% in the 40-54 year age group to 71.9% in those aged 70 years and over. There was a significant difference in the survival of the 40-54 year and 70 years and over age group at four and five-years post diagnosis. There were insufficient data to report on the 15-39 year age group. For all ages combined, survival decreased with time since diagnosis from 81.3% at one year to 52.2% at five-years. The decrease between the first and second year post diagnosis was statistically significant.

For cases diagnosed in the period 1982-1997, five-year survival declined with increasing age from 69.6% in the 15-39 year age group to 30.4% in the 70 years and over age group. The difference between these two groups was statistically significant.

Period of diagnosis

There was no significant change in survival between 1982-85 and 1994-97.

Cancer of the mouth (males)

1. Recent data: Persons aged 15 years or over at diagnosis, 1994-1997

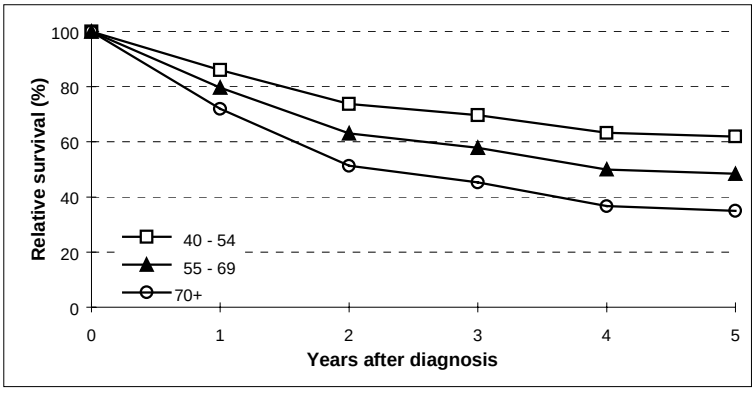
(A) Cases diagnosed in 1994-1997: relative survival (%)

Age at diagnosis	Years after diagnosis 1 year	2 years	3 years	4 years	5 years
40 - 54	86.0 *(80.5 - 91.6)*	73.8 *(64.8 - 82.7)*	69.7 *(59.7 - 79.7)*	63.3 *(51.8 - 74.8)*	61.9 *(50.1 - 73.8)*
55 - 69	79.7 *(73.2 - 86.1)*	63.1 *(53.5 - 72.6)*	57.9 *(47.5 - 68.2)*	50.0 *(38.5 - 61.5)*	48.4 *(36.7 - 60.1)*
70+	71.9 *(61.8 - 82.1)*	51.3 *(37.6 - 65.0)*	45.3 *(31.0 - 59.6)*	36.7 *(21.9 - 51.4)*	35.0 *(20.0 - 49.9)*
All (Ages 15+)	81.3 *(75.7 - 86.9)*	65.8 *(57.6 - 73.9)*	60.9 *(52.1 - 69.7)*	53.5 *(43.7 - 63.4)*	52.2 *(42.1 - 62.3)*

(C) Age-adjusted rates, 1994-1997 (per 100,000)

	Incidence	Mortality
40 - 54	5.4	1.6
55 - 69	14.9	6.7
70+	12.7	8.2
All (Ages 15+)	4.6	2.0

(B) Relative survival curves for cases diagnosed in 1994-1997



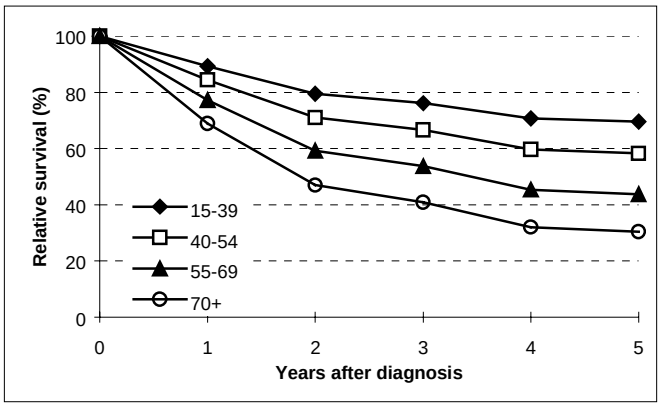
(D) Survival analysis, 1994-1997

	Cases	Deaths*
Age 15-39	7	1
Age 40-54	39	13
Age 55-69	59	29
Age 70+	26	17
All (age 15+)	131	60

** Case follow-up to 30/06/1999*

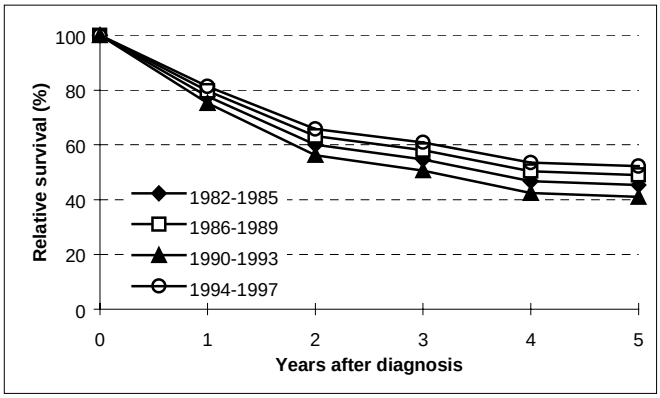
Cancer of the mouth (males)

2. Historical data (diagnosis 1982 to 1997): relative survival (%) by age at diagnosis



Age at diagnosis	R. Surv. at 5 years (%)	Relative risk**
15 - 39 yr	69.6	(1.00)
40 - 54	58.3	1.47 (0.57 - 3.79)
55 - 69	43.8	2.22 (0.89 - 5.54)
70 and over	30.4	3.21 (1.24 - 8.32)

3. Historical data (ages 15 - 70+): relative survival (%) by period of diagnosis



Period of diagnosis	R. Surv. at 5 years (%)	Relative risk**
1982 - 1985	45.3	(1.00)
1986 - 1989	49.0	0.89 (0.57 - 1.38)
1990 - 1993	40.9	1.09 (0.73 - 1.65)
1994 - 1997	52.2	0.84 (0.55 - 1.27)

*** Risk takes both age and period into acccount*

Females

Age at diagnosis

In recent cases, relative survival in the 55-69 yr and 70 years and over age groups was significantly lower at one to five-years than in the 40-54 year age group. Survival at one year was 91.2% in the 40-54 year age group compared with 68-69% in the two older age groups. There were insufficient data to report on the 15-39 year age group. Survival decreased with time since diagnosis for all ages combined, from 76.0% at one year to 54.6% at five-years. This was not statistically significant.

For cases diagnosed in the period 1982-1997, five-year survival was highest in the 40-54 year age group at 81.5%, decreasing to 42.7% in the 70 years and over age group, however these differences were not statistically significant.

Period of diagnosis

There was no significant change in survival between 1982-85 and 1994-97.

Cancer of the mouth (females)

1. Recent data: Persons aged 15 years or over at diagnosis, 1994-1997

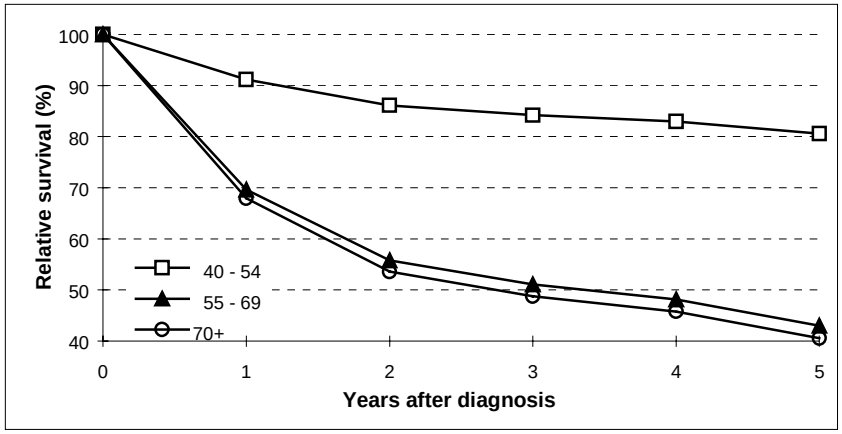
(A) Cases diagnosed in 1994-1997: relative survival (%)

Age at diagnosis	Years after diagnosis 1 year	2 years	3 years	4 years	5 years
40 - 54	91.2 *(83.5 - 98.8)*	86.1 *(74.7 - 97.6)*	84.2 *(71.4 - 97.1)*	82.9 *(69.2 - 96.7)*	80.6 *(65.1 - 96.1)*
55 - 69	69.6 *(57.2 - 82.0)*	55.8 *(40.7 - 70.8)*	51.1 *(35.2 - 66.9)*	48.1 *(31.6 - 64.7)*	43.0 *(25.6 - 60.5)*
70+	67.9 *(53.9 - 81.9)*	53.6 *(36.5 - 70.6)*	48.8 *(30.8 - 66.7)*	45.8 *(27.1 - 64.5)*	40.6 *(20.7 - 60.5)*
All (Ages 15+)	76.0 *(66.7 - 85.2)*	64.7 *(53.2 - 76.3)*	60.8 *(48.4 - 73.3)*	58.6 *(45.4 - 71.8)*	54.6 *(40.1 - 69.1)*

(C) Age-adjusted rates, 1994-1997 (per 100,000)

	Incidence	Mortality
40 - 54	3.0	0.5
55 - 69	6.0	1.7
70+	8.0	3.3
All (Ages 15+)	2.2	0.7

(B) Relative survival curves for cases diagnosed in 1994-1997



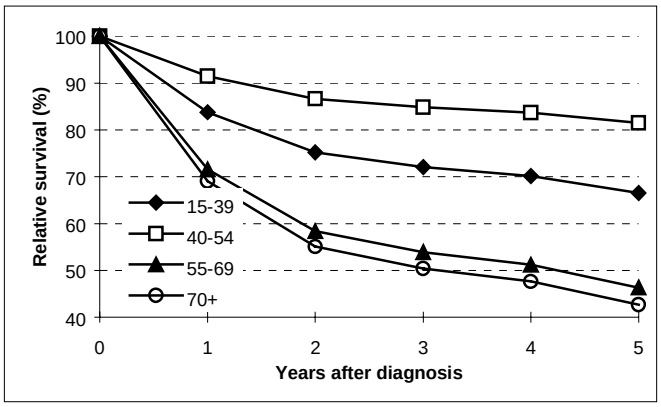
(D) Survival analysis, 1994-1997

	Cases	Deaths*
Age 15-39	2	1
Age 40-54	20	5
Age 55-69	25	10
Age 70+	23	16
All (age 15+)	70	32

** Case follow-up to 30/06/1999*

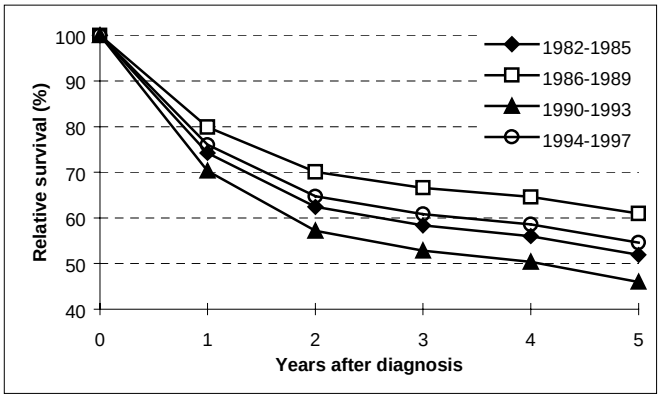
Cancer of the mouth (females)

2. Historical data (diagnosis 1982 to 1997): relative survival (%) by age at diagnosis



Age at diagnosis	R. Surv. at 5 years (%)	Relative risk**
15 - 39 yr	66.5	(1.00)
40 - 54	81.5	0.51 (0.10 - 2.62)
55 - 69	46.3	1.98 (0.47 - 8.35)
70 and over	42.7	2.12 (0.50 - 9.05)

3. Historical data (ages 15 - 70+): relative survival (%) by period of diagnosis

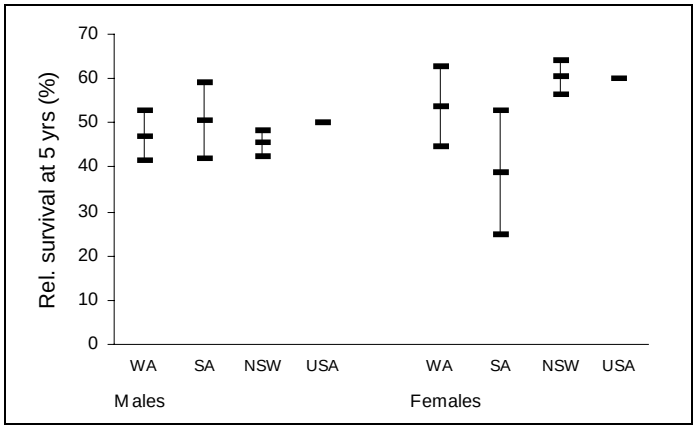


Period of diagnosis	R. Surv. at 5 years (%)	Relative risk**
1982 - 1985	51.9	(1.00)
1986 - 1989	61.0	0.67 (0.31 - 1.46)
1990 - 1993	46.0	1.02 (0.50 - 2.09)
1994 - 1997	54.6	0.97 (0.49 - 1.93)

*** Risk takes both age and period into acccount*

Comparisons

Cancers of the mouth were associated with similar survival in males, in all areas compared. For females, figures are based on smaller case numbers, are more variable, and an appearance of lower survival in South Australia may be artefactual.



4.5 Oesophagus

The five-year relative survival of Western Australians with cancers of the oesophagus diagnosed in the period 1982-1997 was 9.8% (7.2 – 12.5) for males, and 13.8% (9.8 – 17.9) for females.

Males

Age at diagnosis

In recent cases, relative survival at one year for those in the 40-54 year and 55-69 year age groups were very similar (40.9% and 39.2% respectively at one year post diagnosis), but fell to 34.0% for those aged 70 years and over. This difference was not statistically significant. There were insufficient data to report on the 15-39 year age group. Survival decreased with time since diagnosis for all ages combined, from 37.2% at one year to 12.9% at five-years. This decrease was statistically significant.

For cases diagnosed in the period 1982-1997, survival appeared to decrease with increasing age, from 24.9% in those aged 15-39 years to 8.1% in those aged 70 years and over, but these differences were not statistically significant.

Period of diagnosis

There was a non-significant increase in five-year survival between 1982-85 and 1994-97.

Oesophageal cancer (males)

1. Recent data: Persons aged 15 years or over at diagnosis, 1994-1997

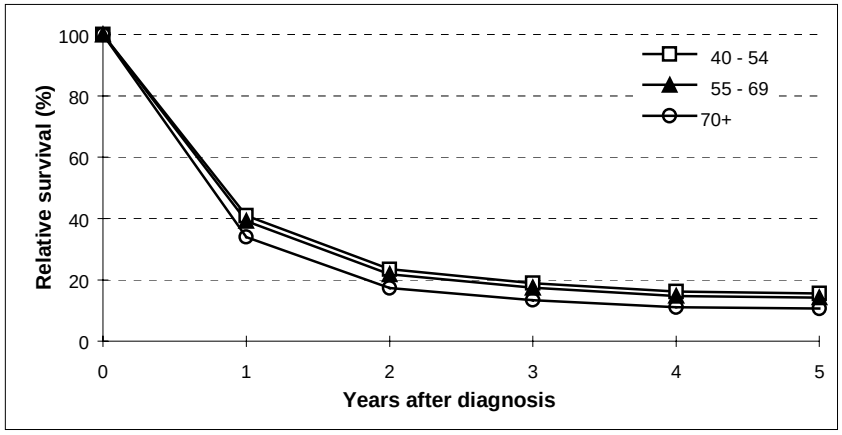
(A) Cases diagnosed in 1994-1997: relative survival (%)

Age at diagnosis	Years after diagnosis 1 year	2 years	3 years	4 years	5 years
40 - 54	40.9 *(30.8 - 51.0)*	23.5 *(14.1 - 32.8)*	18.9 *(10.2 - 27.7)*	16.2 *(7.9 - 24.4)*	15.6 *(7.4 - 23.8)*
55 - 69	39.2 *(32.3 - 46.1)*	21.9 *(15.7 - 28.1)*	17.5 *(11.7 - 23.2)*	14.8 *(9.3 - 20.3)*	14.3 *(8.8 - 19.8)*
70+	34.0 *(27.4 - 40.6)*	17.4 *(11.9 - 22.9)*	13.4 *(8.5 - 18.4)*	11.1 *(6.5 - 15.7)*	10.6 *(6.1 - 15.2)*
All (Ages 15+)	37.2 *(31.4 - 43.0)*	20.2 *(15.2 - 25.2)*	16.0 *(11.3 - 20.6)*	13.4 *(9.0 - 17.8)*	12.9 *(8.5 - 17.4)*

(C) Age-adjusted rates, 1994-1997 (per 100,000)

Incidence	Mortality
3.8	3.1
22.1	14.9
56.9	53.1
7.9	6.2

(B) Relative survival curves for cases diagnosed in 1994-1997



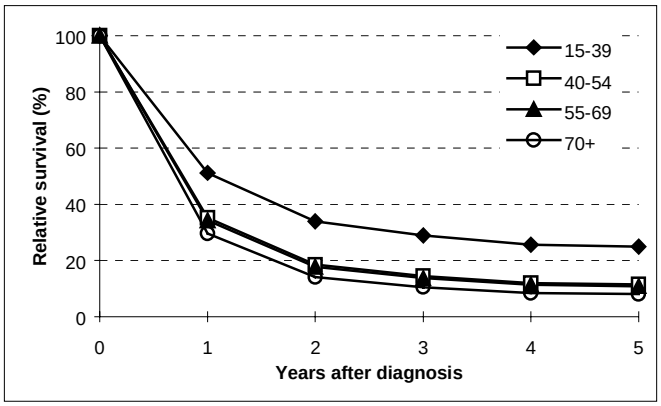
(D) Survival analysis, 1994-1997

	Cases	Deaths*
Age 15-39	3	1
Age 40-54	27	24
Age 55-69	88	72
Age 70+	111	98
All (age 15+)	229	195

** Case follow-up to 30/06/1999*

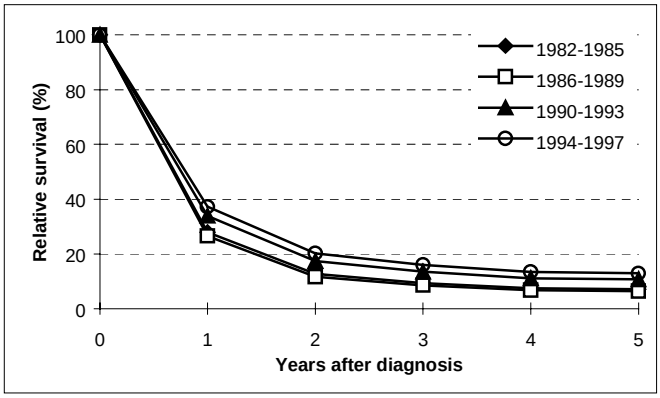
Oesophageal cancer (males)

2. Historical data (diagnosis 1982 to 1997): relative survival (%) by age at diagnosis



Age at diagnosis	R. Surv. at 5 years (%)	Relative risk**
15 - 39 yr	24.9	(1.00)
40 - 54	11.5	1.40 (0.44 - 4.49)
55 - 69	10.9	1.47 (0.47 - 4.63)
70 and over	8.1	1.70 (0.54 - 5.33)

3. Historical data (ages 15 - 70+): relative survival (%) by period of diagnosis



Period of diagnosis	R. Surv. at 5 years (%)	Relative risk**
1982 - 1985	7.1	(1.00)
1986 - 1989	6.4	1.04 (0.79 - 1.38)
1990 - 1993	10.7	0.84 (0.64 - 1.10)
1994 - 1997	12.9	0.77 (0.59 - 1.00)

*** Risk takes both age and period into acccount*

Females

There were insufficient cases to perform the analysis by age. Survival decreased with time since diagnosis from 36.9% at one year to 14.1% at five-years.

Period of diagnosis

There was a slight increase in survival in recent years, from 12.5% in 1982-95 to 14.1% in 1994-1997.

Oesophageal cancer (females)

1. Recent data: Persons aged 15 years or over at diagnosis, 1994-1997

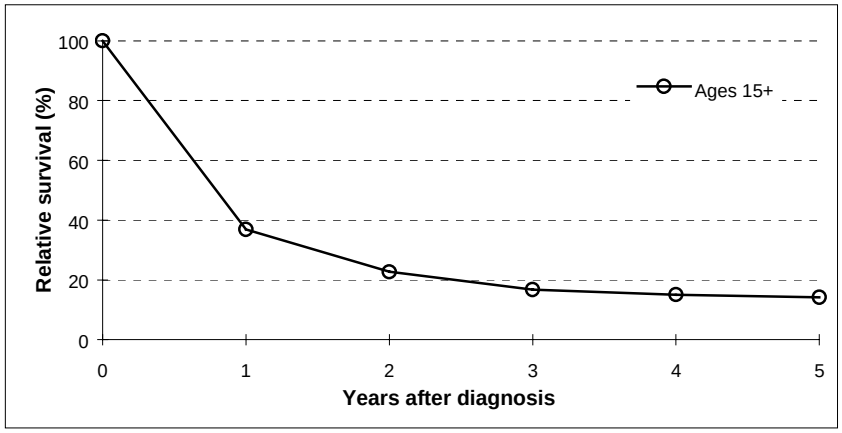
(A) Cases diagnosed in 1994-1997: relative survival (%)

Age at diagnosis	Years after diagnosis 1 year	2 years	3 years	4 years	5 years
All (Ages 15+)	36.9 *(28.5 - 45.3)*	22.7 *(15.0 - 30.4)*	16.8 *(9.8 - 23.7)*	15.0 *(8.4 - 21.7)*	14.1 *(7.6 - 20.7)*

(C) Age-adjusted rates, 1994-1997 (per 100,000)

Incidence	Mortality
2.8	2.1

(B) Relative survival curves for cases diagnosed in 1994-1997



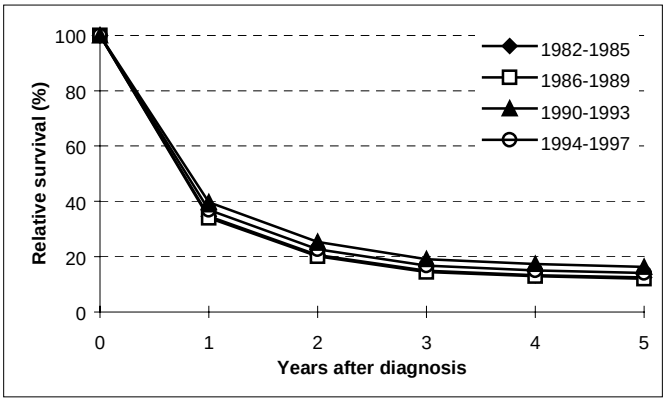
(D) Survival analysis, 1994-1997

	Cases	Deaths*
Age 15-39	0	0
Age 40-54	10	4
Age 55-69	26	16
Age 70+	78	72
All (age 15+)	114	92

** Case follow-up to 30/06/1999*

Oesophageal cancer (females)

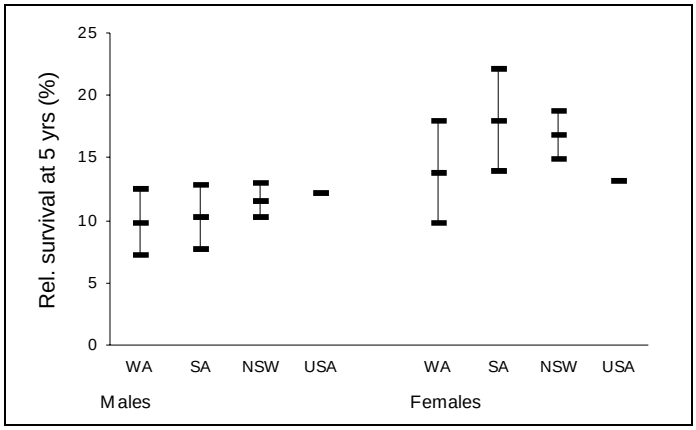
2. Historical data (ages 15 - 70+): relative survival (%) by period of diagnosis



Period of diagnosis	R. Surv. at 5 years (%)
1982 - 1985	12.5
1986 - 1989	12.1
1990 - 1993	16.3
1994 - 1997	14.1

Comparisons

Oesophageal cancer survival was similar in all areas compared for males, but appeared slightly higher, for females, in South Australia and New South Wales than for Western Australia.



4.6 Stomach

The five-year relative survival of Western Australians with cancers of the stomach diagnosed in the period 1982-1997 was 17.9% (15.8 – 20.0) for males, and 19.1% (16.2 – 22.1) for females.

Males

Age at diagnosis

In recent cases, relative survival at one year showed a significant decrease from 55.0% in the 40-54 year age group to 36.2% in those aged 70 years and over. There were insufficient data to report on the 15-39 year age group. Survival decreased with time since diagnosis for all ages combined, from 43.8% at one year to 20.6% at five-years. This was statistically significant.

For cases diagnosed in the period 1982-1997, five-year survival appeared to be greatest in those aged 40-54 years at 27.2%, decreasing to 11.1% in those aged 70 years and older. This difference was not statistically significant.

Period of diagnosis

Relative survival at 5 years after stomach cancers improved, from 14.1% in 1982-1985 to 20.6% in 1994-1997, although this increase was not statistically significant.

Stomach cancer (males)

1. Recent data: Persons aged 15 years or over at diagnosis, 1994-1997

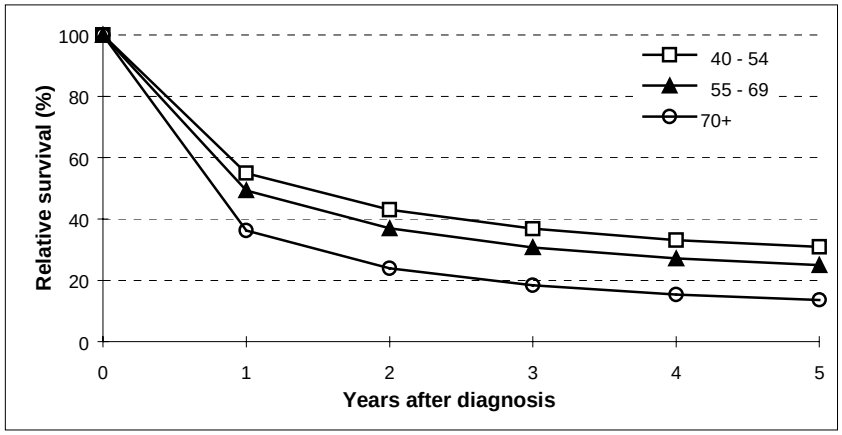
(A) Cases diagnosed in 1994-1997: relative survival (%)

Age at diagnosis	Years after diagnosis 1 year	2 years	3 years	4 years	5 years
40 - 54	55.0 *(48.4 - 61.5)*	43.0 *(35.8 - 50.2)*	36.8 *(29.6 - 44.1)*	33.1 *(25.9 - 40.4)*	30.9 *(23.6 - 38.1)*
55 - 69	49.3 *(44.4 - 54.3)*	36.9 *(31.8 - 42.0)*	30.7 *(25.7 - 35.8)*	27.1 *(22.1 - 32.1)*	25.0 *(20.0 - 29.9)*
70+	36.2 *(31.4 - 41.1)*	23.9 *(19.4 - 28.4)*	18.4 *(14.3 - 22.5)*	15.3 *(11.5 - 19.2)*	13.6 *(9.9 - 17.4)*
All (Ages 15+)	43.8 *(39.4 - 48.1)*	31.5 *(27.2 - 35.9)*	25.8 *(21.6 - 29.9)*	22.5 *(18.5 - 26.6)*	20.6 *(16.6 - 24.6)*

(C) Age-adjusted rates, 1994-1997 (per 100,000)

Incidence	Mortality
7.7	6.1
41.7	27.4
98.5	81.3
14.5	10.8

(B) Relative survival curves for cases diagnosed in 1994-1997



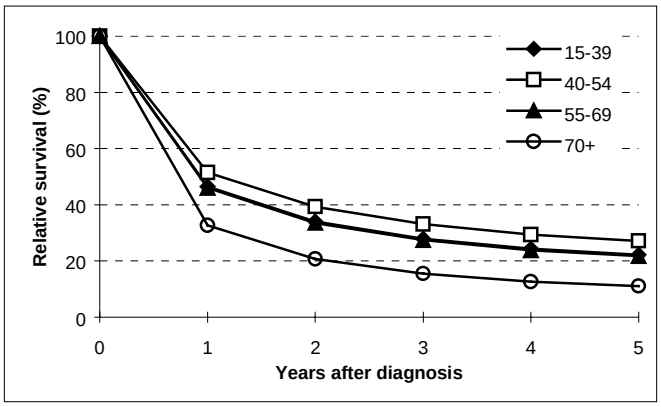
(D) Survival analysis, 1994-1997

	Cases	Deaths*
Age 15-39	9	9
Age 40-54	54	43
Age 55-69	167	116
Age 70+	205	166
All (age 15+)	435	334

** Case follow-up to 30/06/1999*

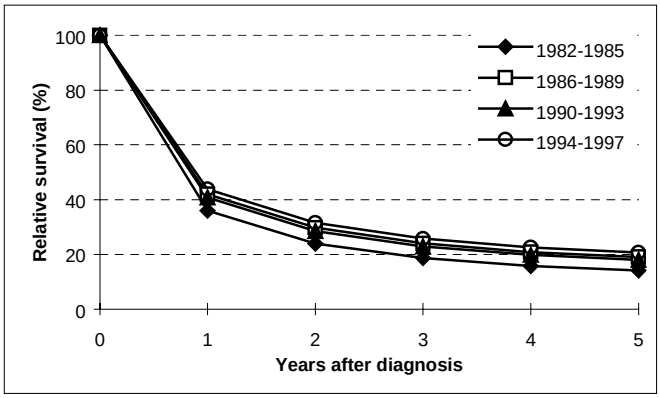
Stomach cancer (males)

2. Historical data (diagnosis 1982 to 1997): relative survival (%) by age at diagnosis



Age at diagnosis	R. Surv. at 5 years (%)	Relative risk**
15 - 39 yr	22.2	(1.00)
40 - 54	27.2	0.86 (0.56 - 1.31)
55 - 69	21.7	1.01 (0.68 - 1.51)
70 and over	11.1	1.45 (0.98 - 2.16)

3. Historical data (ages 15 - 70+): relative survival (%) by period of diagnosis



Period of diagnosis	R. Surv. at 5 years (%)	Relative risk**
1982 - 1985	14.1	(1.00)
1986 - 1989	19.0	0.86 (0.73 - 1.01)
1990 - 1993	18.0	0.91 (0.77 - 1.06)
1994 - 1997	20.6	0.81 (0.69 - 1.05)

*** Risk takes both age and period into acccount*

Females

Age at diagnosis

In recent cases, relative survival at one year decreased significantly from 53.5% in the 40-54 year age group to 37.5% in those aged 70 years and over. There were insufficient data to report on the 15-39 year age group. Survival decreased with time since diagnosis for all ages combined, from 42.7% at one year to 19.1% at five-years. This was statistically significant.

For cases diagnosed in the period 1982-1997, survival appeared to decrease with increasing age, from 31.9% in those aged 15-39 years to 14.3% in those aged 70 years and over. The difference between the 15-39 year and 70 years and over age group was statistically significant.

Period of diagnosis

There was little change in 5-year relative survival between 1982 and 1997.

Stomach cancer (females)

1. Recent data: Persons aged 15 years or over at diagnosis, 1994-1997

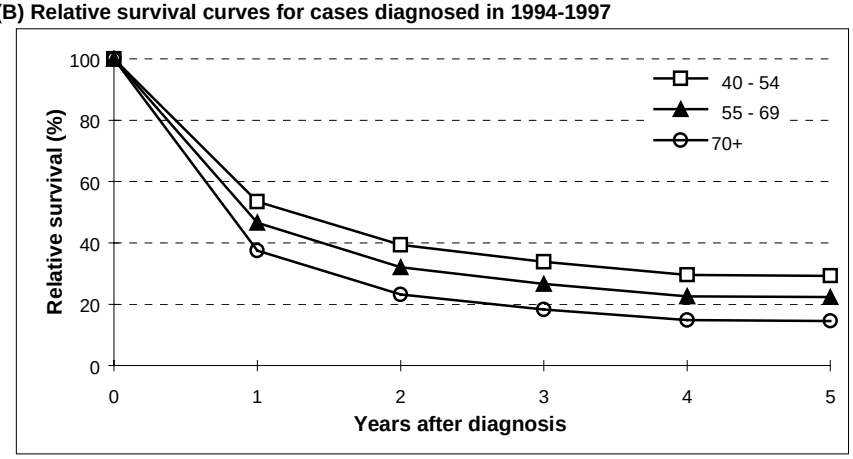
(A) Cases diagnosed in 1994-1997: relative survival (%)

Age at diagnosis	Years after diagnosis 1 year	2 years	3 years	4 years	5 years
40 - 54	53.5 *(44.3 - 62.6)*	39.4 *(29.5 - 49.3)*	33.8 *(23.9 - 43.7)*	29.6 *(19.8 - 39.4)*	29.3 *(19.5 - 39.1)*
55 - 69	46.5 *(39.3 - 53.7)*	32.0 *(24.7 - 39.3)*	26.6 *(19.5 - 33.7)*	22.6 *(15.7 - 29.5)*	22.3 *(15.4 - 29.2)*
70+	37.5 *(31.3 - 43.7)*	23.2 *(17.6 - 28.8)*	18.3 *(13.1 - 23.5)*	14.8 *(10.0 - 19.7)*	14.6 *(9.7 - 19.4)*
All (Ages 15+)	42.7 *(36.9 - 48.4)*	28.3 *(22.8 - 33.8)*	23.1 *(17.8 - 28.4)*	19.3 *(14.3 - 24.4)*	19.1 *(14.0 - 24.2)*

(C) Age-adjusted rates, 1994-1997 (per 100,000)

Incidence	Mortality
4.6	3.5
16.3	11.4
48.8	38.5
6.8	4.9

(B) Relative survival curves for cases diagnosed in 1994-1997



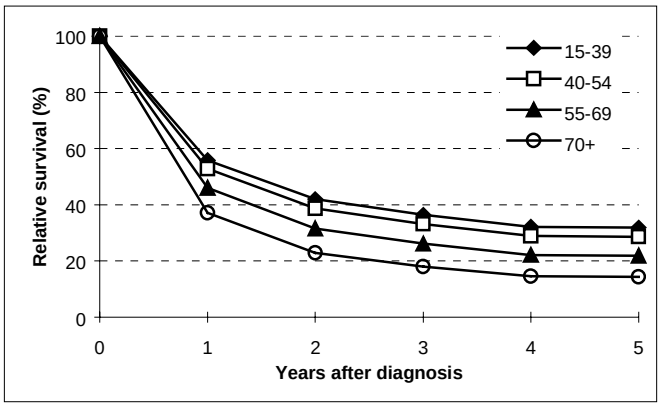
(D) Survival analysis, 1994-1997

	Cases	Deaths*
Age 15-39	8	4
Age 40-54	31	24
Age 55-69	64	50
Age 70+	146	114
All (age 15+)	249	192

** Case follow-up to 30/06/1999*

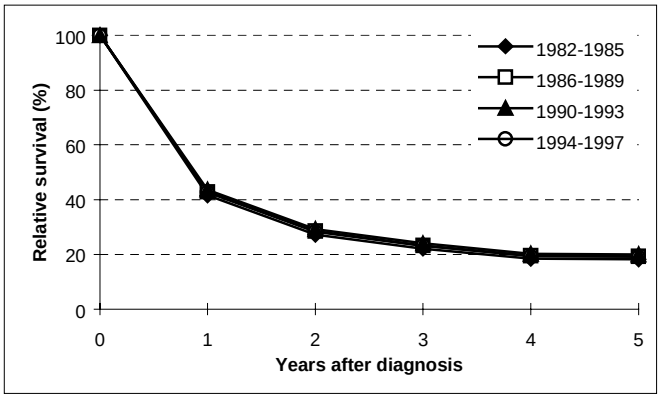
Stomach cancer (females)

2. Historical data (diagnosis 1982 to 1997): relative survival (%) by age at diagnosis



Age at diagnosis	R. Surv. at 5 years (%)	Relative risk**
15 - 39 yr	31.9	(1.00)
40 - 54	28.7	1.09 (0.65 - 1.80)
55 - 69	21.9	1.33 (0.83 - 2.13)
70 and over	14.3	1.70 (1.07 - 2.71)

3. Historical data (ages 15 - 70+): relative survival (%) by period of diagnosis

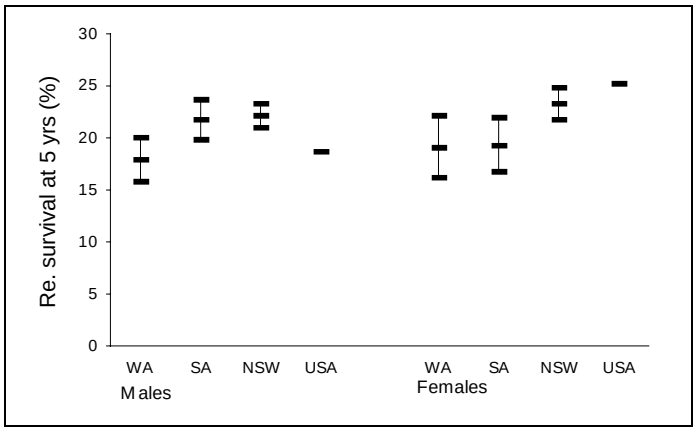


Period of diagnosis	R. Surv. at 5 years (%)	Relative risk**
1982 - 1985	18.2	(1.00)
1986 - 1989	19.3	0.94 (0.75 - 1.18)
1990 - 1993	20.0	0.91 (0.72 - 1.14)
1994 - 1997	19.1	0.93 (0.75 - 1.17)

*** Risk takes both age and period into acccount*

Comparisons

Survival after stomach cancer appeared lower in Western Australia than in South Australia and New South Wales, but was similar to that in America. In females, survival was similar to that reported for South Australia.



4.7 Colorectal cancer

The five-year relative survival of Western Australians with colorectal cancer diagnosed in the period 1982-1997 was 52.8% (51.2 – 54.4) for males, and 53.6% (52.0 – 55.2) for females.

Males

Age at diagnosis

In recent cases, relative survival at one year was very similar in the three younger age groups at around 80%. It was slightly lower in the 70 years and over age group, 75.7%, although the difference was not statistically significant. Survival decreased with time since diagnosis for all ages combined, from 78.4% at one year to 55.6% at five-years. This was statistically significant.

For cases diagnosed in the period 1982-1997, survival was lower in the 70 years and over age group, but this was not statistically significant.

Period of diagnosis

There was a consistent trend towards improved relative survival after colorectal cancer between 1982-1985 and 1994-1997, but individual relative risks were not statistically significant.

Colorectal cancer (males)

1. Recent data: Persons aged 15 years or over at diagnosis, 1994-1997

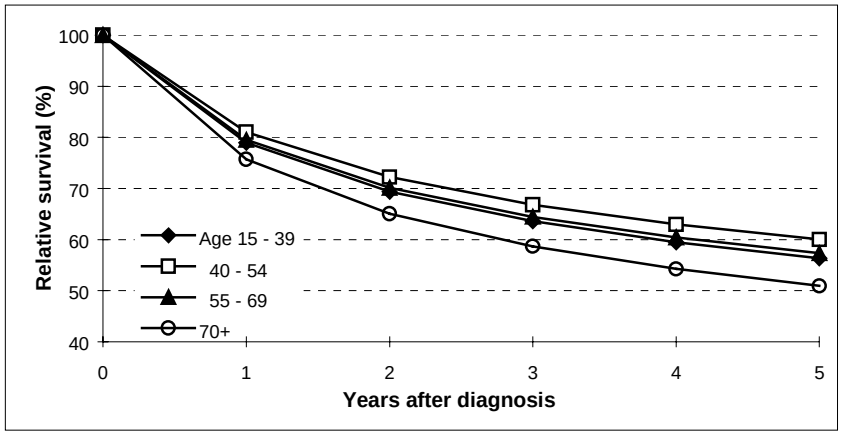
(A) Cases diagnosed in 1994-1997: relative survival (%)

Age at diagnosis	Years after diagnosis 1 year	2 years	3 years	4 years	5 years
15 - 39	79.0 *(74.0 - 83.9)*	69.4 *(62.7 - 76.1)*	63.6 *(56.0 - 71.2)*	59.5 *(51.3 - 67.7)*	56.4 *(47.8 - 65.0)*
40 - 54	81.0 *(78.7 - 83.3)*	72.2 *(69.2 - 75.3)*	66.8 *(63.3 - 70.3)*	63.0 *(59.2 - 66.8)*	60.0 *(56.0 - 64.0)*
55 - 69	79.5 *(77.6 - 81.4)*	70.1 *(67.7 - 72.6)*	64.4 *(61.7 - 67.2)*	60.4 *(57.4 - 63.4)*	57.3 *(54.2 - 60.5)*
70+	75.7 *(73.5 - 77.9)*	65.0 *(62.3 - 67.8)*	58.7 *(55.6 - 61.8)*	54.3 *(51.0 - 57.6)*	50.9 *(47.4 - 54.4)*
All (Ages 15+)	78.4 *(76.7 - 80.1)*	68.6 *(66.5 - 70.8)*	62.8 *(60.3 - 65.3)*	58.7 *(56.1 - 61.4)*	55.6 *(52.8 - 58.4)*

(C) Age-adjusted rates, 1994-1997 (per 100,000)

Incidence	Mortality
1.9	0.8
37.2	13.8
192.6	78.7
424.4	214.1
65.5	28.8

(B) Relative survival curves for cases diagnosed in 1994-1997



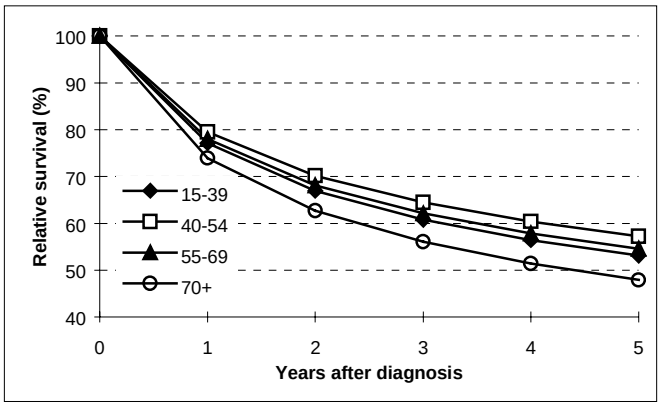
(D) Survival analysis, 1994-1997

	Cases	Deaths*
Age 15-39	30	12
Age 40-54	260	93
Age 55-69	769	306
Age 70+	870	474
All (age 15+)	1929	885

** Case follow-up to 30/06/1999*

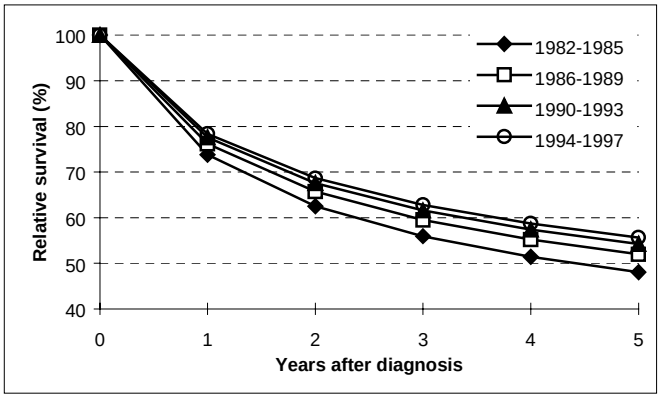
Colorectal cancer (males)

2. Historical data (diagnosis 1982 to 1997): relative survival (%) by age at diagnosis



Age at diagnosis	R. Surv. at 5 years (%)	Relative risk**
15 - 39 yr	53.1	(1.00)
40 - 54	57.2	0.89 (0.68 - 1.17)
55 - 69	54.6	0.97 (0.75 - 1.26)
70 and over	47.9	1.18 (0.91 - 1.53)

3. Historical data (ages 15 - 70+): relative survival (%) by period of diagnosis



Period of diagnosis	R. Surv. at 5 years (%)	Relative risk**
1982 - 1985	48.1	(1.00)
1986 - 1989	51.9	0.90 (0.79 - 1.02)
1990 - 1993	54.2	0.84 (0.74 - 1.05)
1994 - 1997	55.6	0.80 (0.71 - 1.10)

*** Risk takes both age and period into acccount*

Females

Age at diagnosis

In recent cases, relative survival at one year was very similar in the three younger age groups at around 80%. It was slightly lower in the 70 years and over age group at 73.1%, although this was not statistically significant. Survival decreased with time since diagnosis for all ages combined, from 76.7% at one year to 56.5% at five-years.

For cases diagnosed in the period 1982-1997, survival remained lower in the 70 years and over age group, but this was not statistically significant.

Period of diagnosis

For all age groups combined, 5-year relative survival after colorectal cancer showed a non-significant increase, from 51.0% in 1982-85 to 56.5% in 1994-1997.

Colorectal cancer (females)

1. Recent data: Persons aged 15 years or over at diagnosis, 1994-1997

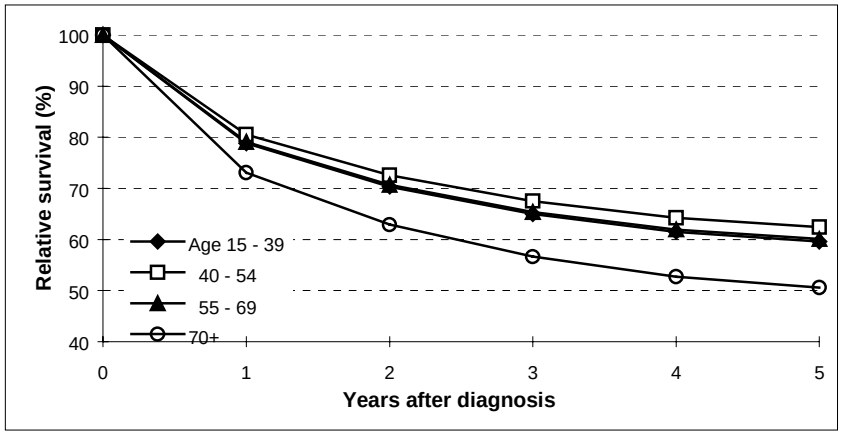
(A) Cases diagnosed in 1994-1997: relative survival (%)

Age at diagnosis	Years after diagnosis 1 year	2 years	3 years	4 years	5 years
15 - 39	78.8 *(73.3 - 84.3)*	70.3 *(63.2 - 77.5)*	65.0 *(56.9 - 73.1)*	61.5 *(52.9 - 70.2)*	59.6 *(50.7 - 68.5)*
40 - 54	80.5 *(77.9 - 83.1)*	72.6 *(69.2 - 76.0)*	67.5 *(63.7 - 71.4)*	64.2 *(60.1 - 68.4)*	62.4 *(58.2 - 66.7)*
55 - 69	79.1 *(76.9 - 81.2)*	70.7 *(68.0 - 73.4)*	65.4 *(62.3 - 68.4)*	61.9 *(58.7 - 65.2)*	60.1 *(56.7 - 63.5)*
70+	73.1 *(70.6 - 75.5)*	62.9 *(59.9 - 65.9)*	56.6 *(53.4 - 59.9)*	52.7 *(49.3 - 56.2)*	50.6 *(47.0 - 54.2)*
All (Ages 15+)	76.7 *(74.7 - 78.7)*	67.6 *(65.2 - 70.1)*	62.0 *(59.3 - 64.7)*	58.4 *(55.5 - 61.3)*	56.5 *(53.5 - 59.5)*

(C) Age-adjusted rates, 1994-1997 (per 100,000)

Incidence	Mortality
1.6	0.4
31.7	11.3
123.0	47.3
269.0	141.1
43.9	18.7

(B) Relative survival curves for cases diagnosed in 1994-1997



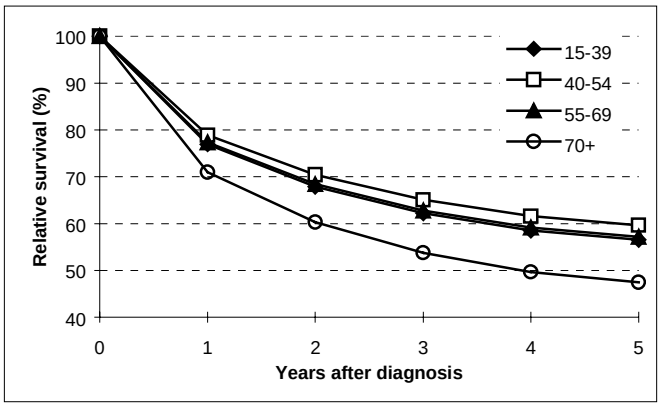
(D) Survival analysis, 1994-1997

	Cases	Deaths*
Age 15-39	27	12
Age 40-54	210	78
Age 55-69	488	155
Age 70+	807	442
All (age 15+)	1532	687

** Case follow-up to 30/06/1999*

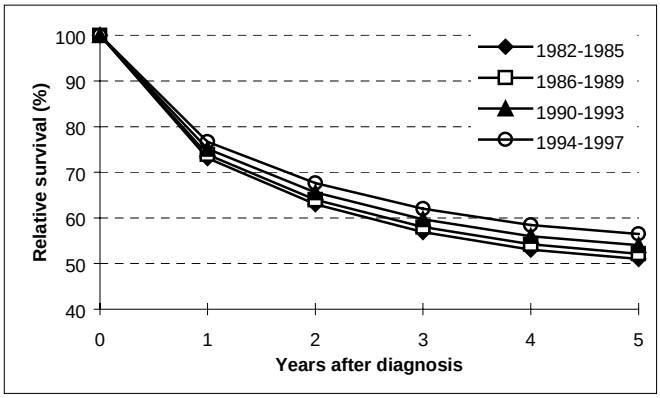
Colorectal cancer (females)

2. Historical data (diagnosis 1982 to 1997): relative survival (%) by age at diagnosis



Age at diagnosis	R. Surv. at 5 years (%)	Relative risk**
15 - 39 yr	56.5	(1.00)
40 - 54	59.7	0.91 (0.67 - 1.23)
55 - 69	57.1	0.99 (0.74 - 1.31)
70 and over	47.5	1.32 (0.99 - 1.75)

3. Historical data (ages 15 - 70+): relative survival (%) by period of diagnosis

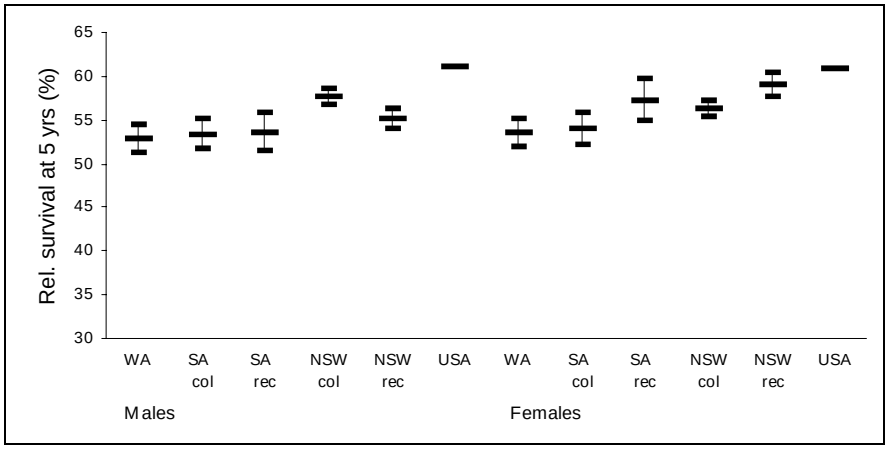


Period of diagnosis	R. Surv. at 5 years (%)	Relative risk**
1982 - 1985	51.0	(1.00)
1986 - 1989	52.2	0.96 (0.84 - 1.09)
1990 - 1993	54.0	0.91 (0.80 - 1.03)
1994 - 1997	56.5	0.84 (0.73 - 1.04)

*** Risk takes both age and period into acccount*

Comparisons

For males and for females, colorectal cancer survival in Western Australia was similar to that for colonic and rectal cancers in South Australia, and marginally lower than in New South Wales; the USA rates appeared higher but it was unclear what types were assessed.



4.8 Liver

The five-year relative survival of Western Australians with liver cancer diagnosed in the period 1982-1997 was 3.4% (1.8 – 5.0) for males, and 10.4% (4.9 – 15.8) for females.

Males

Age at diagnosis

In recent cases, relative survival at one year was very similar in the 40-54 and 55-69 year age groups at around 17%. It was slightly lower in persons aged 70 and over, at 6.7% although this was not statistically significant. There were insufficient data to produce estimates for the 15-39 year age group. Survival decreased with time since diagnosis for all ages combined, decreasing from 13.2% to 5.8% over the 5 year follow-up period, but remaining fairly constant from three years onwards.

For cases diagnosed in the period 1982-1997, survival decreased with increasing age, and was significantly lower in the older age groups relative to the 15-39 year age group.

Period of diagnosis

For all age groups combined, 5-year relative survival showed a non-significant increase; from 0.3% in 1982-85 to 5.8% in 1994-1997.

Liver cancer (males)

1. Recent data: Persons aged 15 years or over at diagnosis, 1994-1997

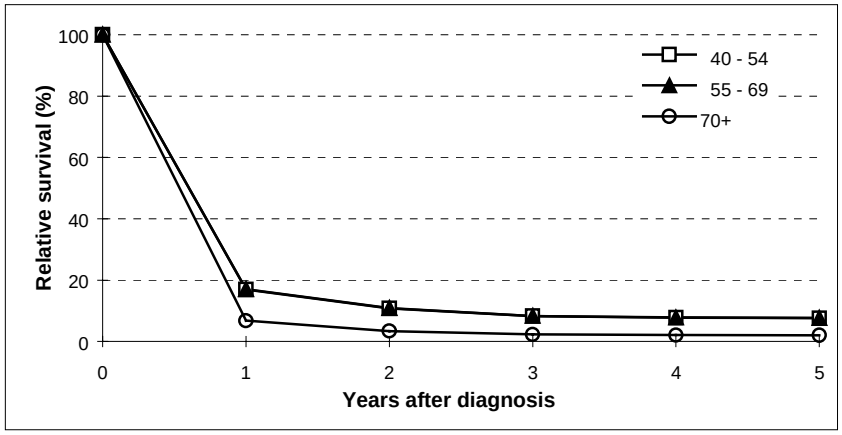
(A) Cases diagnosed in 1994-1997: relative survival (%)

Age at diagnosis	Years after diagnosis 1 year	2 years	3 years	4 years	5 years
40 - 54	16.9 *(7.6 - 26.2)*	10.8 *(3.4 - 18.2)*	8.3 *(1.8 - 14.7)*	7.7 *(1.5 - 14.0)*	7.6 *(1.3 - 13.8)*
55 - 69	17.0 *(10.0 - 24.1)*	10.8 *(5.2 - 16.5)*	8.3 *(3.3 - 13.3)*	7.8 *(2.9 - 12.7)*	7.7 *(2.7 - 12.7)*
70+	6.7 *(2.7 - 10.8)*	3.4 *(0.8 - 6.0)*	2.3 *(0.2 - 4.3)*	2.1 *(0.1 - 4.0)*	2.0 *(0.0 - 4.0)*
All (Ages 15+)	13.2 *(8.2 - 18.1)*	8.1 *(4.3 - 11.9)*	6.2 *(2.8 - 9.5)*	5.9 *(2.5 - 9.3)*	5.8 *(2.3 - 9.2)*

(C) Age-adjusted rates, 1994-1997 (per 100,000)

Incidence	Mortality
3.1	2.4
14.1	9.1
28.9	26.5
4.9	3.7

(B) Relative survival curves for cases diagnosed in 1994-1997



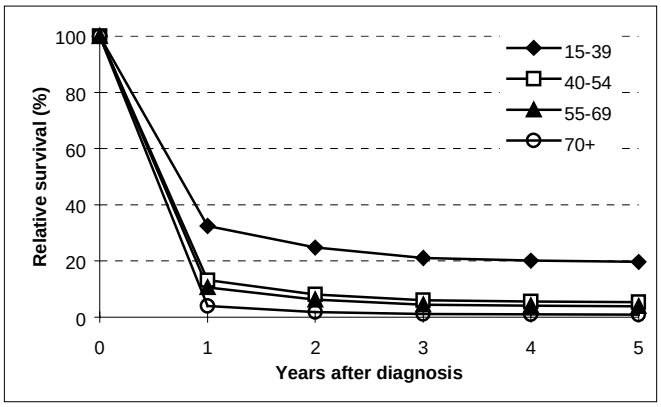
(D) Survival analysis, 1994-1997

	Cases	Deaths*
Age 15-39	5	4
Age 40-54	21	19
Age 55-69	57	51
Age 70+	55	53
All (age 15+)	138	127

** Case follow-up to 30/06/1999*

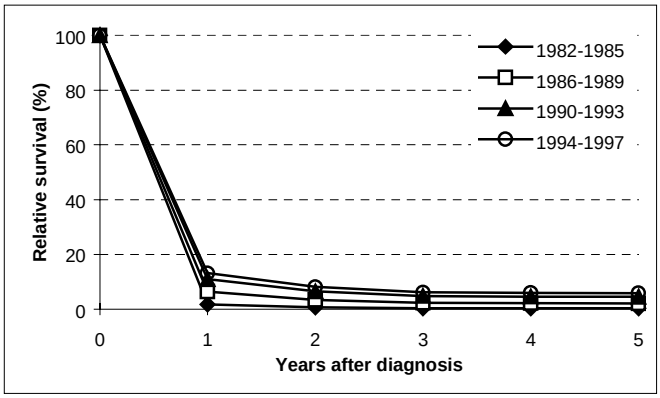
Liver cancer (males)

2. Historical data (diagnosis 1982 to 1997): relative survival (%) by age at diagnosis



Age at diagnosis	R. Surv. at 5 years (%)	Relative risk**
15 - 39 yr	19.7	(1.00)
40 - 54	5.4	1.96 (1.06 - 3.61)
55 - 69	3.9	1.95 (1.10 - 3.46)
70 and over	1.0	2.97 (1.67 - 5.27)

3. Historical data (ages 15 - 70+): relative survival (%) by period of diagnosis



Period of diagnosis	R. Surv. at 5 years (%)	Relative risk**
1982 - 1985	0.3	(1.00)
1986 - 1989	2.1	0.66 (0.46 - 1.05)
1990 - 1993	4.5	0.54 (0.38 - 1.31)
1994 - 1997	5.8	0.47 (0.34 - 1.51)

*** Risk takes both age and period into acccount*

Females

Age at diagnosis

In recent cases, relative survival at one year was highest in the 40-54 year age group at 37.8% and lowest in the 55-69 year age group at 16.7%. These differences were not statistically significant. There were insufficient data to produce estimates for the 15-39 year age group. Survival decreased with time since diagnosis for all ages combined, from 25.6% at one year to 11.9% at five-years, but this decrease was not significant.

For cases diagnosed in the period 1982-1997, five-year survival in the 55-69 years and 70 years and over age group (4.5% and 6.6% respectively) was significantly lower than in the 15-39 year age group (44.1%).

Period of diagnosis

For all age groups combined, 5-year relative survival showed a non-significant increase; from 5.4% in 1982-85 to 11.9% in 1994-1997.

Liver cancer (females)

1. Recent data: Persons aged 15 years or over at diagnosis, 1994-1997

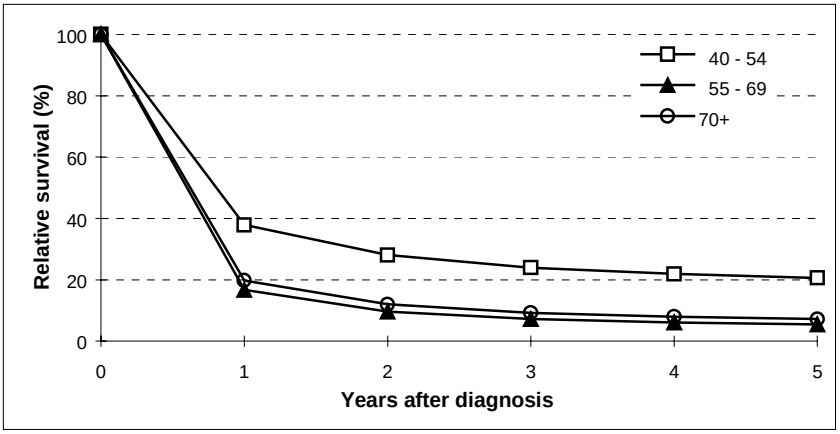
(A) Cases diagnosed in 1994-1997: relative survival (%)

Age at diagnosis	Years after diagnosis 1 year	2 years	3 years	4 years	5 years
40 - 54	37.8 *(14.9 - 60.8)*	28.0 *(5.9 - 50.2)*	24.0 *(2.6 - 45.4)*	21.9 *(1.0 - 42.8)*	20.6 *(0.1 - 41.2)*
55 - 69	16.7 *(4.2 - 29.1)*	9.6 *(0.0 - 19.2)*	7.2 *(0.0 - 15.4)*	6.1 *(0.0 - 13.6)*	5.5 *(0.0 - 12.5)*
70+	19.8 *(8.0 - 31.6)*	12.0 *(2.5 - 21.6)*	9.2 *(0.6 - 17.8)*	8.0 *(0.0 - 16.1)*	7.2 *(0.0 - 15.0)*
All (Ages 15+)	25.6 *(14.8 - 36.4)*	17.4 *(7.9 - 26.9)*	14.4 *(5.4 - 23.3)*	12.9 *(4.2 - 21.6)*	11.9 *(3.4 - 20.5)*

(C) Age-adjusted rates, 1994-1997 (per 100,000)

Incidence	Mortality
1.0	0.8
4.1	4.3
8.1	6.9
1.6	1.4

(B) Relative survival curves for cases diagnosed in 1994-1997



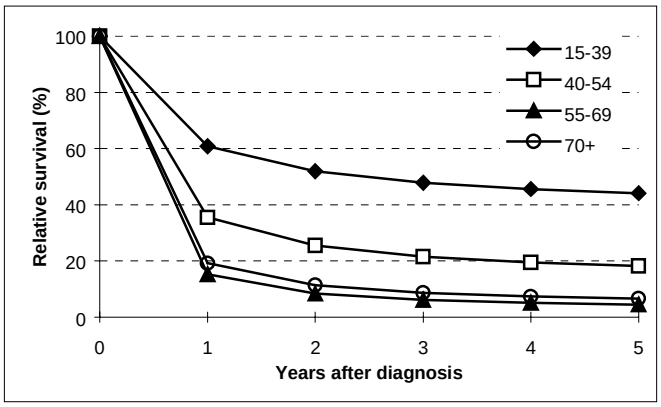
(D) Survival analysis, 1994-1997

	Cases	Deaths*
Age 15-39	6	3
Age 40-54	7	5
Age 55-69	16	15
Age 70+	24	22
All (age 15+)	53	45

** Case follow-up to 30/06/1999*

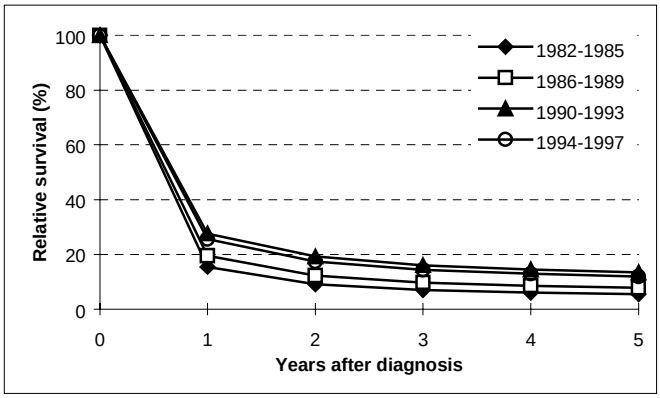
Liver cancer (females)

2. Historical data (diagnosis 1982 to 1997): relative survival (%) by age at diagnosis



Age at diagnosis	R. Surv. at 5 years (%)	Relative risk**
15 - 39 yr	44.1	(1.00)
40 - 54	18.2	2.03 (0.76 - 5.44)
55 - 69	4.5	3.75 (1.55 - 9.07)
70 and over	6.6	3.39 (1.44 - 7.97)

3. Historical data (ages 15 - 70+): relative survival (%) by period of diagnosis

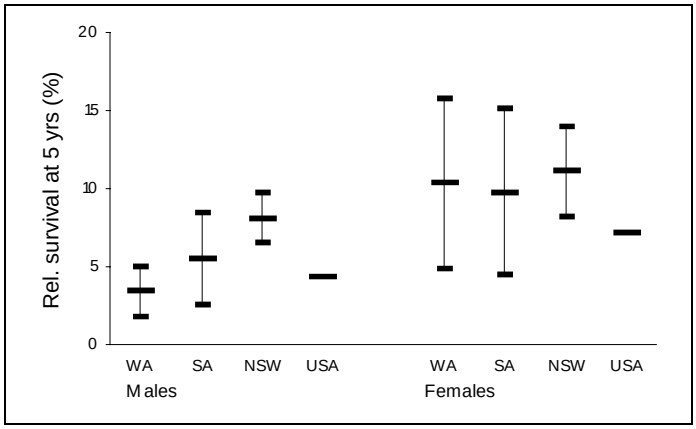


Period of diagnosis	R. Surv. at 5 years (%)	Relative risk**
1982 - 1985	5.4	(1.00)
1986 - 1989	7.8	0.70 (0.35 - 1.42)
1990 - 1993	13.5	0.66 (0.33 - 1.33)
1994 - 1997	11.9	0.68 (0.36 - 1.30)

*** Risk takes both age and period into acccount*

Comparisons

Survival after primary liver cancer appeared lower in Western Australia than in New South Wales, in males, but was similar in all areas, for females.



4.9 Gallbladder and biliary system

The five-year relative survival of Western Australians with cancer of the gallbladder and biliary system diagnosed in the period 1982-1997 was 12.8% (8.0 – 17.6) for males, and 9.91% (6.4 – 13.4) for females.

Males

Age at diagnosis

In recent cases, relative survival was very similar in the 40-54 and 55-69 year age groups, 47% at one year. It was lower in the 70 years and over age group at 30.4% although this was not statistically significant. There were insufficient data to produce estimates for the 15-39 year age group. Survival decreased with time since diagnosis for all ages combined, decreasing from 38.0% to 17.3% over the 5 year follow-up period.

For cases diagnosed in the period 1982-1997, five-year survival was highest in the 40-54 year and 55-69 year age groups and lowest in the 15-39 and 70 years and over age group. These differences were not statistically significant.

Period of diagnosis

For all ages combined, five-year relative survival increased from 11.9% in 1982-85 to 17.3% in 1994-1997, however this was not statistically significant.

Cancers of gallbladder and biliary system (males)

1. Recent data: Persons aged 15 years or over at diagnosis, 1994-1997

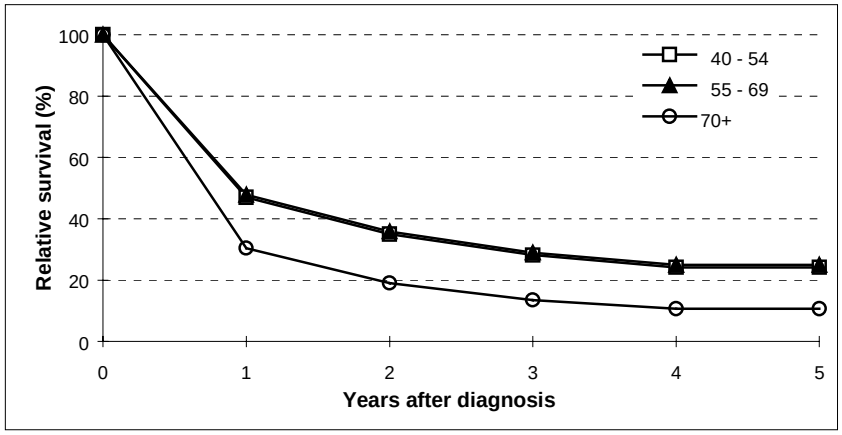
(A) Cases diagnosed in 1994-1997: relative survival (%)

Age at diagnosis	Years after diagnosis 1 year	2 years	3 years	4 years	5 years
40 - 54	47.0 *(29.1 - 65.0)*	35.0 *(16.6 - 53.4)*	28.1 *(10.3 - 46.0)*	24.1 *(6.9 - 41.4)*	24.1 *(6.8 - 41.4)*
55 - 69	47.9 *(36.5 - 59.2)*	35.9 *(24.2 - 47.5)*	29.0 *(17.6 - 40.4)*	25.0 *(13.9 - 36.0)*	25.0 *(13.9 - 36.0)*
70+	30.4 *(20.1 - 40.7)*	19.1 *(10.0 - 28.2)*	13.5 *(5.6 - 21.5)*	10.6 *(3.5 - 17.8)*	10.6 *(3.3 - 18.0)*
All (Ages 15+)	38.0 *(28.7 - 47.3)*	26.7 *(17.8 - 35.6)*	20.6 *(12.3 - 28.9)*	17.3 *(9.4 - 25.2)*	17.3 *(9.1 - 25.5)*

(C) Age-adjusted rates, 1994-1997 (per 100,000)

Incidence	Mortality
1.0	0.6
9.0	7.7
21.8	15.7
3.1	2.4

(B) Relative survival curves for cases diagnosed in 1994-1997



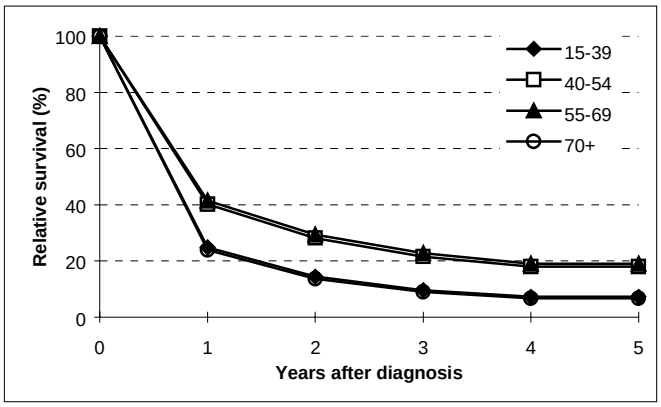
(D) Survival analysis, 1994-1997

	Cases	Deaths*
Age 15-39	5	3
Age 40-54	7	5
Age 55-69	36	27
Age 70+	45	39
All (age 15+)	93	74

** Case follow-up to 30/06/1999*

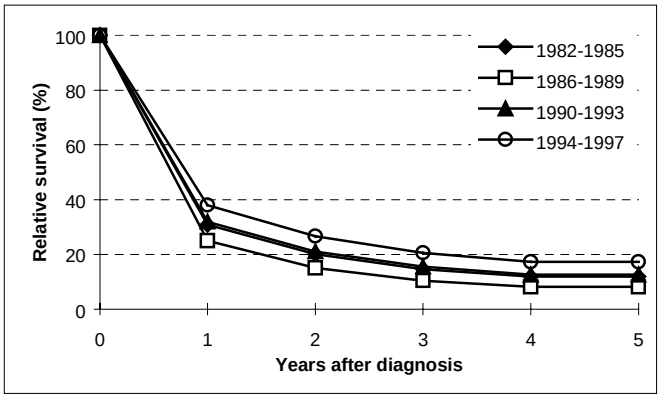
Cancers of gallbladder and biliary system (males)

2. Historical data (diagnosis 1982 to 1997): relative survival (%) by age at diagnosis



Age at diagnosis	R. Surv. at 5 years (%)	Relative risk**
15 - 39 yr	7.3	(1.00)
40 - 54	18.0	0.58 (0.24 - 1.41)
55 - 69	19.0	0.57 (0.26 - 1.26)
70 and over	6.8	0.92 (0.42 - 2.00)

3. Historical data (ages 15 - 70+): relative survival (%) by period of diagnosis



Period of diagnosis	R. Surv. at 5 years (%)	Relative risk**
1982 - 1985	11.9	(1.00)
1986 - 1989	8.1	1.07 (0.70 - 1.63)
1990 - 1993	12.6	0.97 (0.64 - 1.48)
1994 - 1997	17.3	0.77 (0.52 - 1.16)

*** Risk takes both age and period into acccount*

Females

Age at diagnosis

In recent cases, relative survival estimates were identical in the 40-54 and 55-69 year age groups, 30.5% at one year. Survival was lower in the 70 years and over age group, at 21.7% although this was not statistically significant. There were insufficient data to produce estimates for the 15-39 year age group. Survival decreased with time since diagnosis for all ages combined, decreasing from 26.7% to 8.8% over the 5 year follow-up period.

For cases diagnosed in the period 1982-1997, survival decreased with increasing age, from 35.5% in the 15-39 year age group to 6.7% in the 70 years and over age group. The difference between these two age groups was statistically significant.

Period of diagnosis

For all age groups combined, five-year relative survival decreased slightly from 10.6% in 1982-1985 to 8.8% in 1994-1997, however this was not statistically significant.

Cancers of gallbladder and biliary system (females)

1. Recent data: Persons aged 15 years or over at diagnosis, 1994-1997

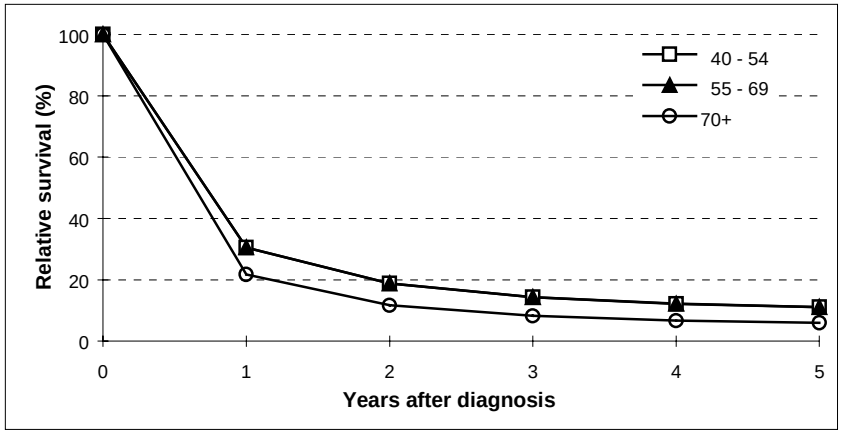
(A) Cases diagnosed in 1994-1997: relative survival (%)

Age at diagnosis	Years after diagnosis 1 year	2 years	3 years	4 years	5 years
40 - 54	30.5 *(15.3 - 45.7)*	18.8 *(5.5 - 32.1)*	14.3 *(2.4 - 26.2)*	12.2 *(1.1 - 23.2)*	11.1 *(0.5 - 21.7)*
55 - 69	30.5 *(20.1 - 41.0)*	18.8 *(9.8 - 27.9)*	14.3 *(6.1 - 22.5)*	12.2 *(4.5 - 19.9)*	11.1 *(3.7 - 18.5)*
70+	21.7 *(13.7 - 29.8)*	11.7 *(5.5 - 17.8)*	8.2 *(3.0 - 13.4)*	6.7 *(2.0 - 11.3)*	5.9 *(1.5 - 10.3)*
All (Ages 15+)	26.7 *(19.0 - 34.5)*	15.7 *(9.3 - 22.1)*	11.6 *(5.9 - 17.4)*	9.7 *(4.4 - 15.1)*	8.8 *(3.6 - 13.9)*

(C) Age-adjusted rates, 1994-1997 (per 100,000)

	Incidence	Mortality
40 - 54	1.4	0.8
55 - 69	6.8	7.2
70+	20.5	17.8
All (Ages 15+)	2.7	2.4

(B) Relative survival curves for cases diagnosed in 1994-1997



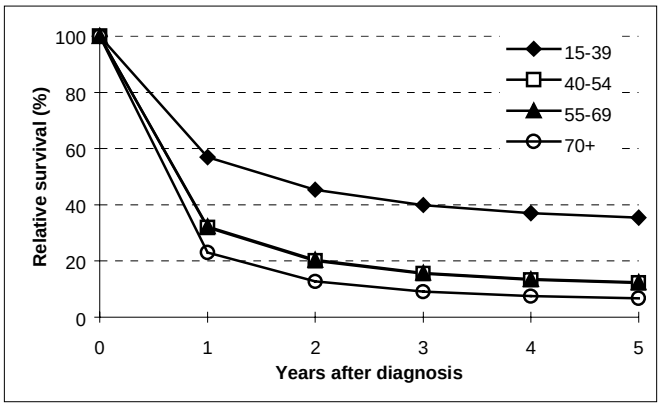
(D) Survival analysis, 1994-1997

	Cases	Deaths*
Age 15-39	3	1
Age 40-54	9	9
Age 55-69	28	24
Age 70+	62	57
All (age 15+)	102	91

** Case follow-up to 30/06/1999*

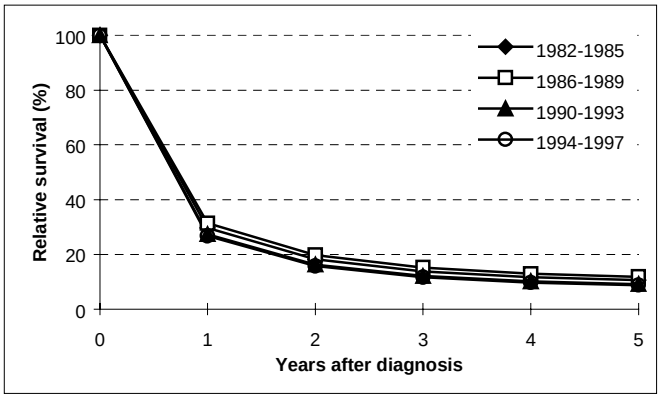
Cancers of gallbladder and biliary system (females)

2. Historical data (diagnosis 1982 to 1997): relative survival (%) by age at diagnosis



Age at diagnosis	R. Surv. at 5 years (%)	Relative risk**
15 - 39 yr	35.5	(1.00)
40 - 54	12.2	2.04 (0.78 - 5.34)
55 - 69	12.4	2.04 (0.82 - 5.05)
70 and over	6.7	2.62 (1.06 - 6.45)

3. Historical data (ages 15 - 70+): relative survival (%) by period of diagnosis

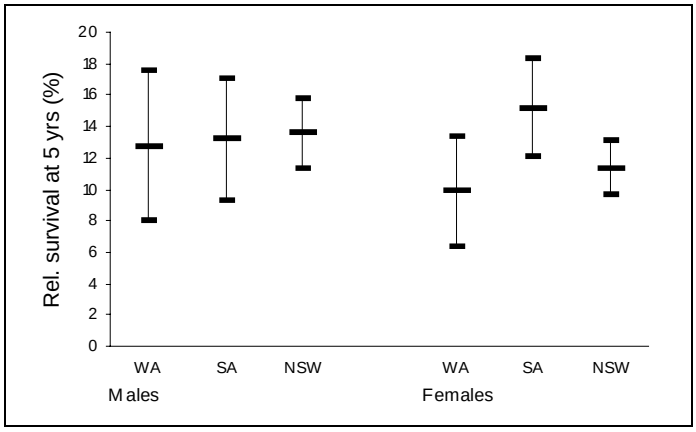


Period of diagnosis	R. Surv. at 5 years (%)	Relative risk**
1982 - 1985	10.6	(1.00)
1986 - 1989	11.8	0.94 (0.64 - 1.39)
1990 - 1993	9.2	1.00 (0.70 - 1.43)
1994 - 1997	8.8	1.05 (0.75 - 1.48)

*** Risk takes both age and period into acccount*

Comparisons

Survival after cancers of the gallbladder and biliary system was similar, for males and for females, in the three Australian states compared; no comparable American data were available.



4.10 Pancreas

The five-year relative survival of Western Australians with pancreatic cancer diagnosed in the period 1982-1997 was 2.8% (1.7 – 4.0) for males, and 3.6% (2.2 – 5.0) for females.

Males

Age at diagnosis

In recent cases, relative survival was very similar in the 40-54 and 55-69 year age groups at around 16% at one year. It was lower in the 70 years and over age group, at 8.9% although this was not statistically significant. There were insufficient data to produce estimates for the 15-39 year age group. Survival decreased with time since diagnosis for all ages combined, from 13.3% at one year to 3.9% at three years, after which it appeared to plateau; this pattern may be an effect of loss to follow-up, rather than true survival.

For cases diagnosed in the period 1982-1997, survival decreased with increasing age, from 18.1% in the 15-39 year age group to 1.3% in the 70 year and over age group. The difference between the 15-39 year age group and all other age groups was statistically significant.

Period of diagnosis

For all age groups combined, 5-year relative survival appeared to have increased from 2.0% in 1982-85 to 3.8% in 1994-1997, however this was not statistically significant.

Pancreatic cancer (males)

1. Recent data: Persons aged 15 years or over at diagnosis, 1994-1997

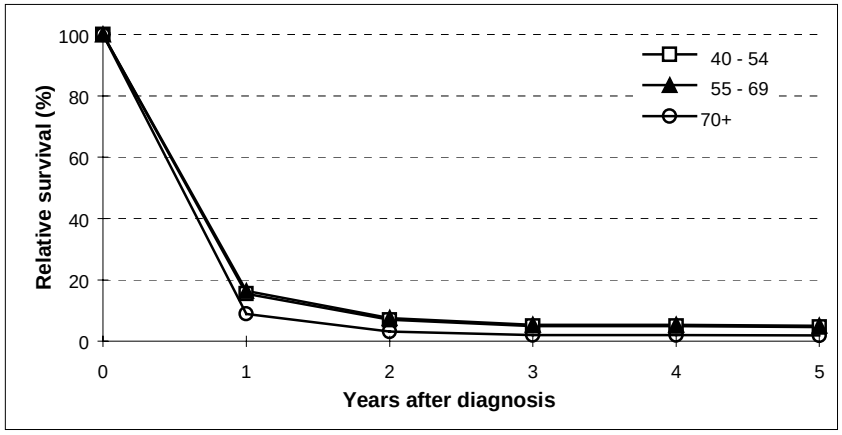
(A) Cases diagnosed in 1994-1997: relative survival (%)

Age at diagnosis	Years after diagnosis 1 year	2 years	3 years	4 years	5 years
40 - 54	15.5 *(8.8 - 22.2)*	7.0 *(2.6 - 11.4)*	5.0 *(1.3 - 8.6)*	4.9 *(1.3 - 8.5)*	4.6 *(1.1 - 8.1)*
55 - 69	16.4 *(11.9 - 20.8)*	7.5 *(4.4 - 10.6)*	5.4 *(2.8 - 8.0)*	5.3 *(2.7 - 7.9)*	5.0 *(2.5 - 7.6)*
70+	8.9 *(5.8 - 12.1)*	3.2 *(1.4 - 4.9)*	2.0 *(0.7 - 3.3)*	2.0 *(0.7 - 3.3)*	1.8 *(0.6 - 3.1)*
All (Ages 15+)	13.3 *(9.9 - 16.6)*	5.7 *(3.5 - 7.9)*	3.9 *(2.1 - 5.8)*	3.9 *(2.1 - 5.8)*	3.8 *(1.9 - 5.6)*

(C) Age-adjusted rates, 1994-1997 (per 100,000)

Incidence	Mortality
4.5	3.4
27.4	24.6
68.4	66.1
9.6	8.7

(B) Relative survival curves for cases diagnosed in 1994-1997



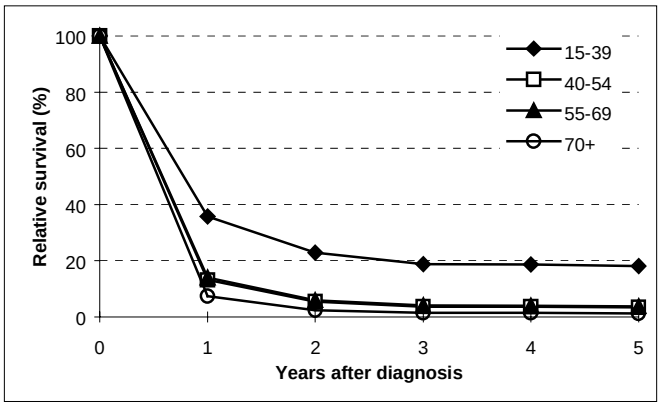
(D) Survival analysis, 1994-1997

	Cases	Deaths*
Age 15-39	4	2
Age 40-54	32	32
Age 55-69	111	102
Age 70+	136	136
All (age 15+)	283	272

** Case follow-up to 30/06/1999*

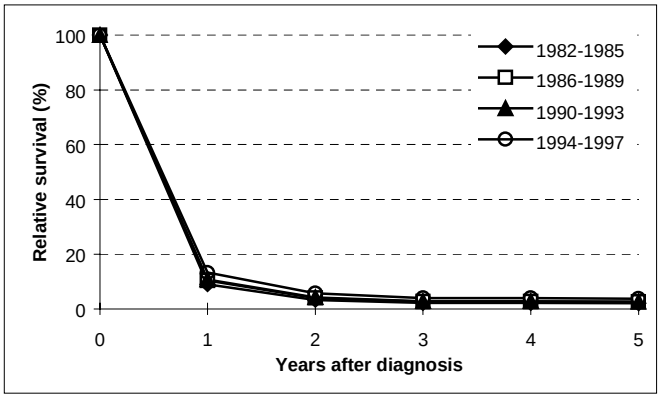
Pancreatic cancer (males)

2. Historical data (diagnosis 1982 to 1997): relative survival (%) by age at diagnosis



Age at diagnosis	R. Surv. at 5 years (%)	Relative risk**
15 - 39 yr	18.1	(1.00)
40 - 54	3.4	1.99 (1.09 - 3.65)
55 - 69	3.8	1.94 (1.09 - 3.45)
70 and over	1.3	2.59 (1.45 - 4.61)

3. Historical data (ages 15 - 70+): relative survival (%) by period of diagnosis



Period of diagnosis	R. Surv. at 5 years (%)	Relative risk**
1982 - 1985	2.0	(1.00)
1986 - 1989	2.5	0.93 (0.74 - 1.17)
1990 - 1993	2.7	0.88 (0.70 - 1.09)
1994 - 1997	3.8	0.82 (0.66 - 1.01)

*** Risk takes both age and period into acccount*

Females

Age at diagnosis

In recent cases, relative survival at one year decreased with increasing age, from 31.7% in the 40-54 year age group, to 9.0% in the 70 years and over age group. The difference between the 40-54 year and those 70 years and over was significant at 1-5 years. There were insufficient data to report on the 15-39 year age group. Survival decreased with time since diagnosis for all ages combined, from 13.4% at one year to 4.5% at five-years.

For cases diagnosed in the period 1982-1997, survival decreased with increasing age from 25.8% in the 15-39 year age group to 1.3% in persons aged 70 and over. The differences between the 15-39 year, the 55-69 year and the 70 years and over age groups were statistically significant.

Period of diagnosis

Five-year relative survival remained fairly stable between 1982 and 1997.

Pancreatic cancer (females)

1. Recent data: Persons aged 15 years or over at diagnosis, 1994-1997

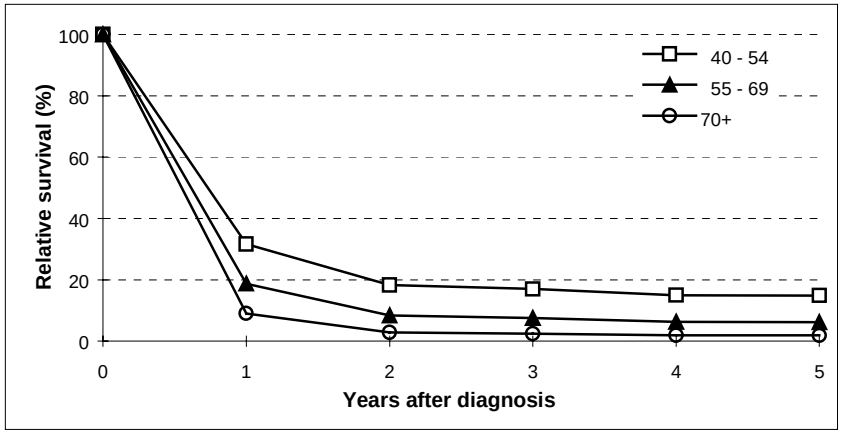
(A) Cases diagnosed in 1994-1997: relative survival (%)

Age at diagnosis	Years after diagnosis 1 year	2 years	3 years	4 years	5 years
40 - 54	31.7 *(20.9 - 42.4)*	18.3 *(9.2 - 27.4)*	17.0 *(8.1 - 25.8)*	15.0 *(6.5 - 23.4)*	14.9 *(6.4 - 23.4)*
55 - 69	18.7 *(13.2 - 24.3)*	8.4 *(4.6 - 12.2)*	7.5 *(3.9 - 11.2)*	6.3 *(2.9 - 9.7)*	6.2 *(2.8 - 9.7)*
70+	9.0 *(6.1 - 12.0)*	2.9 *(1.3 - 4.4)*	2.5 *(1.0 - 3.9)*	1.9 *(0.6 - 3.2)*	1.9 *(0.6 - 3.2)*
All (Ages 15+)	13.4 *(10.0 - 16.9)*	5.9 *(3.6 - 8.2)*	5.3 *(3.1 - 7.5)*	4.5 *(2.4 - 6.6)*	4.5 *(2.3 - 6.7)*

(C) Age-adjusted rates, 1994-1997 (per 100,000)

	Incidence	Mortality
40 - 54	3.7	2.6
55 - 69	16.5	12.2
70+	59.3	55.3
All (Ages 15+)	7.1	5.8

(B) Relative survival curves for cases diagnosed in 1994-1997



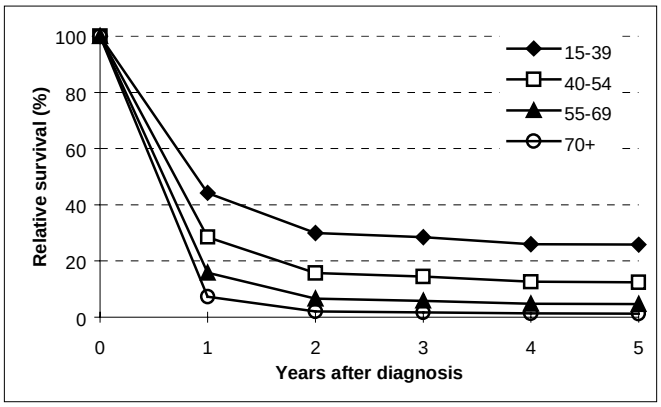
(D) Survival analysis, 1994-1997

	Cases	Deaths*
Age 15-39	3	2
Age 40-54	25	19
Age 55-69	65	57
Age 70+	182	180
All (age 15+)	275	258

** Case follow-up to 30/06/1999*

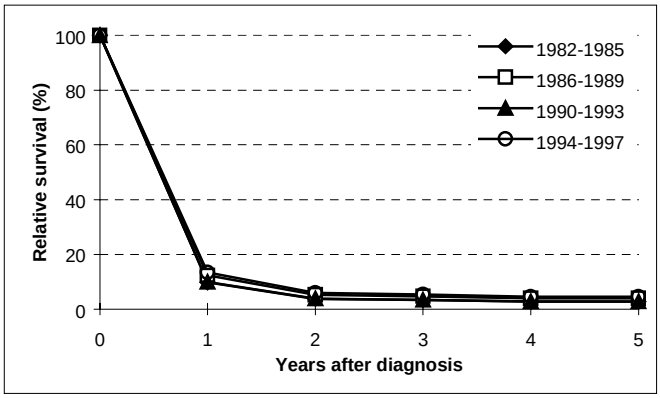
Pancreatic cancer (females)

2. Historical data (diagnosis 1982 to 1997): relative survival (%) by age at diagnosis



Age at diagnosis	R. Surv. at 5 years (%)	Relative risk**
15 - 39 yr	25.8	(1.00)
40 - 54	12.5	1.57 (0.74 - 3.32)
55 - 69	4.7	2.29 (1.13 - 4.66)
70 and over	1.3	3.29 (1.62 - 6.65)

3. Historical data (ages 15 - 70+): relative survival (%) by period of diagnosis

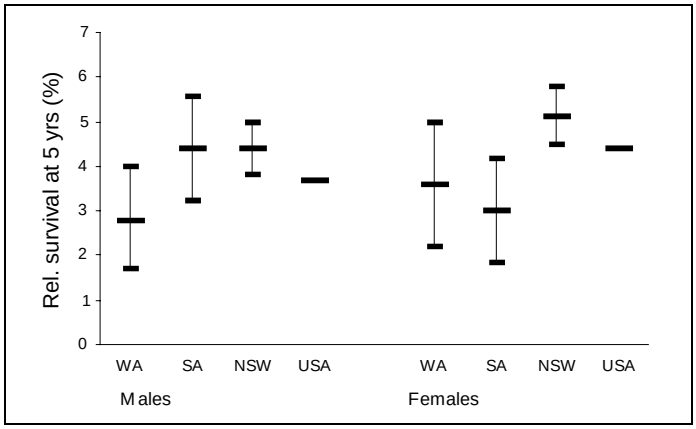


Period of diagnosis	R. Surv. at 5 years (%)	Relative risk**
1982 - 1985	2.8	(1.00)
1986 - 1989	4.0	0.91 (0.71 - 1.17)
1990 - 1993	2.8	0.99 (0.79 - 1.25)
1994 - 1997	4.5	0.84 (0.67 - 1.05)

*** Risk takes both age and period into acccount*

Comparisons

Survival estimates for pancreatic cancer had a large degree of statistical uncertainty, as indicated by the error bars on the graph, and the differences between "point estimates" in WA and the other areas are not thought to be statistically significant.



4.11 Larynx

The five-year relative survival of Western Australians with cancer of the larynx diagnosed in the period 1982-1997 was 62.1% (57.4 – 66.9) for males, and 54.9% (42.3 – 67.6) for females.

Males

Age at diagnosis

In recent cases, relative survival was very similar in all age groups, 84-87% at one year. There were insufficient data to produce estimates for the 15-39 year age group. Survival decreased with time since diagnosis for all ages combined, from 86.0% to 60.9% during the 5 year follow-up period. This was statistically significant.

For cases diagnosed in the period 1982-1997, survival decreased with increasing age from 76.4% in the 15-39 year age group to 57.3% in the 70 years and over age group. This difference was not statistically significant.

Period of diagnosis

Five-year relative survival between 1982-85 and 1994-97 appeared stable.

Cancer of the larynx (males)

1. Recent data: Persons aged 15 years or over at diagnosis, 1994-1997

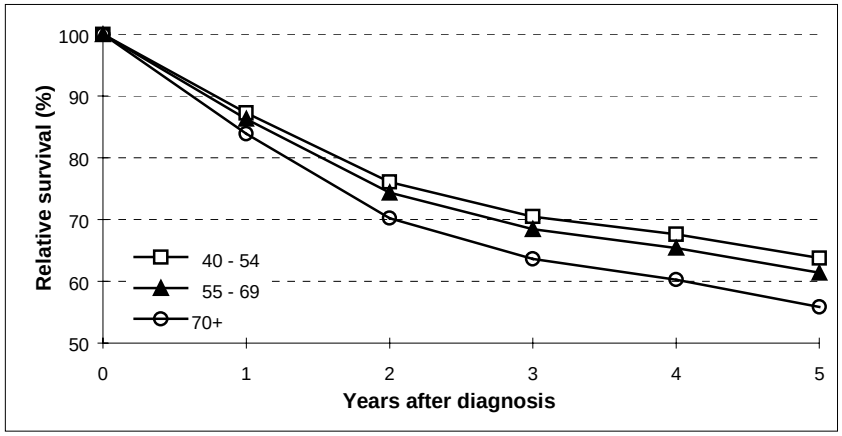
(A) Cases diagnosed in 1994-1997: relative survival (%)

Age at diagnosis	Years after diagnosis 1 year	2 years	3 years	4 years	5 years
40 - 54	87.3 *(81.7 - 92.9)*	76.1 *(66.9 - 85.2)*	70.5 *(59.7 - 81.2)*	67.6 *(56.1 - 79.1)*	63.8 *(51.2 - 76.4)*
55 - 69	86.3 *(81.4 - 91.2)*	74.4 *(66.6 - 82.1)*	68.4 *(59.4 - 77.5)*	65.4 *(55.8 - 75.1)*	61.4 *(50.8 - 72.0)*
70+	83.9 *(77.6 - 90.2)*	70.2 *(60.4 - 80.1)*	63.6 *(52.3 - 75.0)*	60.3 *(48.2 - 72.4)*	55.9 *(42.9 - 68.9)*
All (Ages 15+)	86.0 *(81.4 - 90.7)*	73.9 *(66.8 - 81.1)*	67.9 *(59.6 - 76.2)*	64.9 *(56.1 - 73.8)*	60.9 *(51.1 - 70.7)*

(C) Age-adjusted rates, 1994-1997 (per 100,000)

Incidence	Mortality
4.0	1.0
17.0	6.4
28.7	16.2
5.5	2.2

(B) Relative survival curves for cases diagnosed in 1994-1997



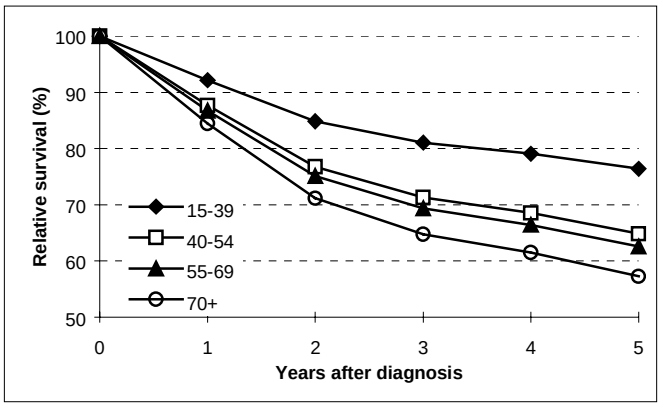
(D) Survival analysis, 1994-1997

	Cases	Deaths*
Age 15-39	4	2
Age 40-54	27	9
Age 55-69	68	22
Age 70+	56	30
All (age 15+)	155	63

** Case follow-up to 30/06/1999*

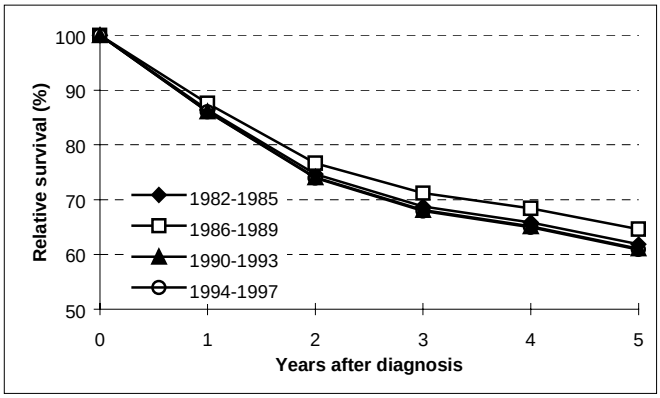
Cancer of the larynx (males)

2. Historical data (diagnosis 1982 to 1997): relative survival (%) by age at diagnosis



Age at diagnosis	R. Surv. at 5 years (%)	Relative risk**
15 - 39 yr	76.4	(1.00)
40 - 54	64.9	1.56 (0.36 - 6.70)
55 - 69	62.6	1.69 (0.40 - 7.09)
70 and over	57.3	2.02 (0.48 - 8.56)

3. Historical data (ages 15 - 70+): relative survival (%) by period of diagnosis



Period of diagnosis	R. Surv. at 5 years (%)	Relative risk**
1982 - 1985	61.8	(1.00)
1986 - 1989	64.6	0.91 (0.58 - 1.43)
1990 - 1993	61.1	1.03 (0.68 - 1.57)
1994 - 1997	60.9	1.03 (0.66 - 1.62)

*** Risk takes both age and period into acccount*

Females

Age at diagnosis

In recent cases, relative survival was very fairly similar in all age groups at around 82-86% at one year. There were insufficient data to produce estimates for the 15-39 year age group. Survival decreased with time since diagnosis for all ages combined, from 83.6% to 61.8% during the 5 year follow-up period. This was not statistically significant.

For cases diagnosed in the period 1982-1997, survival decreased with increasing age, from 68.0% in the 15-39 year age group to 51.8% in the 55-69 year age group, but reached 57.1% in persons aged 70 and over.

Period of diagnosis

Five-year survival between 1982-85 and 1994-97 was relatively stable.

Cancer of the larynx (females)

1. Recent data: Persons aged 15 years or over at diagnosis, 1994-1997

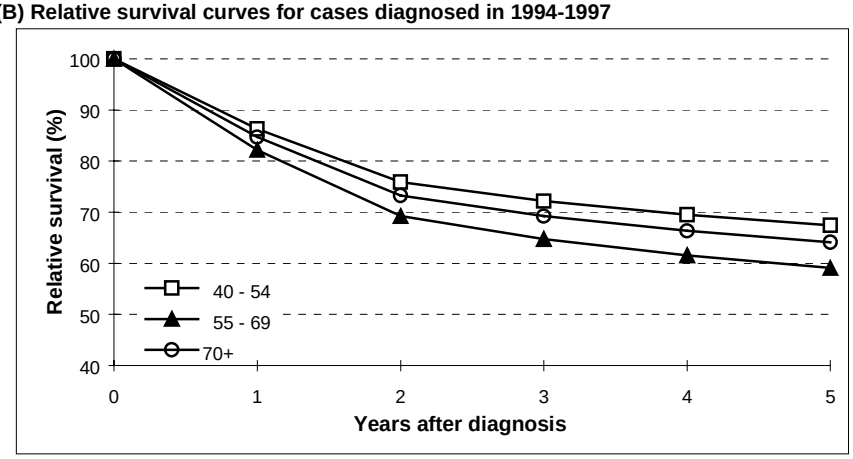
(A) Cases diagnosed in 1994-1997: relative survival (%)

Age at diagnosis	Years after diagnosis 1 year	2 years	3 years	4 years	5 years
40 - 54	86.3 *(70.4 - 100.0)*	75.9 *(50.6 - 100.0)*	72.2 *(44.0 - 100.0)*	69.5 *(39.5 - 99.5)*	67.4 *(35.9 - 98.9)*
55 - 69	82.2 *(67.2 - 97.2)*	69.2 *(47.1 - 91.3)*	64.7 *(40.7 - 88.8)*	61.5 *(36.3 - 86.8)*	59.1 *(32.7 - 85.5)*
70+	84.7 *(68.1 - 100.0)*	73.3 *(47.4 - 99.1)*	69.2 *(40.7 - 97.8)*	66.3 *(35.5 - 97.2)*	64.1 *(31.8 - 96.4)*
All (Ages 15+)	83.6 *(70.3 - 96.8)*	71.4 *(51.6 - 91.1)*	67.2 *(45.6 - 88.7)*	64.1 *(41.3 - 86.8)*	61.8 *(38.0 - 85.6)*

(C) Age-adjusted rates, 1994-1997 (per 100,000)

Incidence	Mortality
0.6	0.2
2.8	0.5
2.3	1.7
0.7	0.2

(B) Relative survival curves for cases diagnosed in 1994-1997



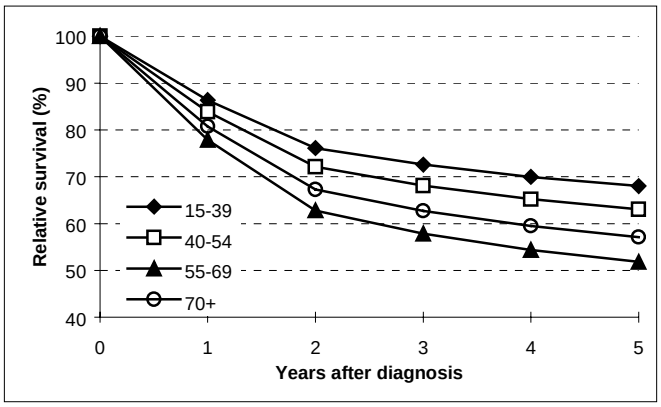
(D) Survival analysis, 1994-1997

	Cases	Deaths*
Age 15-39	0	0
Age 40-54	4	1
Age 55-69	11	3
Age 70+	6	4
All (age 15+)	21	8

** Case follow-up to 30/06/1999*

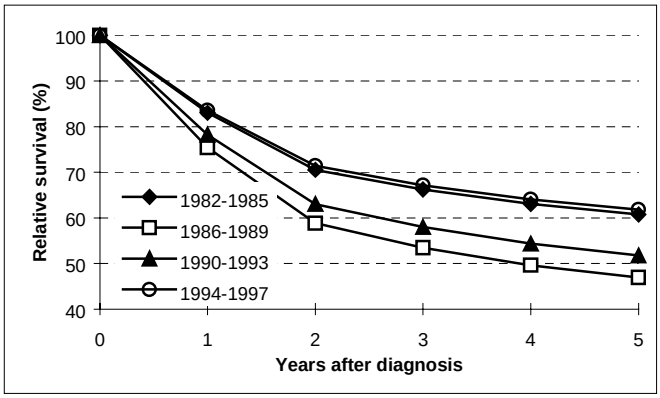
Cancer of the larynx (females)

2. Historical data (diagnosis 1982 to 1997): relative survival (%) by age at diagnosis



Age at diagnosis	R. Surv. at 5 years (%)
15 - 39 yr	68.0
40 - 54	63.0
55 - 69	51.8
70 and over	57.1

3. Historical data (ages 15 - 70+): relative survival (%) by period of diagnosis

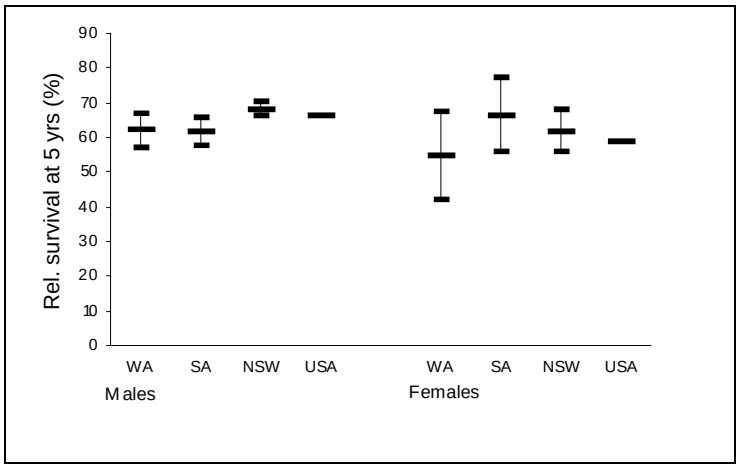


Period of diagnosis	R. Surv. at 5 years (%)	Relative risk**
1982 - 1985	60.7	(1.00)
1986 - 1989	46.9	1.47 (0.46 - 4.64)
1990 - 1993	51.7	1.27 (0.42 - 3.89)
1994 - 1997	61.8	0.95 (0.28 - 3.19)

*** Risk takes both age and period into acccount*

Comparisons

Survival after cancers of the larynx appeared similar in all areas compared, for males and for females.



4.12 Lung

The five-year relative survival of Western Australians with lung cancer diagnosed in the period 1982-1997 was 10.7% (9.9 – 11.6) for males, and 13.0% (11.7 – 14.4) for females.

Males

Age at diagnosis

In recent cases, relative survival at one year was very similar in the three younger age groups at around 36% but lower in those aged 70 and over, at 25.1%. The differences between the 70 years and over age group and the 40-54 year and 55-69 year age groups was statistically significant. Survival decreased with time since diagnosis for all ages combined, decreasing from 30.4% to 10.3% during the 5 year follow-up period. This was statistically significant.

For cases diagnosed in the period 1982-1997, survival at 5 years decreased with increasing age, from 15.6% in the 15-39 year age group to 7.2% in the 70 years and over age group. This difference was not statistically significant.

Period of diagnosis

Five-year survival between 1982-1985 and 1994-1997 was relatively stable at around 10%.

Lung cancer (males)

1. Recent data: Persons aged 15 years or over at diagnosis, 1994-1997

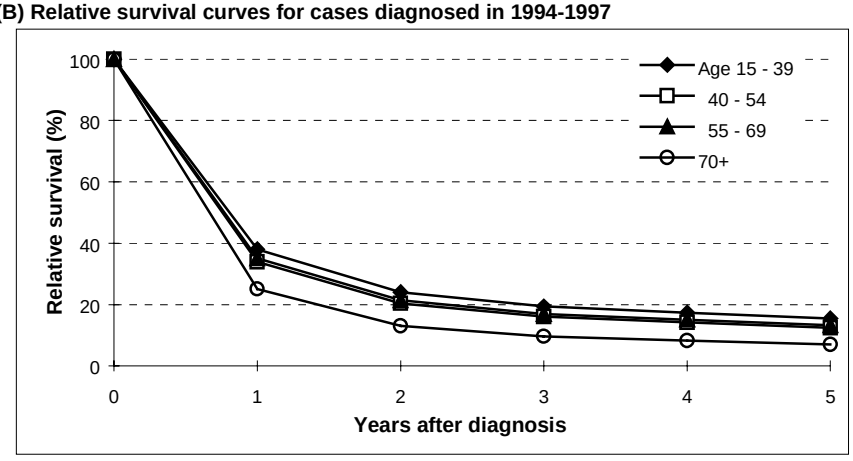
(A) Cases diagnosed in 1994-1997: relative survival (%)

Age at diagnosis	Years after diagnosis 1 year	2 years	3 years	4 years	5 years
15 - 39	37.9 *(23.9 - 51.9)*	24.0 *(11.0 - 37.0)*	19.4 *(7.3 - 31.5)*	17.4 *(5.8 - 29.0)*	15.4 *(4.5 - 26.4)*
40 - 54	34.0 *(30.5 - 37.4)*	20.4 *(17.3 - 23.4)*	16.1 *(13.3 - 18.8)*	14.2 *(11.6 - 16.9)*	12.5 *(10.0 - 15.0)*
55 - 69	35.1 *(32.8 - 37.4)*	21.4 *(19.3 - 23.4)*	17.0 *(15.1 - 18.8)*	15.1 *(13.3 - 16.9)*	13.3 *(11.5 - 15.0)*
70+	25.1 *(23.1 - 27.2)*	13.1 *(11.5 - 14.7)*	9.6 *(8.3 - 11.0)*	8.3 *(7.0 - 9.5)*	7.0 *(5.8 - 8.1)*
All (Ages 15+)	30.4 *(28.4 - 32.3)*	17.4 *(15.8 - 19.0)*	13.4 *(12.0 - 14.9)*	11.8 *(10.4 - 13.2)*	10.3 *(9.0 - 11.6)*

(C) Age-adjusted rates, 1994-1997 (per 100,000)

	Incidence	Mortality
15 - 39	0.8	0.5
40 - 54	23.0	17.3
55 - 69	186.4	144.0
70+	465.8	424.3
All (Ages 15+)	62.8	52.1

(B) Relative survival curves for cases diagnosed in 1994-1997



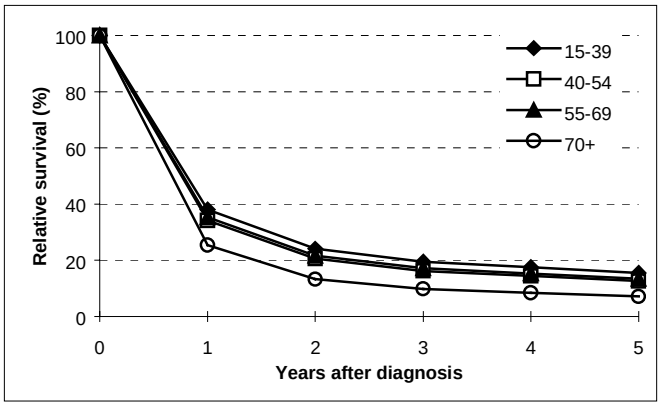
(D) Survival analysis, 1994-1997

	Cases	Deaths*
Age 15-39	13	11
Age 40-54	161	129
Age 55-69	743	629
Age 70+	950	859
All (age 15+)	1867	1628

** Case follow-up to 30/06/1999*

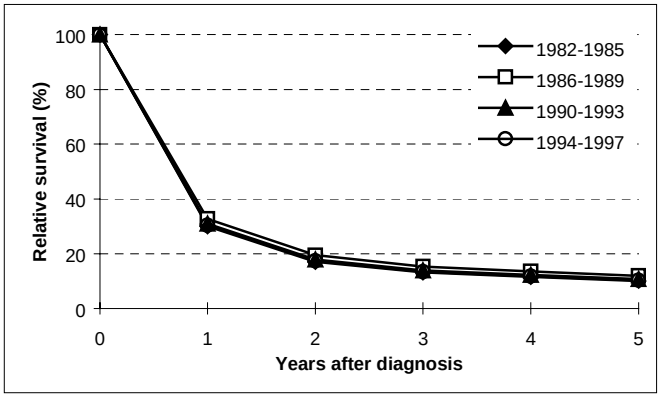
Lung cancer (males)

2. Historical data (diagnosis 1982 to 1997): relative survival (%) by age at diagnosis



Age at diagnosis	R. Surv. at 5 years (%)	Relative risk**
15 - 39 yr	15.6	(1.00)
40 - 54	12.6	1.11 (0.76 - 1.64)
55 - 69	13.5	1.08 (0.74 - 1.58)
70 and over	7.2	1.43 (0.97 - 2.09)

3. Historical data (ages 15 - 70+): relative survival (%) by period of diagnosis



Period of diagnosis	R. Surv. at 5 years (%)	Relative risk**
1982 - 1985	10.0	(1.00)
1986 - 1989	11.9	0.92 (0.85 - 1.01)
1990 - 1993	10.7	0.95 (0.88 - 1.02)
1994 - 1997	10.3	0.96 (0.89 - 1.04)

*** Risk takes both age and period into acccount*

Females

Age at diagnosis

In recent cases, relative survival at one year decreased with increasing age from 50.8% in the 15-39 year age group to 27.1% in the 70 years and over age group. Survival in the 70 years and over age group was significantly lower than in other age groups at 1 to 5 years. Survival decreased with time since diagnosis for all ages combined, from 34.4% to 13.4% during the 5 year follow-up period. The difference between the survival at one year and subsequent years was statistically significant.

For cases diagnosed in the period 1982-1997, survival decreased with increasing age, from 26.0% in the 15-39 year age group to 8.0% in the 70 years and over age group. Survival in this oldest age group was significantly lower than in the youngest age group.

Period of diagnosis

Five-year survival between 1982-1985 and 1994-1997 appeared relatively stable at around 13%.

Lung cancer (females)

1. Recent data: Persons aged 15 years or over at diagnosis, 1994-1997

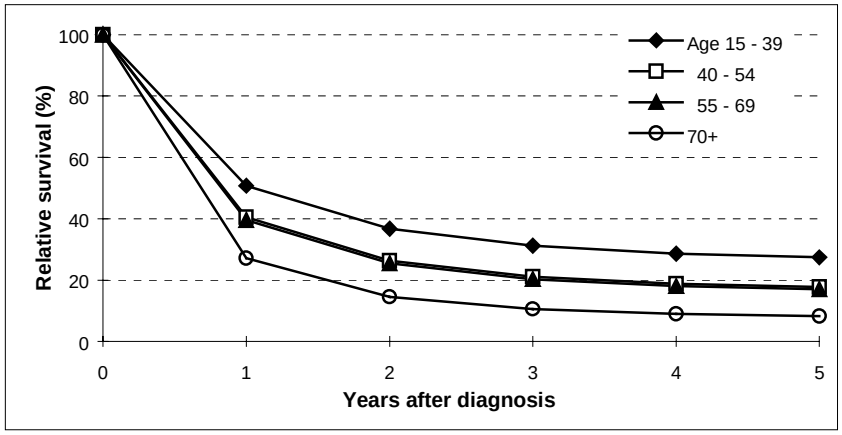
(A) Cases diagnosed in 1994-1997: relative survival (%)

Age at diagnosis	Years after diagnosis 1 year	2 years	3 years	4 years	5 years
15 - 39	50.8 *(37.7 - 63.9)*	36.8 *(22.8 - 50.7)*	31.2 *(17.4 - 45.0)*	28.6 *(15.0 - 42.2)*	27.4 *(14.0 - 40.9)*
40 - 54	40.5 *(35.4 - 45.6)*	26.3 *(21.5 - 31.1)*	21.1 *(16.6 - 25.6)*	18.8 *(14.5 - 23.2)*	17.8 *(13.5 - 22.1)*
55 - 69	39.6 *(36.1 - 43.1)*	25.4 *(22.1 - 28.7)*	20.3 *(17.2 - 23.4)*	18.0 *(15.1 - 21.0)*	17.0 *(14.1 - 20.0)*
70+	27.1 *(23.9 - 30.3)*	14.5 *(12.0 - 17.1)*	10.6 *(8.4 - 12.8)*	9.0 *(6.9 - 11.0)*	8.3 *(6.3 - 10.2)*
All (Ages 15+)	34.4 *(31.4 - 37.3)*	20.8 *(18.2 - 23.4)*	16.2 *(13.8 - 18.6)*	14.2 *(12.0 - 16.5)*	13.4 *(11.1 - 15.6)*

(C) Age-adjusted rates, 1994-1997 (per 100,000)

Incidence	Mortality
0.8	0.4
16.3	10.8
81.0	60.9
144.1	135.4
25.7	20.4

(B) Relative survival curves for cases diagnosed in 1994-1997



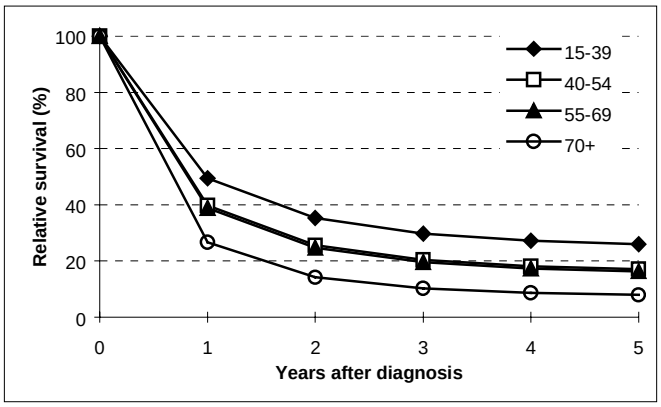
(D) Survival analysis, 1994-1997

	Cases	Deaths*
Age 15-39	12	11
Age 40-54	110	79
Age 55-69	321	246
Age 70+	410	371
All (age 15+)	853	707

** Case follow-up to 30/06/1999*

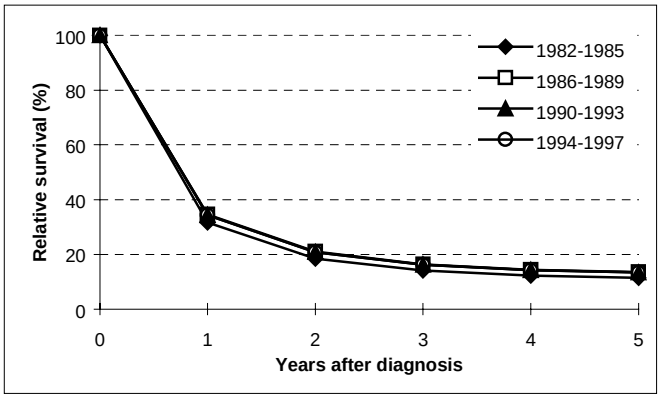
Lung cancer (females)

2. Historical data (diagnosis 1982 to 1997): relative survival (%) by age at diagnosis



Age at diagnosis	R. Surv. at 5 years (%)	Relative risk**
15 - 39 yr	26.0	(1.00)
40 - 54	17.1	1.33 (0.90 - 1.97)
55 - 69	16.4	1.37 (0.94 - 2.00)
70 and over	8.0	1.93 (1.32 - 2.81)

3. Historical data (ages 15 - 70+): relative survival (%) by period of diagnosis

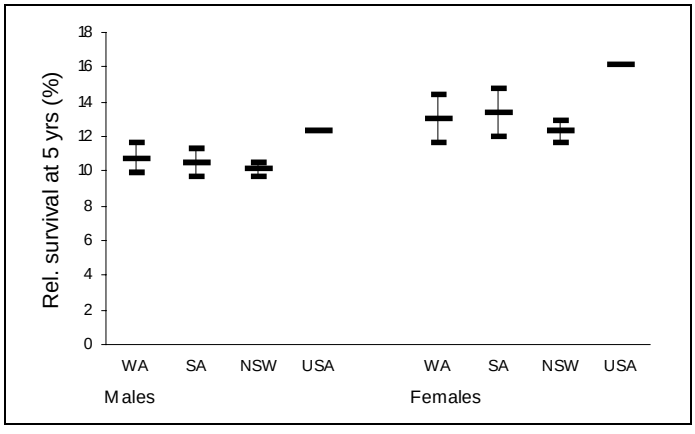


Period of diagnosis	R. Surv. at 5 years (%)	Relative risk**
1982 - 1985	11.5	(1.00)
1986 - 1989	13.5	0.90 (0.79 - 1.03)
1990 - 1993	13.4	0.88 (0.77 - 1.00)
1994 - 1997	13.4	0.89 (0.79 - 1.01)

*** Risk takes both age and period into acccount*

Comparisons

Lung cancer survival was similar in Australian states compared, for males and for females; American estimates were higher.



4.13 Mesothelioma

The five-year relative survival of Western Australians with mesothelioma diagnosed in the period 1982-1997 was 2.7% (1.2 – 4.1) for males, and 12.0% (4.1 – 20.0) for females.

Males

Age at diagnosis

In recent cases, relative survival at one year decreased markedly with increasing age, from 42.2% in the 40-54 yr age group to 22.5% in the 70 years and over age group. There were insufficient data to produce estimates for the 15-39 year age group. Survival decreased with time since diagnosis for all ages combined, from 30.2% to 1.9% during the 5 year follow-up period. This was statistically significant.

For cases diagnosed in the period 1982-1997, survival decreased with increasing age, from 7.1% in the 15-39 year age group to 0.7% in the 70 years and over age group. This difference was not statistically significant.

Period of diagnosis

Five-year relative survival between 1982-85 and 1994-97 has shown a non-significant decrease.

Mesothelioma (males)

1. Recent data: Persons aged 15 years or over at diagnosis, 1994-1997

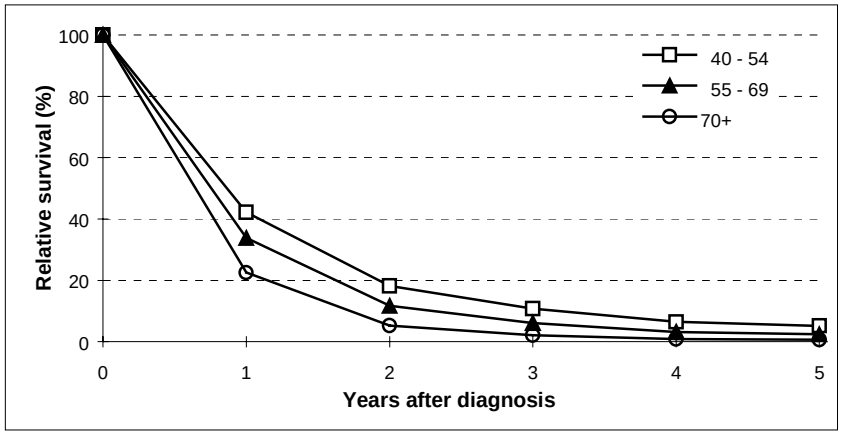
(A) Cases diagnosed in 1994-1997: relative survival (%)

Age at diagnosis	Years after diagnosis 1 year	2 years	3 years	4 years	5 years
40 - 54	42.2 *(33.0 - 51.4)*	18.2 *(10.4 - 25.9)*	10.8 *(4.6 - 16.9)*	6.5 *(1.7 - 11.2)*	5.2 *(1.0 - 9.4)*
55 - 69	33.8 *(27.1 - 40.4)*	11.7 *(7.1 - 16.2)*	6.0 *(2.8 - 9.3)*	3.2 *(0.9 - 5.4)*	2.4 *(0.5 - 4.3)*
70+	22.5 *(16.5 - 28.5)*	5.2 *(2.4 - 8.1)*	2.1 *(0.5 - 3.7)*	0.9 *(0.0 - 1.8)*	0.6 *(0.0 - 1.3)*
All (Ages 15+)	30.2 *(24.8 - 35.7)*	9.7 *(6.2 - 13.1)*	4.8 *(2.4 - 7.2)*	2.5 *(0.8 - 4.1)*	1.9 *(0.4 - 3.3)*

(C) Age-adjusted rates, 1994-1997 (per 100,000)

Incidence	Mortality
3.4	3.7
25.4	24.3
41.4	41.6
7.4	7.2

(B) Relative survival curves for cases diagnosed in 1994-1997



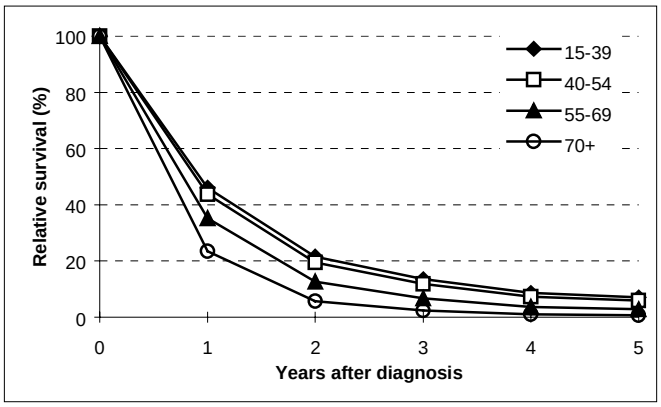
(D) Survival analysis, 1994-1997

	Cases	Deaths*
Age 15-39	3	3
Age 40-54	24	23
Age 55-69	100	96
Age 70+	89	85
All (age 15+)	216	207

** Case follow-up to 30/06/1999*

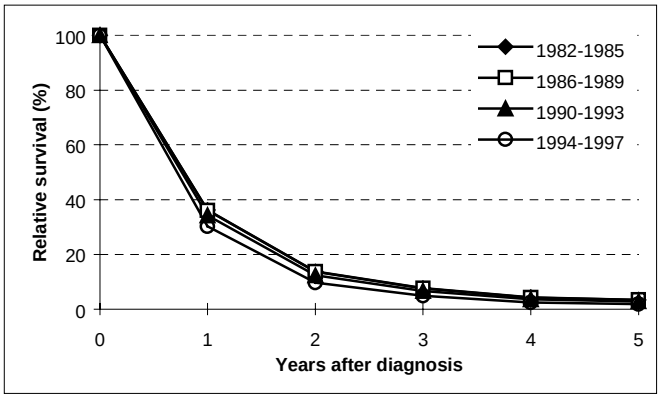
Mesothelioma (males)

2. Historical data (diagnosis 1982 to 1997): relative survival (%) by age at diagnosis



Age at diagnosis	R. Surv. at 5 years (%)	Relative risk**
15 - 39 yr	7.1	(1.00)
40 - 54	5.9	1.07 (0.57 - 2.00)
55 - 69	2.8	1.34 (0.73 - 2.46)
70 and over	0.7	1.84 (1.00 - 3.40)

3. Historical data (ages 15 - 70+): relative survival (%) by period of diagnosis



Period of diagnosis	R. Surv. at 5 years (%)	Relative risk**
1982 - 1985	3.4	(1.00)
1986 - 1989	3.3	0.98 (0.73 - 1.32)
1990 - 1993	2.8	1.04 (0.79 - 1.37)
1994 - 1997	1.9	1.07 (0.81 - 1.40)

*** Risk takes both age and period into acccount*

Females

Age at diagnosis

In recent cases, relative survival was highest in the 40-54 year age group at 51.5%, and the 55-69 year and 70 years and over age groups were similar at 38.2% and 35.9% respectively. There were insufficient data to produce estimates for the 15-39 year age group. Survival decreased with time since diagnosis for all ages combined, from 41.3% to 9.6% during the 5 year follow-up period. This was statistically significant.

For cases diagnosed in the period 1982-1997, survival decreased with increasing age from 27.4% in the 15-39 year age group to 6.5% in persons aged 70 and over. This difference was not statistically significant.

Period of diagnosis

Five-year relative survival between 1982-85 and 1994-97 has shown no significant change.

Mesothelioma (females)

1. Recent data: Persons aged 15 years or over at diagnosis, 1994-1997

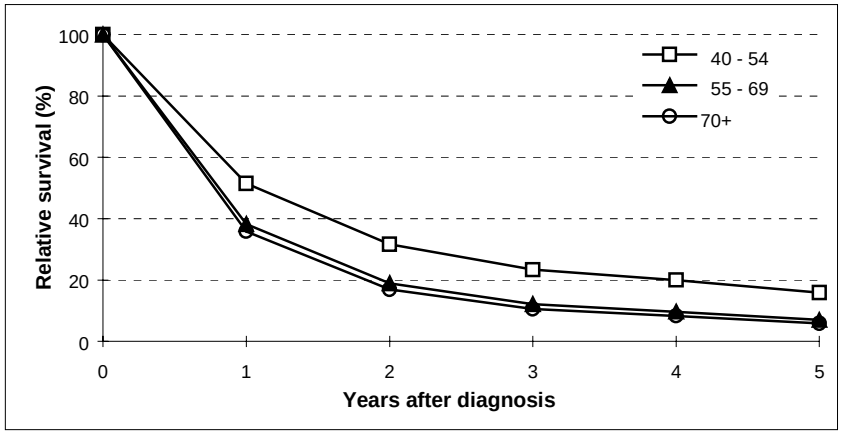
(A) Cases diagnosed in 1994-1997: relative survival (%)

Age at diagnosis	Years after diagnosis 1 year	2 years	3 years	4 years	5 years
40 - 54	51.5 *(29.7 - 73.3)*	31.7 *(9.1 - 54.2)*	23.3 *(2.0 - 44.7)*	20.0 *(0.0 - 40.6)*	15.9 *(0.0 - 35.2)*
55 - 69	38.2 *(16.9 - 59.5)*	18.9 *(0.2 - 37.6)*	12.1 *(0.0 - 28.0)*	9.7 *(0.0 - 24.1)*	7.0 *(0.0 - 19.3)*
70+	35.9 *(15.4 - 56.3)*	16.9 *(0.2 - 33.7)*	10.5 *(0.0 - 24.2)*	8.3 *(0.0 - 20.6)*	5.8 *(0.0 - 16.1)*
All (Ages 15+)	41.3 *(24.3 - 58.3)*	22.0 *(6.6 - 37.4)*	15.1 *(1.3 - 28.8)*	12.5 *(0.0 - 25.5)*	9.6 *(0.0 - 21.4)*

(C) Age-adjusted rates, 1994-1997 (per 100,000)

Incidence	Mortality
0.9	0.8
2.1	2.0
2.6	3.3
0.7	0.7

(B) Relative survival curves for cases diagnosed in 1994-1997



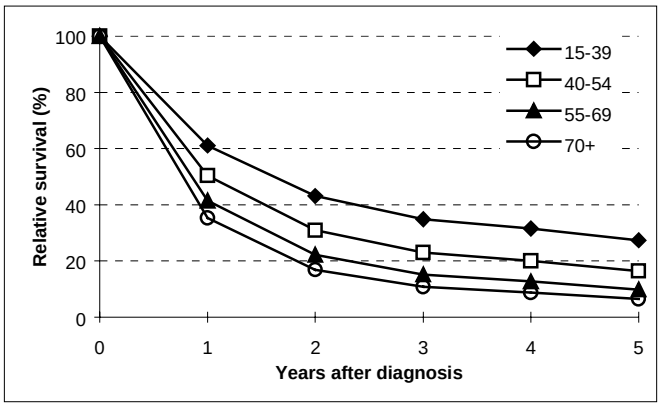
(D) Survival analysis, 1994-1997

	Cases	Deaths*
Age 15-39	0	0
Age 40-54	6	5
Age 55-69	8	8
Age 70+	9	8
All (age 15+)	23	21

** Case follow-up to 30/06/1999*

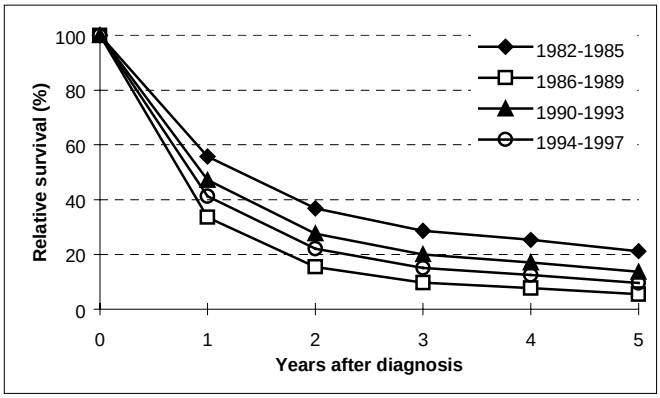
Mesothelioma (females)

2. Historical data (diagnosis 1982 to 1997): relative survival (%) by age at diagnosis



Age at diagnosis	R. Surv. at 5 years (%)	Relative risk**
15 - 39 yr	27.4	(1.00)
40 - 54	16.5	1.25 (0.41 - 3.82)
55 - 69	9.9	1.82 (0.62 - 5.35)
70 and over	6.5	1.94 (0.65 - 5.75)

3. Historical data (ages 15 - 70+): relative survival (%) by period of diagnosis



Period of diagnosis	R. Surv. at 5 years (%)	Relative risk**
1982 - 1985	21.2	(1.00)
1986 - 1989	5.5	1.96 (0.83 - 4.65)
1990 - 1993	13.6	1.46 (0.64 - 3.33)
1994 - 1997	9.6	1.56 (0.67 - 3.67)

*** Risk takes both age and period into acccount*

Comparisons

No separate data for mesothelioma were available from the other areas considered.

4.14 Bone

The five-year relative survival of Western Australians with primary bone cancer diagnosed in the period 1982-1997 was 65.4% (56.3 – 74.6) for males, and 72.7% (61.9 – 83.5) for females.

Males

Age at diagnosis

In recent cases, relative survival at one year was similar in the younger age groups at around 86% but decreased to 61.6% in the 70 years and over age group. This difference was not statistically significant. Survival decreased with time since diagnosis for all ages combined, from 84.8% to 69.2% during the 5 year follow-up period. This difference was not statistically significant.

For cases diagnosed in the period 1982-1997, five-year survival decreased with increasing age, from 68.8% in the 15-39 year age group to 27.3% in persons aged 70 and over. This difference was statistically significant.

Period of diagnosis

Five-year relative survival between 1982-85 and 1994-97 has remained stable at around 65%.

Bone cancers (males)

1. Recent data: Persons aged 15 years or over at diagnosis, 1994-1997

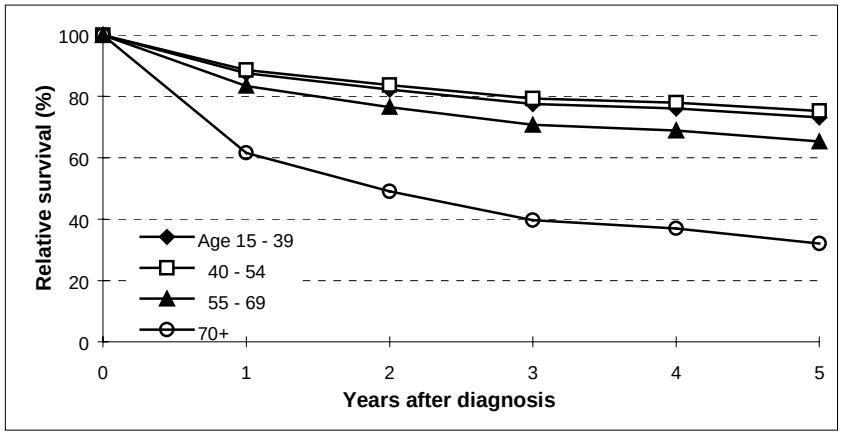
(A) Cases diagnosed in 1994-1997: relative survival (%)

Age at diagnosis	Years after diagnosis 1 year	2 years	3 years	4 years	5 years
15 - 39	87.5 *(77.8 - 97.3)*	82.2 *(69.3 - 95.1)*	77.5 *(62.0 - 93.1)*	76.1 *(59.6 - 92.5)*	73.1 *(54.9 - 91.3)*
40 - 54	88.6 *(77.8 - 99.4)*	83.7 *(69.0 - 98.3)*	79.3 *(61.5 - 97.2)*	78.0 *(59.1 - 96.9)*	75.2 *(54.3 - 96.1)*
55 - 69	83.4 *(67.9 - 98.9)*	76.6 *(56.3 - 96.9)*	70.7 *(46.5 - 94.9)*	68.9 *(43.5 - 94.3)*	65.3 *(37.6 - 93.0)*
70+	61.6 *(34.7 - 88.5)*	49.1 *(18.1 - 80.0)*	39.6 *(7.6 - 71.7)*	37.0 *(4.0 - 70.0)*	32.1 *(0.0 - 65.4)*
All (Ages 15+)	84.8 *(73.8 - 95.7)*	78.7 *(64.7 - 92.7)*	73.1 *(56.6 - 89.7)*	72.1 *(54.8 - 89.3)*	69.2 *(50.4 - 88.0)*

(C) Age-adjusted rates, 1994-1997 (per 100,000)

Incidence	Mortality
1.1	0.3
1.2	0.4
1.2	1.0
3.8	1.1
1.3	0.5

(B) Relative survival curves for cases diagnosed in 1994-1997



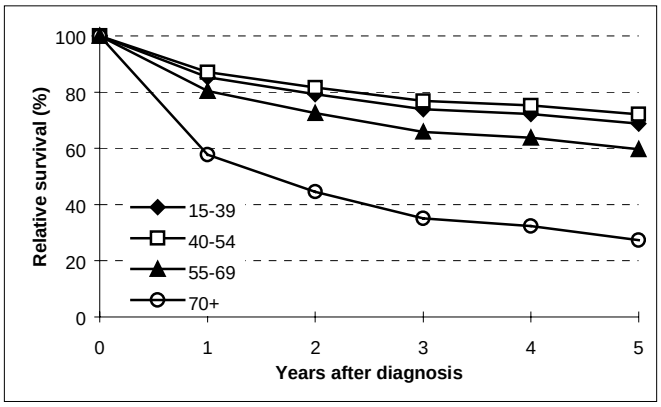
(D) Survival analysis, 1994-1997

	Cases	Deaths*
Age 15-39	14	3
Age 40-54	9	1
Age 55-69	5	3
Age 70+	7	5
All (age 15+)	35	12

** Case follow-up to 30/06/1999*

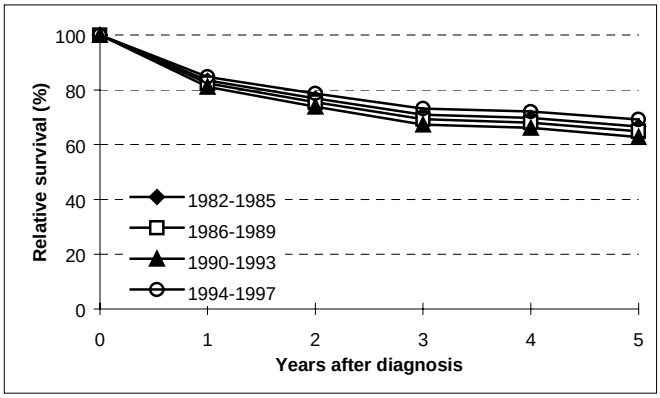
Bone cancers (males)

2. Historical data (diagnosis 1982 to 1997): relative survival (%) by age at diagnosis



Age at diagnosis	R. Surv. at 5 years (%)	Relative risk**
15 - 39 yr	68.8	(1.00)
40 - 54	72.2	0.91 (0.35 - 2.36)
55 - 69	59.7	1.36 (0.60 - 3.09)
70 and over	27.3	3.64 (1.51 - 8.75)

3. Historical data (ages 15 - 70+): relative survival (%) by period of diagnosis



Period of diagnosis	R. Surv. at 5 years (%)	Relative risk**
1982 - 1985	66.7	(1.00)
1986 - 1989	64.9	1.12 (0.43 - 2.89)
1990 - 1993	62.7	1.11 (0.49 - 2.53)
1994 - 1997	69.2	0.87 (0.33 - 2.28)

*** Risk takes both age and period into acccount*

Females

Age at diagnosis

In recent cases, relative survival at one year was highest in the 40-54 year age group at 94.3% decreasing to 62.3% in the 70 years and over age group. This difference between the youngest and oldest age groups was not statistically significant at one year became more marked with longer follow up. There were insufficient data to produce estimates for the 15-39 year age group. Survival decreased with time since diagnosis for all ages combined, from 83.9% to 69.6% during the 5 year follow-up period.

For cases diagnosed in the period 1982-1997, survival decreased with increasing age, from 83.0% in the 15-39 year age group to 21.0% in the 70 years and over age group. This difference was statistically significant.

Period of diagnosis

Five-year relative survival between 1982-85 and 1994-97 has shown a non-significant decrease.

Bone cancers (females)

1. Recent data: Persons aged 15 years or over at diagnosis, 1994-1997

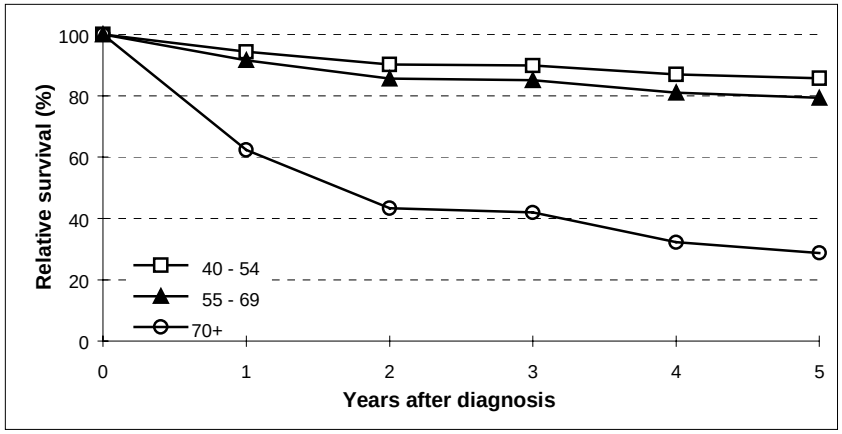
(A) Cases diagnosed in 1994-1997: relative survival (%)

Age at diagnosis	Years after diagnosis 1 year	2 years	3 years	4 years	5 years
40 - 54	94.3 *(85.9 - 100.0)*	90.2 *(76.5 - 100.0)*	89.8 *(76.1 - 100.0)*	86.9 *(69.8 - 100.0)*	85.7 *(67.2 - 100.0)*
55 - 69	91.6 *(79.8 - 100.0)*	85.6 *(67.1 - 100.0)*	85.1 *(65.9 - 100.0)*	81.0 *(57.7 - 100.0)*	79.3 *(54.4 - 100.0)*
70+	62.3 *(38.1 - 86.6)*	43.4 *(15.1 - 71.6)*	42.0 *(12.9 - 71.0)*	32.2 *(2.1 - 62.3)*	28.8 *(0.0 - 58.9)*
All (Ages 15+)	83.9 *(0.0 - 0.0)*	75.7 *(0.0 - 0.0)*	75.7 *(0.0 - 0.0)*	71.5 *(0.0 - 0.0)*	69.6 *(0.0 - 0.0)*

(C) Age-adjusted rates, 1994-1997 (per 100,000)

	Incidence	Mortality
40 - 54	0.7	0.1
55 - 69	0.8	0.2
70+	3.7	2.8
All (Ages 15+)	0.9	0.3

(B) Relative survival curves for cases diagnosed in 1994-1997



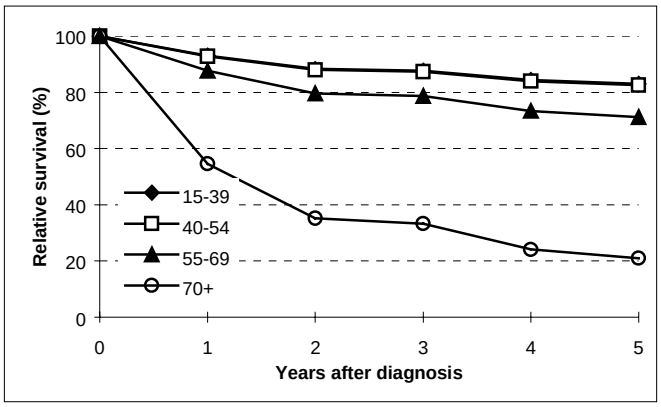
(D) Survival analysis, 1994-1997

	Cases	Deaths*
Age 15-39	9	1
Age 40-54	5	1
Age 55-69	3	0
Age 70+	11	7
All (age 15+)	28	9

** Case follow-up to 30/06/1999*

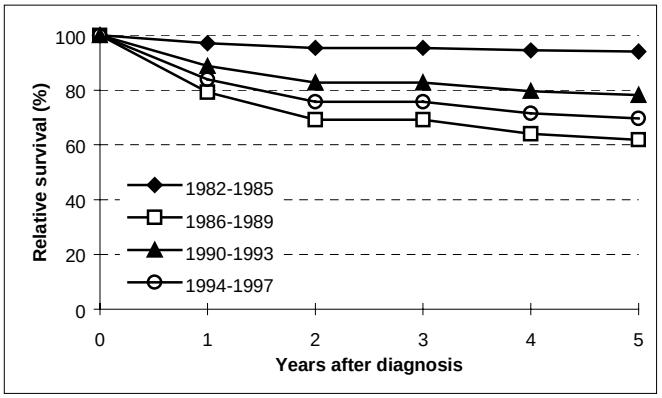
Bone cancers (females)

2. Historical data (diagnosis 1982 to 1997): relative survival (%) by age at diagnosis



Age at diagnosis	R. Surv. at 5 years (%)	Relative risk**
15 - 39 yr	83.0	(1.00)
40 - 54	82.6	1.11 (0.27 - 4.60)
55 - 69	71.2	1.67 (0.41 - 6.84)
70 and over	21.0	8.95 (2.95 - 27.17)

3. Historical data (ages 15 - 70+): relative survival (%) by period of diagnosis

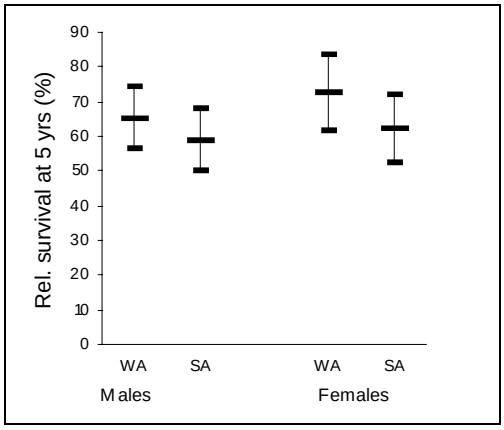


Period of diagnosis	R. Surv. at 5 years (%)	Relative risk**
1982 - 1985	94.1	(1.00)
1986 - 1989	61.9	4.30 (0.17 - 106.25)
1990 - 1993	78.2	2.35 (0.09 - 64.60)
1994 - 1997	69.6	2.01 (0.07 - 57.67)

*** Risk takes both age and period into acccount*

Comparisons

Data for primary bone cancers were available only from South Australia; survival proportions were similar in Western Australia and in South Australia for males and for females.



4.15 Soft tissues

The five-year relative survival of Western Australians with primary cancers of connective and other soft tissues diagnosed in the period 1982-1997 was 67.6% (59.7 – 75.4) for males, and 66.9% (47.9 – 85.8) for females; most of these tumours are sarcomas.

Males

Age at diagnosis

In recent cases, relative survival at one year was highest in the 40-54 year age group at 91.2%, and lowest in the 70 years and over age group at 68.9%; this difference was not statistically significant. Survival decreased with time since diagnosis for all ages combined, from 81.4% to 55.9% during the 5 year follow-up period. This difference was not statistically significant.

For cases diagnosed in the period 1982-1997, five-year survival followed the same pattern as in the more recent years, being highest in the 40-54 year age group at 82.8% and decreasing to 46.9% in the 70 years and over age group. This difference was not statistically significant.

Period of diagnosis

Five-year relative survival between 1982-85 and 1994-97 has shown no significant change.

Cancers of connective and other soft tissues (males)

1. Recent data: Persons aged 15 years or over at diagnosis, 1994-1997

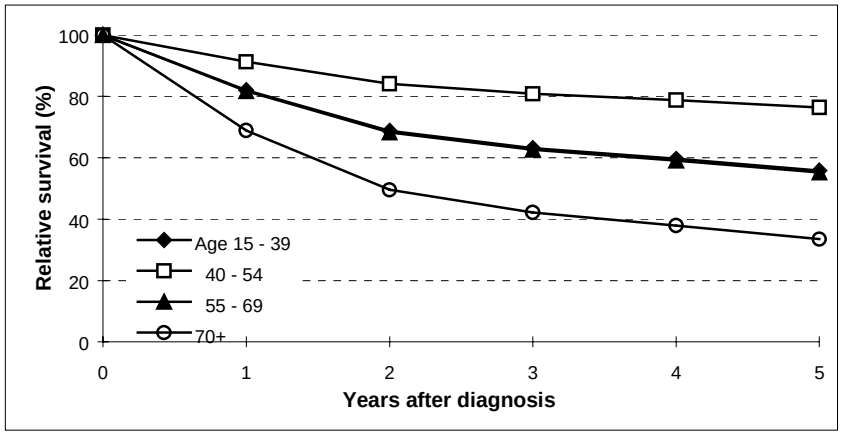
(A) Cases diagnosed in 1994-1997: relative survival (%)

Age at diagnosis	Years after diagnosis 1 year	2 years	3 years	4 years	5 years
15 - 39	82.0 *(71.4 - 92.7)*	68.8 *(53.3 - 84.3)*	63.1 *(45.9 - 80.4)*	59.6 *(41.3 - 78.0)*	55.8 *(36.1 - 75.6)*
40 - 54	91.2 *(83.6 - 98.8)*	84.1 *(71.4 - 96.8)*	80.8 *(66.0 - 95.7)*	78.8 *(62.5 - 95.0)*	76.4 *(58.4 - 94.4)*
55 - 69	81.7 *(70.2 - 93.2)*	68.3 *(51.2 - 85.4)*	62.6 *(43.4 - 81.8)*	59.1 *(38.4 - 79.7)*	55.2 *(33.2 - 77.2)*
70+	68.9 *(52.6 - 85.3)*	49.5 *(29.0 - 70.0)*	42.2 *(20.2 - 64.1)*	37.9 *(15.5 - 60.2)*	33.5 *(10.7 - 56.2)*
All (Ages 15+)	81.4 *(72.5 - 90.3)*	67.8 *(55.8 - 79.9)*	63.0 *(49.6 - 76.3)*	59.6 *(45.3 - 73.9)*	55.9 *(40.4 - 71.4)*

(C) Age-adjusted rates, 1994-1997 (per 100,000)

Incidence	Mortality
1.0	0.3
1.7	0.4
4.2	1.7
8.6	4.3
2.1	0.8

(B) Relative survival curves for cases diagnosed in 1994-1997



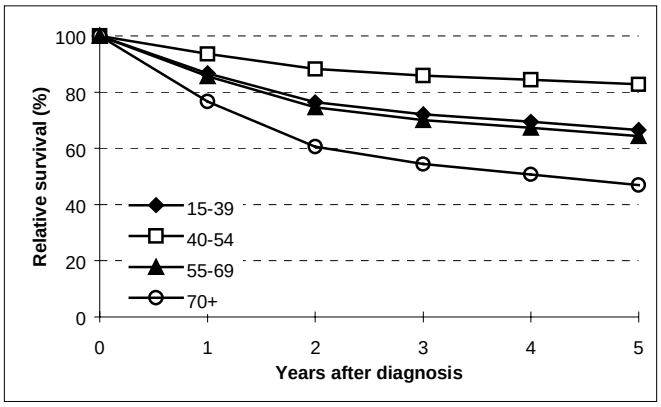
(D) Survival analysis, 1994-1997

	Cases	Deaths*
Age 15-39	15	3
Age 40-54	12	4
Age 55-69	19	8
Age 70+	18	13
All (age 15+)	64	28

** Case follow-up to 30/06/1999*

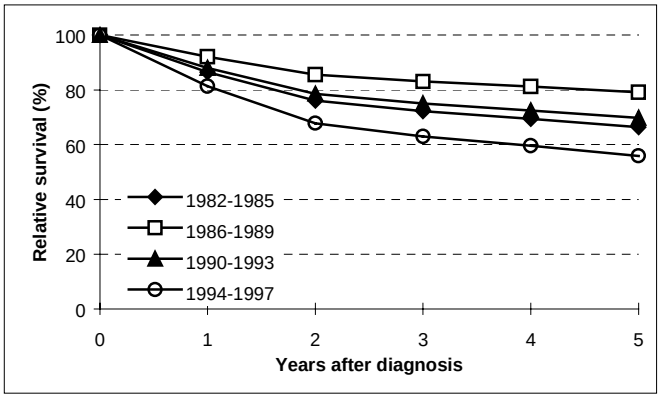
Cancers of connective and other soft tissues (males)

2. Historical data (diagnosis 1982 to 1997): relative survival (%) by age at diagnosis



Age at diagnosis	R. Surv. at 5 years (%)	Relative risk**
15 - 39 yr	66.6	(1.00)
40 - 54	82.8	0.46 (0.19 - 1.14)
55 - 69	64.3	1.02 (0.48 - 2.15)
70 and over	46.9	1.88 (0.94 - 3.74)

3. Historical data (ages 15 - 70+): relative survival (%) by period of diagnosis



Period of diagnosis	R. Surv. at 5 years (%)	Relative risk**
1982 - 1985	66.3	(1.00)
1986 - 1989	79.1	0.53 (0.20 - 1.41)
1990 - 1993	69.7	0.87 (0.38 - 2.01)
1994 - 1997	55.9	1.29 (0.59 - 2.82)

*** Risk takes both age and period into acccount*

Females

Age at diagnosis

In recent cases, relative survival at one year was highest in the 40-54 year age group at 94.7% and decreased to 73.2% in the 70 years and over age groups; this difference was not statistically significant. There were insufficient data to produce estimates for the 15-39 year age group. Survival decreased with time since diagnosis for all ages combined, from 83.7% to 70.2% during the 5 year follow-up period but reaching a plateau at three years.

For cases diagnosed in the period 1982-1997, five-year survival was highest in the 40-54 year age group at 89.5%, decreasing to 50.1% in the 70 years and over age group. These differences were not statistically significant.

Period of diagnosis

Five-year relative survival between 1982-85 and 1994-97 has shown no significant trend.

Cancers of connective and other soft tissues (females)

1. Recent data: Persons aged 15 years or over at diagnosis, 1994-1997

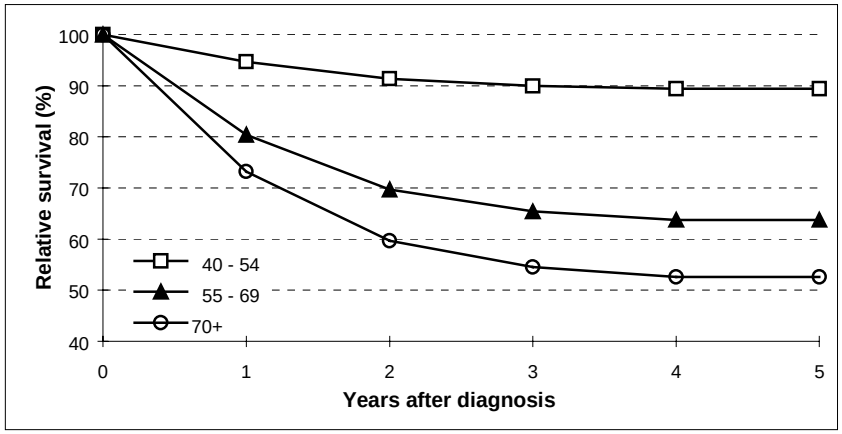
(A) Cases diagnosed in 1994-1997: relative survival (%)

Age at diagnosis	Years after diagnosis 1 year	2 years	3 years	4 years	5 years
40 - 54	94.7 *(87.5 - 100.0)*	91.4 *(80.1 - 100.0)*	90.0 *(76.8 - 100.0)*	89.4 *(75.6 - 100.0)*	89.4 *(75.9 - 100.0)*
55 - 69	80.4 *(67.3 - 93.5)*	69.7 *(51.9 - 87.5)*	65.4 *(45.7 - 85.1)*	63.8 *(43.1 - 84.5)*	63.8 *(43.4 - 84.1)*
70+	73.2 *(56.4 - 90.1)*	59.7 *(38.0 - 81.4)*	54.5 *(31.1 - 78.0)*	52.6 *(28.5 - 76.7)*	52.6 *(28.3 - 76.9)*
All (Ages 15+)	83.7 *(74.0 - 93.4)*	74.7 *(61.6 - 87.8)*	71.2 *(56.6 - 85.9)*	70.2 *(54.9 - 85.6)*	70.2 *(54.4 - 86.0)*

(C) Age-adjusted rates, 1994-1997 (per 100,000)

Incidence	Mortality
1.3	0.3
3.9	1.2
4.4	3.2
1.5	0.5

(B) Relative survival curves for cases diagnosed in 1994-1997



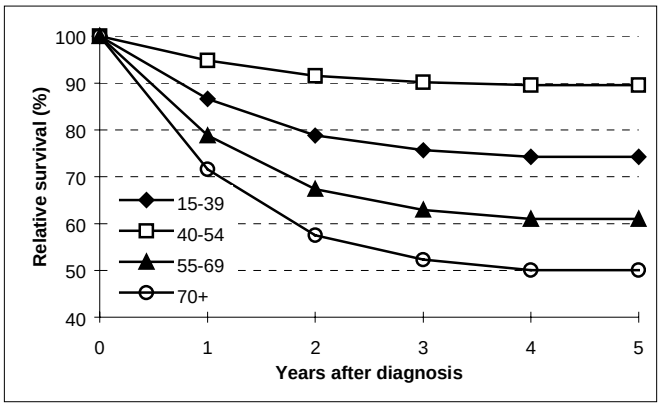
(D) Survival analysis, 1994-1997

	Cases	Deaths*
Age 15-39	8	1
Age 40-54	9	1
Age 55-69	15	6
Age 70+	12	7
All (age 15+)	44	15

** Case follow-up to 30/06/1999*

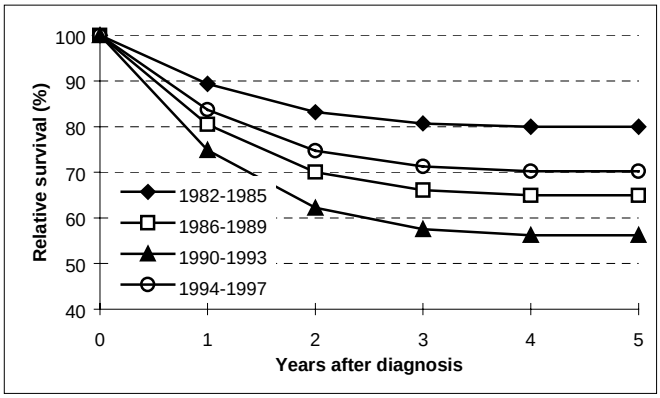
Cancers of connective and other soft tissues (females)

2. Historical data (diagnosis 1982 to 1997): relative survival (%) by age at diagnosis



Age at diagnosis	R. Surv. at 5 years (%)	Relative risk**
15 - 39 yr	74.2	(1.00)
40 - 54	89.5	0.40 (0.08 - 1.99)
55 - 69	61.0	1.58 (0.55 - 4.55)
70 and over	50.1	2.26 (0.83 - 6.20)

3. Historical data (ages 15 - 70+): relative survival (%) by period of diagnosis

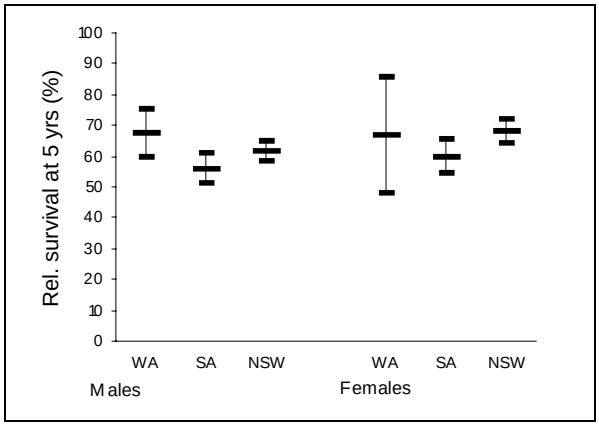


Period of diagnosis	R. Surv. at 5 years (%)	Relative risk**
1982 - 1985	80.0	(1.00)
1986 - 1989	64.9	1.66 (0.40 - 6.78)
1990 - 1993	56.2	1.98 (0.51 - 7.63)
1994 - 1997	70.2	1.44 (0.38 - 5.48)

*** Risk takes both age and period into acccount*

Comparisons

Among males, survival after connective and soft tissue tumours appeared marginally better in Western Australia in males, however inter-State differences were smaller in females; no comparable American data were available.



4.16 Melanoma of the skin (cutaneous melanoma)

The five-year relative survival of Western Australians with melanoma of the skin diagnosed in the period 1982-1997 was 93.2% (92.1 – 94.3) for males, and 95.8% (94.9 – 96.6) for females. For more data concerning extent of disease, refer to Chapter 5.

Males

Age at diagnosis

In recent cases, relative survival was very similar in all age groups, varying between 99.0 to 99.6% at one year. There was a small decrease in survival with time since diagnosis for all ages combined, decreasing from 99.5% to 97.5% during the 5 year follow-up period. This difference was statistically significant.

For cases diagnosed in the period 1982-1997, survival was significantly worse for persons over 55 years of age than for those aged 15-39 at diagnosis.

Period of diagnosis

Five-year relative survival between 1982-85 and 1994-97 has shown a non-significant increase.

Melanoma of the skin (cutaneous melanoma) (males)

1. Recent data: Persons aged 15 years or over at diagnosis, 1994-1997

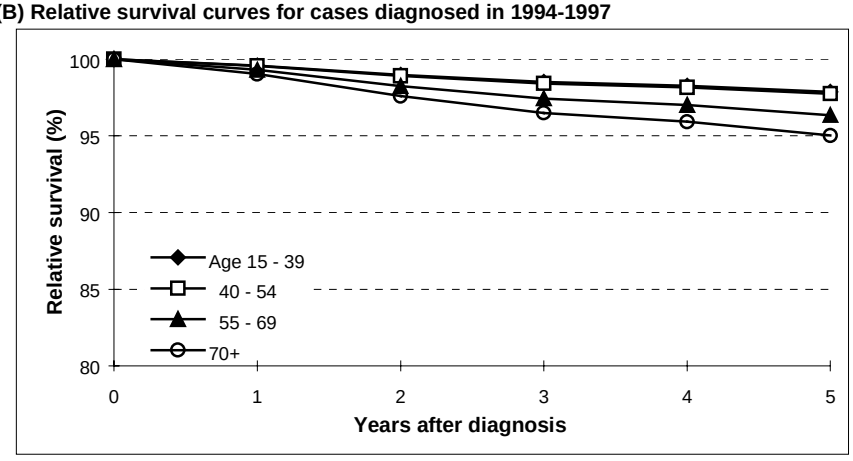
(A) Cases diagnosed in 1994-1997: relative survival (%)

Age at diagnosis	Years after diagnosis 1 year	2 years	3 years	4 years	5 years
15 - 39	99.6 *(99.3 - 99.9)*	99.0 *(98.4 - 99.6)*	98.5 *(97.6 - 99.4)*	98.3 *(97.3 - 99.3)*	97.9 *(96.6 - 99.1)*
40 - 54	99.6 *(99.3 - 99.8)*	98.9 *(98.3 - 99.5)*	98.4 *(97.5 - 99.3)*	98.2 *(97.1 - 99.2)*	97.7 *(96.5 - 99.0)*
55 - 69	99.3 *(98.9 - 99.7)*	98.2 *(97.3 - 99.2)*	97.4 *(96.0 - 98.8)*	97.0 *(95.4 - 98.7)*	96.4 *(94.3 - 98.4)*
70+	99.0 *(98.4 - 99.7)*	97.6 *(96.0 - 99.1)*	96.5 *(94.2 - 98.7)*	95.9 *(93.3 - 98.5)*	95.0 *(91.8 - 98.2)*
All (Ages 15+)	99.5 *(99.2 - 99.8)*	98.8 *(98.0 - 99.5)*	98.2 *(97.2 - 99.2)*	97.9 *(96.7 - 99.1)*	97.5 *(96.0 - 98.9)*

(C) Age-adjusted rates, 1994-1997 (per 100,000)

Incidence	Mortality
19.2	1.1
63.8	4.9
129.5	12.8
187.0	36.6
57.5	5.9

(B) Relative survival curves for cases diagnosed in 1994-1997



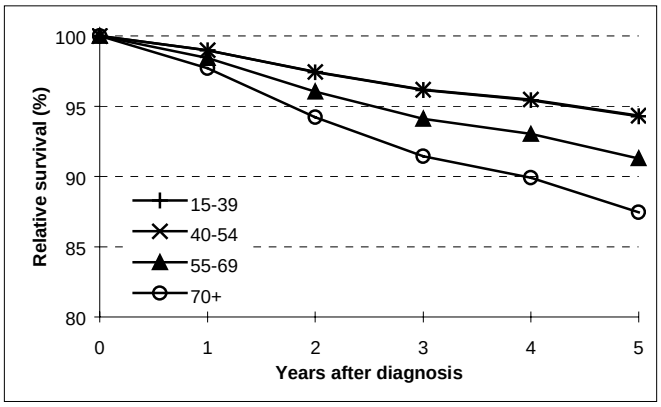
(D) Survival analysis, 1994-1997

	Cases	Deaths*
Age 15-39	284	8
Age 40-54	455	13
Age 55-69	516	40
Age 70+	385	110
All (age 15+)	1640	171

** Case follow-up to 30/06/1999*

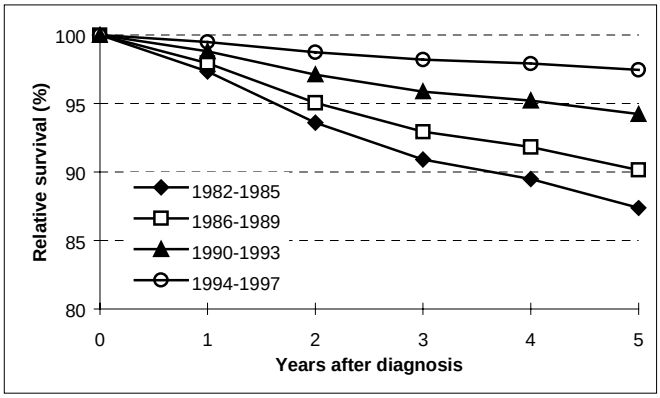
Melanoma of the skin (cutaneous melanoma) (males)

2. Historical data (diagnosis 1982 to 1997): relative survival (%) by age at diagnosis



Age at diagnosis	R. Surv. at 5 years (%)	Relative risk**
15 - 39 yr	94.3	(1.00)
40 - 54	94.3	1.06 (0.70 - 1.61)
55 - 69	91.3	1.73 (1.17 - 2.57)
70 and over	87.4	2.38 (1.46 - 3.88)

3. Historical data (ages 15 - 70+): relative survival (%) by period of diagnosis



Period of diagnosis	R. Surv. at 5 years (%)	Relative risk**
1982 - 1985	87.4	(1.00)
1986 - 1989	90.2	0.76 (0.53 - 1.09)
1990 - 1993	94.2	0.45 (0.30 - 1.49)
1994 - 1997	97.5	0.20 (0.11 - 2.72)

*** Risk takes both age and period into acccount*

Females

Age at diagnosis

In recent cases, relative survival was similar in all age groups, ranging from 99.4-99.8% at one year. There was a small but statistically significant decrease in survival with time for all age groups. Considering all age groups combined, relative survival decreased from 99.7% at one year to 97.8% at five-years.

For cases diagnosed in the period 1982-1997, five-year survival decreased with increasing age, from 96.6% in the 15-39 year age group to 91.3% in the 70 years and over age group. This difference was statistically significant.

Period of diagnosis

Five-year relative survival between 1982-85 and 1994-97 has shown no significant trend.

Melanoma of the skin (cutaneous melanoma) (females)

1. Recent data: Persons aged 15 years or over at diagnosis, 1994-1997

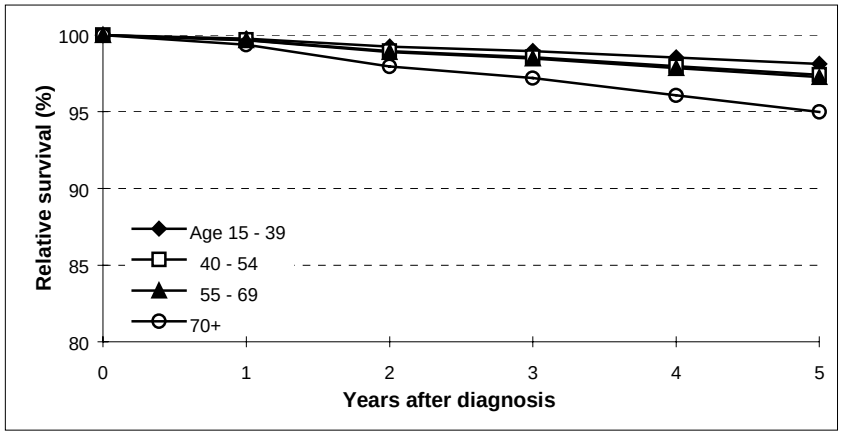
(A) Cases diagnosed in 1994-1997: relative survival (%)

Age at diagnosis	Years after diagnosis 1 year	2 years	3 years	4 years	5 years
15 - 39	99.8 *(99.6 - 100.0)*	99.2 *(98.7 - 99.7)*	99.0 *(98.3 - 99.6)*	98.5 *(97.6 - 99.5)*	98.1 *(96.9 - 99.3)*
40 - 54	99.7 *(99.4 - 99.9)*	99.0 *(98.3 - 99.6)*	98.6 *(97.6 - 99.5)*	98.0 *(96.7 - 99.2)*	97.4 *(95.8 - 99.0)*
55 - 69	99.7 *(99.4 - 100.0)*	98.9 *(98.1 - 99.7)*	98.5 *(97.4 - 99.5)*	97.8 *(96.3 - 99.4)*	97.3 *(95.3 - 99.2)*
70+	99.4 *(98.8 - 100.0)*	98.0 *(96.3 - 99.6)*	97.2 *(95.0 - 99.4)*	96.1 *(92.9 - 99.2)*	95.0 *(91.0 - 98.9)*
All (Ages 15+)	99.7 *(99.5 - 100.0)*	99.1 *(98.5 - 99.7)*	98.7 *(97.9 - 99.5)*	98.3 *(97.2 - 99.4)*	97.8 *(96.4 - 99.2)*

(C) Age-adjusted rates, 1994-1997 (per 100,000)

Incidence	Mortality
23.4	0.8
56.9	3.0
67.0	6.8
92.6	13.8
42.6	3.1

(B) Relative survival curves for cases diagnosed in 1994-1997



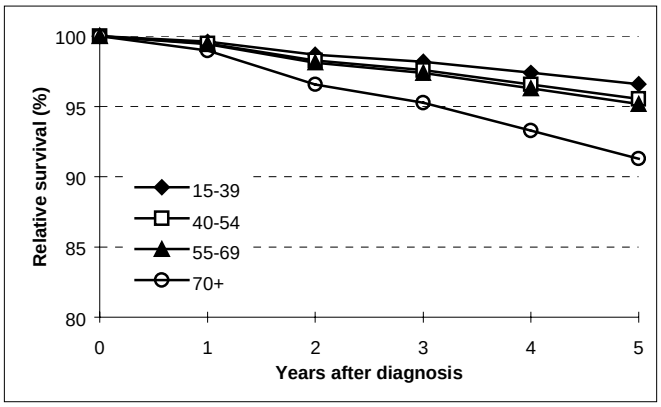
(D) Survival analysis, 1994-1997

	Cases	Deaths*
Age 15-39	349	4
Age 40-54	389	11
Age 55-69	267	12
Age 70+	262	68
All (age 15+)	1267	95

** Case follow-up to 30/06/1999*

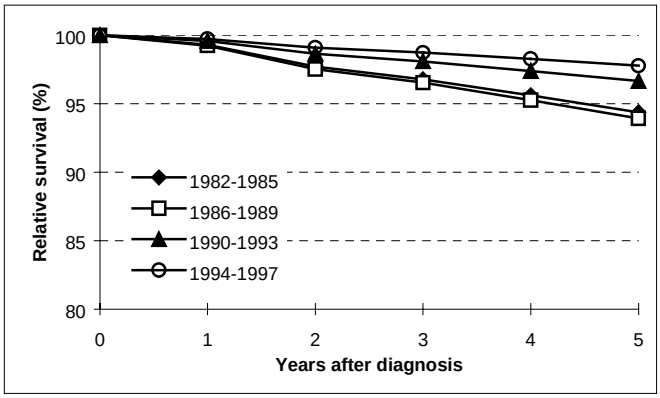
Melanoma of the skin (cutaneous melanoma) (females)

2. Historical data (diagnosis 1982 to 1997): relative survival (%) by age at diagnosis



Age at diagnosis	R. Surv. at 5 years (%)	Relative risk**
15 - 39 yr	96.6	(1.00)
40 - 54	95.5	1.38 (0.85 - 2.25)
55 - 69	95.2	1.47 (0.83 - 2.59)
70 and over	91.3	2.71 (1.42 - 5.17)

3. Historical data (ages 15 - 70+): relative survival (%) by period of diagnosis

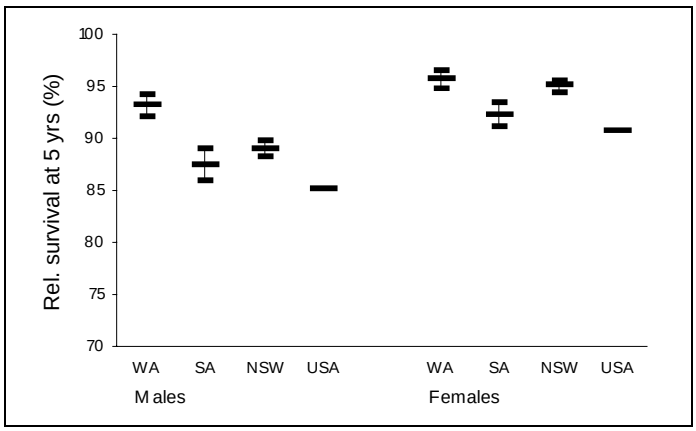


Period of diagnosis	R. Surv. at 5 years (%)	Relative risk**
1982 - 1985	94.4	(1.00)
1986 - 1989	93.9	1.08 (0.66 - 1.76)
1990 - 1993	96.7	0.58 (0.33 - 1.02)
1994 - 1997	97.8	0.42 (0.21 - 1.19)

*** Risk takes both age and period into acccount*

Comparisons

Melanoma survival appeared better in Western Australia than in America and the other Australian states compared; this is likely to be partly due to the Western Australian data being, on average, more recent, against a background of reducing tumour thickness at diagnosis.



4.17 Non-melanoma skin cancer (excludes BCC and SCC)

The five-year relative survival of Western Australians with non-melanoma skin cancer diagnosed in the period 1982-1997 was 77.7% (71.9 – 83.6) for males, and 89.7% (83.0 – 96.4) for females. These analyses include cancers such as Merkel cell and sweat gland carcinomas, but exclude basal cell and squamous cell tumours.

Males

Age at diagnosis

In recent cases, relative survival was very similar in all age groups, varying between 92.9 to 97.3% at one year. Survival decreased with time since diagnosis for all ages combined, from 95.8% to 88.2% during the 5 year follow-up period. This difference was not statistically significant.

For cases diagnosed in the period 1982-1997, five-year survival was highest in the 40-54 years and 55-69 year age groups, 87.0% and 85.8% respectively, and lowest in the 15-39 year age group at 65.5%. These differences were not significant.

Period of diagnosis

Five-year relative survival between 1982-85 and 1994-97 has shown no significant trend.

Non-melanoma skin cancer (males)

1. Recent data: Persons aged 15 years or over at diagnosis, 1994-1997

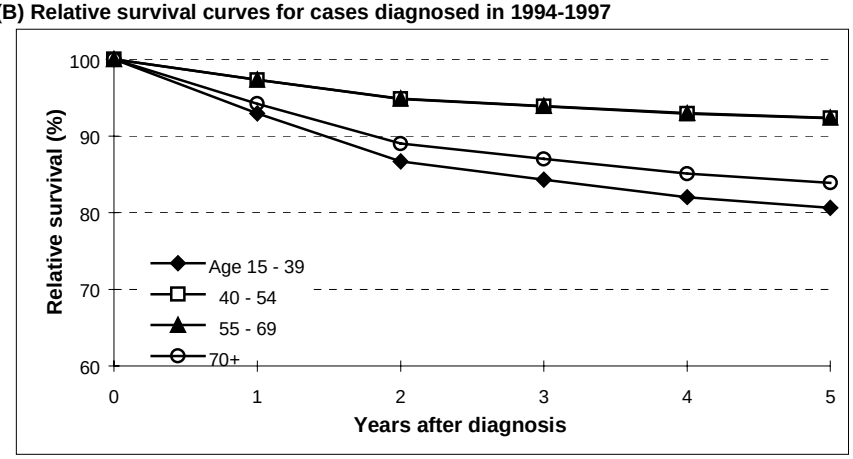
(A) Cases diagnosed in 1994-1997: relative survival (%)

Age at diagnosis	Years after diagnosis 1 year	2 years	3 years	4 years	5 years
15 - 39	92.9 *(87.3 - 98.6)*	86.7 *(76.7 - 96.7)*	84.3 *(72.7 - 95.9)*	82.0 *(69.0 - 95.1)*	80.6 *(66.7 - 94.6)*
40 - 54	97.3 *(94.6 - 100.0)*	94.8 *(89.8 - 99.8)*	93.9 *(87.9 - 99.8)*	92.9 *(86.2 - 99.7)*	92.3 *(85.0 - 99.6)*
55 - 69	97.3 *(94.7 - 100.0)*	94.9 *(89.9 - 99.9)*	93.9 *(87.9 - 99.9)*	93.0 *(86.1 - 99.9)*	92.4 *(84.9 - 99.9)*
70+	94.2 *(89.6 - 98.9)*	89.0 *(80.6 - 97.4)*	87.0 *(77.1 - 97.0)*	85.1 *(73.5 - 96.7)*	83.9 *(71.4 - 96.4)*
All (Ages 15+)	95.8 *(92.7 - 98.8)*	92.0 *(86.4 - 97.5)*	90.3 *(83.7 - 96.9)*	89.0 *(81.6 - 96.5)*	88.2 *(80.2 - 96.2)*

(C) Age-adjusted rates, 1994-1997 (per 100,000)

	Incidence	Mortality
15 - 39	1.1	0
40 - 54	5.4	0.3
55 - 69	14.2	2.5
70+	39.7	30.8
All (Ages 15+)	6.5	2.3

(B) Relative survival curves for cases diagnosed in 1994-1997



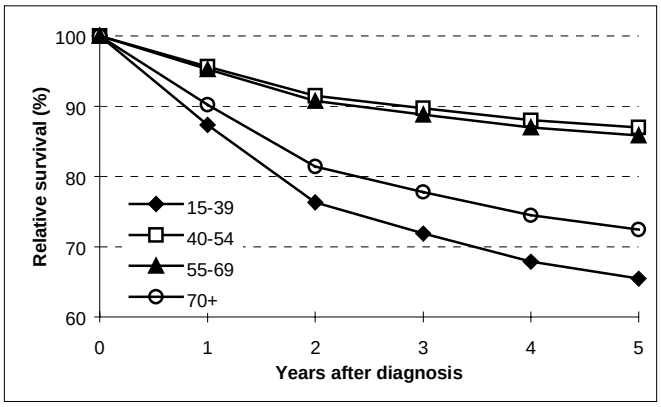
(D) Survival analysis, 1994-1997

	Cases	Deaths*
Age 15-39	17	2
Age 40-54	26	0
Age 55-69	47	10
Age 70+	75	30
All (age 15+)	165	42

** Case follow-up to 30/06/1999*

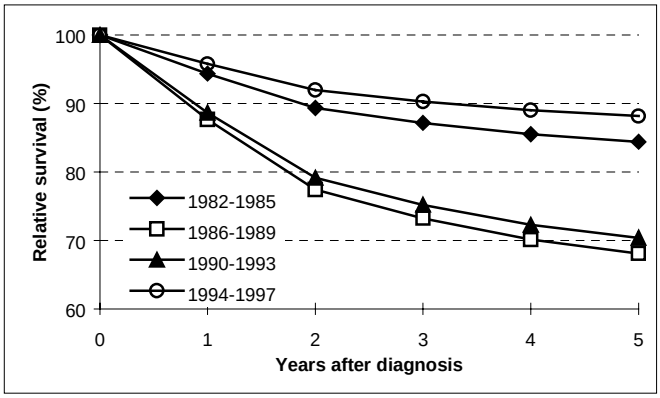
Non-melanoma skin cancer (males)

2. Historical data (diagnosis 1982 to 1997): relative survival (%) by age at diagnosis



Age at diagnosis	R. Surv. at 5 years (%)	Relative risk**
15 - 39 yr	65.5	(1.00)
40 - 54	87.0	0.37 (0.14 - 1.05)
55 - 69	85.8	0.37 (0.16 - 1.17)
70 and over	72.4	0.81 (0.41 - 1.63)

3. Historical data (ages 15 - 70+): relative survival (%) by period of diagnosis



Period of diagnosis	R. Surv. at 5 years (%)	Relative risk**
1982 - 1985	84.4	(1.00)
1986 - 1989	68.1	2.39 (0.77 - 7.48)
1990 - 1993	70.4	1.93 (0.63 - 5.96)
1994 - 1997	88.2	0.79 (0.23 - 2.76)

*** Risk takes both age and period into acccount*

Females

Age at diagnosis

In recent cases, relative survival was similar in all age groups, ranging from 98.1-99.8% at one year. Survival decreased with time, from 99.1% at one year to 85.6% at five-years. The decrease in survival between one and five-years was significant.

For cases diagnosed in the period 1982-1997, five-year survival decreased with increasing age from 98.0% in the 15-39 year age group to 77.6% in the 70 years and over age group. This difference was statistically significant.

Period of diagnosis

Five-year relative survival between 1982-85 and 1994-97 has shown no significant trend.

Non-melanoma skin cancer (females)

1. Recent data: Persons aged 15 years or over at diagnosis, 1994-1997

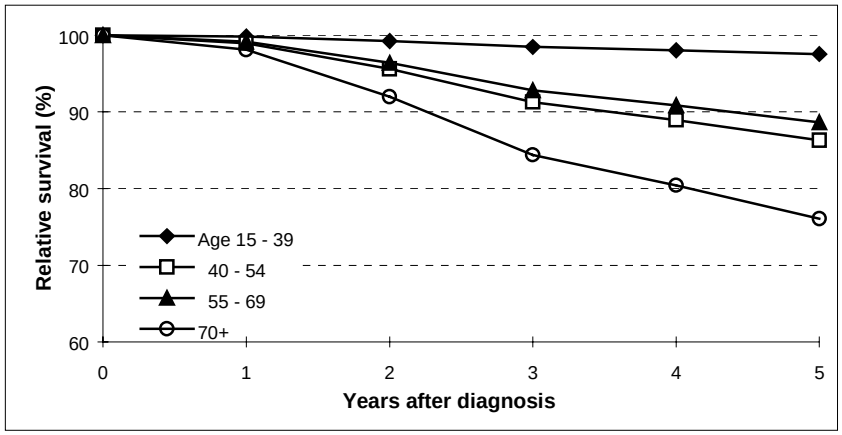
(A) Cases diagnosed in 1994-1997: relative survival (%)

Age at diagnosis	Years after diagnosis 1 year	2 years	3 years	4 years	5 years
15 - 39	99.8 *(99.3 - 100.0)*	99.2 *(97.4 - 100.0)*	98.5 *(94.9 - 100.0)*	98.0 *(93.5 - 100.0)*	97.5 *(91.9 - 100.0)*
40 - 54	99.0 *(96.7 - 100.0)*	95.6 *(89.4 - 100.0)*	91.3 *(79.9 - 100.0)*	88.9 *(74.8 - 100.0)*	86.3 *(69.1 - 100.0)*
55 - 69	99.2 *(97.1 - 100.0)*	96.4 *(90.9 - 100.0)*	92.8 *(83.3 - 100.0)*	90.9 *(79.8 - 100.0)*	88.6 *(74.7 - 100.0)*
70+	98.1 *(94.3 - 100.0)*	92.0 *(84.7 - 99.3)*	84.4 *(73.1 - 95.7)*	80.4 *(66.9 - 94.0)*	76.1 *(59.7 - 92.4)*
All (Ages 15+)	99.1 *(96.5 - 100.0)*	95.0 *(90.1 - 100.0)*	90.2 *(83.1 - 97.3)*	88.7 *(81.2 - 96.3)*	85.6 *(75.9 - 95.3)*

(C) Age-adjusted rates, 1994-1997 (per 100,000)

	Incidence	Mortality
15 - 39	1.4	0
40 - 54	3.0	0.1
55 - 69	9.5	1.2
70+	21.4	8.3
All (Ages 15+)	4.3	0.7

(B) Relative survival curves for cases diagnosed in 1994-1997



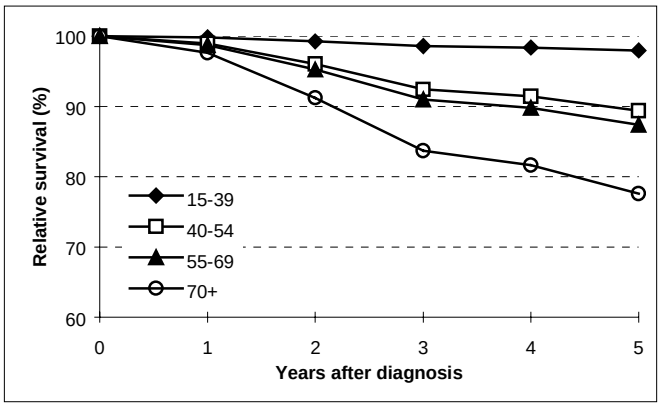
(D) Survival analysis, 1994-1997

	Cases	Deaths*
Age 15-39	19	1
Age 40-54	19	3
Age 55-69	35	5
Age 70+	63	24
All (age 15+)	136	33

** Case follow-up to 30/06/1999*

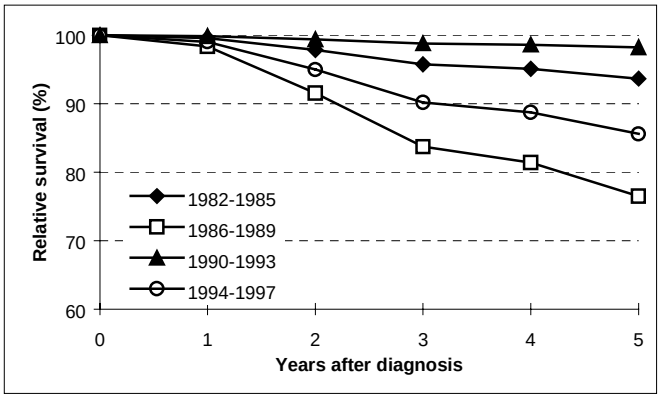
Non-melanoma skin cancer (females)

2. Historical data (diagnosis 1982 to 1997): relative survival (%) by age at diagnosis



Age at diagnosis	R. Surv. at 5 years (%)	Relative risk**
15 - 39 yr	98.0	(1.00)
40 - 54	89.4	5.91 (0.47 - 74.57)
55 - 69	87.4	4.84 (0.37 - 62.85)
70 and over	77.6	10.97 (1.09 - 110.44)

3. Historical data (ages 15 - 70+): relative survival (%) by period of diagnosis



Period of diagnosis	R. Surv. at 5 years (%)	Relative risk**
1982 - 1985	93.7	(1.00)
1986 - 1989	76.5	1.76 (0.34 - 9.12)
1990 - 1993	98.2	0.31 (0.02 - 5.98)
1994 - 1997	85.6	0.93 (0.18 - 4.71)

*** Risk takes both age and period into acccount*

Comparisons

No suitable data were available for comparisons of survival in different areas.

4.18 Breast

The five-year relative survival of Western Australians with breast cancer diagnosed in the period 1982-1997 was 70.7% (56.7 – 84.7) for males, and 80.9% (80.0 – 81.8) for females.

Males

Age at diagnosis

There were insufficient data consider individual age groups. Relative survival at 5 years decreased with time since diagnosis from 93.7% to 81.0% during the 5 year follow-up period, however this difference was not statistically significant.

For cases diagnosed in the period 1982-1997, five-year survival increased with increasing age, from 22.8% in the 15-39 year age group to 81.2% in the 70 years and over age group.

Period of diagnosis

Five-year relative survival between 1986-89 and 1994-97 appeared to improve, however no estimates of reliability were available.

Breast cancer (males)

1. Recent data: Persons aged 15 years or over at diagnosis, 1994-1997

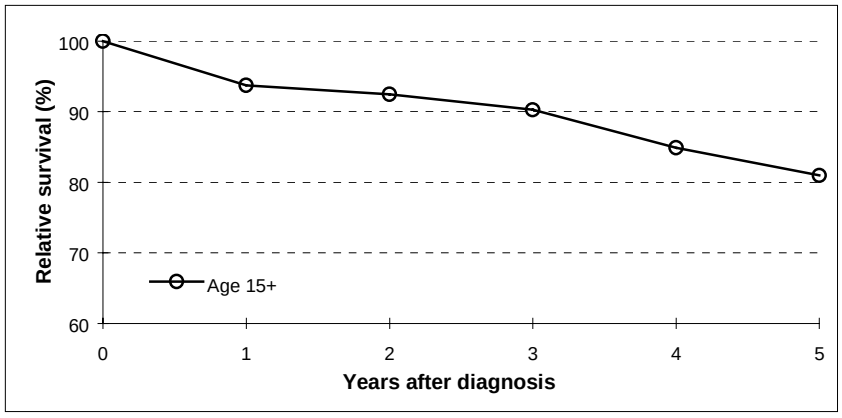
(A) Cases diagnosed in 1994-1997: relative survival (%)

Age at diagnosis	Years after diagnosis 1 year	2 years	3 years	4 years	5 years
All (Ages 15+)	93.7 *(84.8 - 100)*	92.5 *(82.5 - 100)*	90.3 *(77.8 - 100)*	84.9 *(66.7 - 100)*	81.0 *(58.6 - 100)*

(C) Age-adjusted rates, 1994-1997 (per 100,000)

Incidence	Mortality
0.9	0.1

(B) Relative survival curves for cases diagnosed in 1994-1997



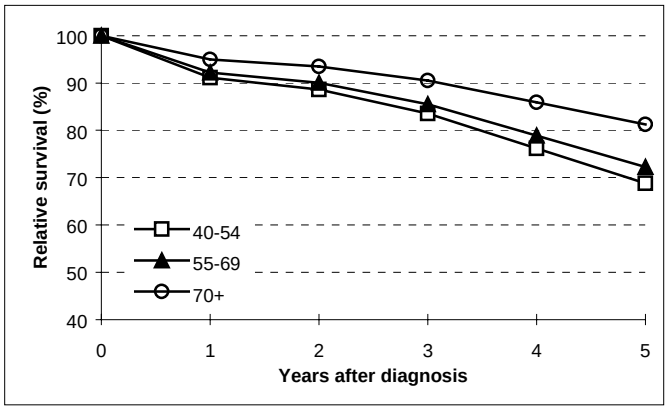
(D) Survival analysis, 1994-1997

	Cases	Deaths*
Age 15-39	0	0
Age 40-54	5	2
Age 55-69	8	0
Age 70+	13	3
All (age 15+)	26	5

** Case follow-up to 30/06/1999*

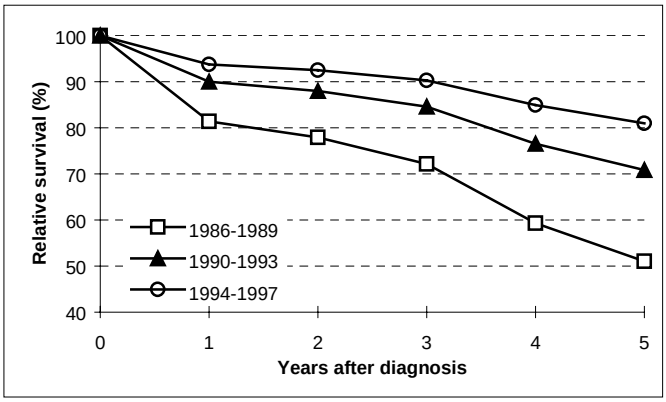
Breast cancer (males)

2. Historical data (diagnosis 1982 to 1997): relative survival (%) by age at diagnos



Age at diagnosis	R. Surv. at 5 years (%)
15 - 39 yr	22.8
40 - 54	68.8
55 - 69	72.2
70 and over	81.2

3. Historical data (ages 15 - 70+): relative survival (%) by period of diagnosis



Period of diagnosis	R. Surv. at 5 years (%)
1986 - 1989	51.0
1990 - 1993	70.8
1994 - 1997	81.0

Females

Age at diagnosis

In recent cases, relative survival was similar in all age groups, at around 97% at one year. Survival decreased with time from 97.7% at one year to 86.4% at five-years, for all ages combined. The decrease in survival between one and five-years post-diagnosis was significant. For more data concerning extent of disease, refer also to Chapter 5.

For cases diagnosed in the period 1982-1997, there was no significant relationship between survival and age, but five-year survival appeared highest in the 40-54 year age group at 83.1% and was lowest in both the 15-39 year and 70 year and over age groups at 77.1%.

Period of diagnosis

Five-year relative survival between 1982-85 and 1994-97 increased in a consistent pattern, but individual relative risks indicate the differences were not statistically- significant.

Breast cancer (females)

1. Recent data: Persons aged 15 years or over at diagnosis, 1994-1997

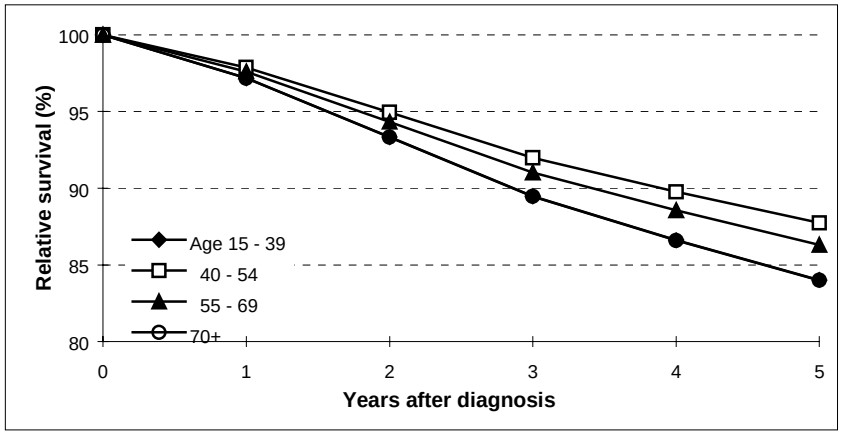
(A) Cases diagnosed in 1994-1997: relative survival (%)

Age at diagnosis	Years after diagnosis 1 year	2 years	3 years	4 years	5 years
15 - 39	97.2 *(96.6 - 97.8)*	93.3 *(92.1 - 94.5)*	89.5 *(87.6 - 91.3)*	86.6 *(84.3 - 88.9)*	84.0 *(81.3 - 86.7)*
40 - 54	97.9 *(97.5 - 98.2)*	94.9 *(94.2 - 95.7)*	92.0 *(90.9 - 93.1)*	89.8 *(88.4 - 91.1)*	87.7 *(86.1 - 89.4)*
55 - 69	97.6 *(97.2 - 98.0)*	94.3 *(93.5 - 95.1)*	91.0 *(89.8 - 92.2)*	88.6 *(87.0 - 90.1)*	86.3 *(84.5 - 88.1)*
70+	97.2 *(96.6 - 97.7)*	93.3 *(92.2 - 94.5)*	89.5 *(87.7 - 91.2)*	86.6 *(84.4 - 88.7)*	84.0 *(81.5 - 86.5)*
All (Ages 15+)	97.7 *(97.3 - 98.0)*	94.4 *(93.7 - 95.1)*	91.1 *(90.0 - 92.2)*	88.7 *(87.3 - 90.0)*	86.4 *(84.8 - 88.0)*

(C) Age-adjusted rates, 1994-1997 (per 100,000)

	Incidence	Mortality
15 - 39	16.2	2.4
40 - 54	170.6	33.2
55 - 69	317.0	66.8
70+	322.2	125.4
All (Ages 15+)	119.9	27.4

(B) Relative survival curves for cases diagnosed in 1994-1997



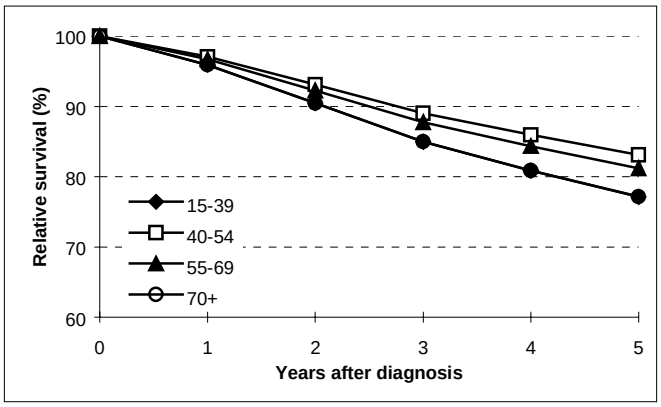
(D) Survival analysis, 1994-1997

	Cases	Deaths*
Age 15-39	269	37
Age 40-54	1156	128
Age 55-69	1247	126
Age 70+	919	283
All (age 15+)	3591	574

** Case follow-up to 30/06/1999*

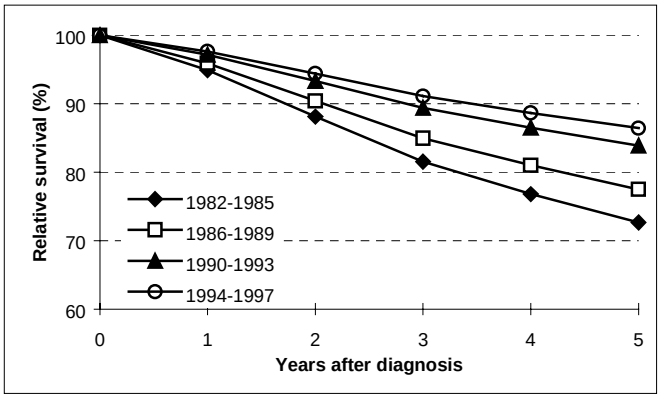
Breast cancer (females)

2. Historical data (diagnosis 1982 to 1997): relative survival (%) by age at diagnosis



Age at diagnosis	R. Surv. at 5 years (%)	Relative risk**
15 - 39 yr	77.1	(1.00)
40 - 54	83.1	0.75 (0.64 - 1.12)
55 - 69	81.2	0.85 (0.71 - 1.00)
70 and over	77.1	1.00 (0.83 - 1.21)

3. Historical data (ages 15 - 70+): relative survival (%) by period of diagnosis



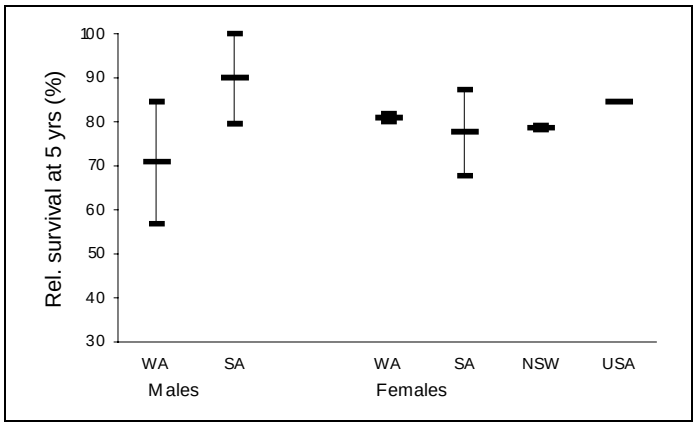
Period of diagnosis	R. Surv. at 5 years (%)	Relative risk**
1982 - 1985	72.7	(1.00)
1986 - 1989	77.5	0.80 (0.70 - 1.09)
1990 - 1993	83.9	0.56 (0.49 - 1.53)
1994 - 1997	86.4	0.47 (0.40 - 1.82)

*** Risk takes both age and period into acccount*

Comparisons

Male breast cancer survival comparisons are hindered by low numbers and a large amount of variability; point estimates for South Australia and Western Australia are very different but the reliability of this is low.

For females, with much larger numbers, variability was lower, and breast cancer survival estimates were similar in all areas considered.



4.19 Cervix

The five-year relative survival of Western Australian females with cervical cancer diagnosed in the period 1982-1997 was 72.2% (69.8 – 74.7).

Age at diagnosis

In recent years, survival at one year decreased with increasing age from 96.0% in the 15-39 year age group to 79.6% in the 70 years and over age group. The differences between the 15-39 year and 40-54 year age groups and the 70 years and over age group was statistically significant. Survival decreased with time since diagnosis from 91.3% to 76.6%, for all ages combined, during the 5 year follow-up period. The difference between the first year and all subsequent years was statistically significant.

For cases diagnosed in the period 1982-1997 five-year survival decreased with increasing age from 85.1% in the 15-39 year age group to 41.3% in the 70 years and over age group. This was statistically significant.

Period of diagnosis

Five-year relative survival between 1982-85 and 1994-97 has shown a non-significant increase.

Cervical cancer (females)

1. Recent data: Persons aged 15 years or over at diagnosis, 1994-1997

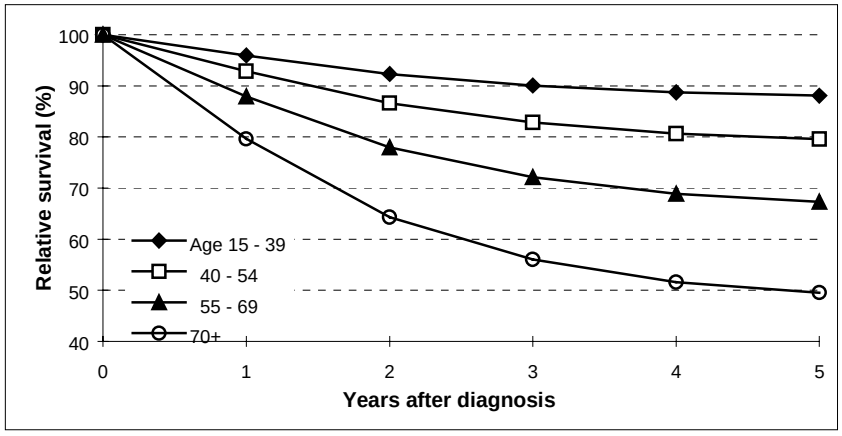
(A) Cases diagnosed in 1994-1997: relative survival (%)

Age at diagnosis	Years after diagnosis 1 year	2 years	3 years	4 years	5 years
15 - 39	96.0 *(94.6 - 97.3)*	92.3 *(89.9 - 94.7)*	90.0 *(87.0 - 93.1)*	88.7 *(85.3 - 92.1)*	88.1 *(84.5 - 91.7)*
40 - 54	92.8 *(90.7 - 95.0)*	86.6 *(83.0 - 90.2)*	82.8 *(78.4 - 87.2)*	80.6 *(75.8 - 85.5)*	79.6 *(74.5 - 84.7)*
55 - 69	87.9 *(84.6 - 91.3)*	78.0 *(72.6 - 83.3)*	72.1 *(65.7 - 78.6)*	68.9 *(61.9 - 75.9)*	67.3 *(60.0 - 74.6)*
70+	79.6 *(73.9 - 85.3)*	64.3 *(55.9 - 72.7)*	56.0 *(46.5 - 65.5)*	51.6 *(41.6 - 61.6)*	49.6 *(39.3 - 59.8)*
All (Ages 15+)	91.3 *(89.0 - 93.7)*	84.1 *(80.3 - 87.8)*	79.9 *(75.4 - 84.4)*	77.6 *(72.7 - 82.6)*	76.6 *(71.5 - 81.8)*

(C) Age-adjusted rates, 1994-1997 (per 100,000)

Incidence	Mortality
5.9	0.9
16.0	3.8
22.6	8.6
21.4	12.6
12.0	3.5

(B) Relative survival curves for cases diagnosed in 1994-1997



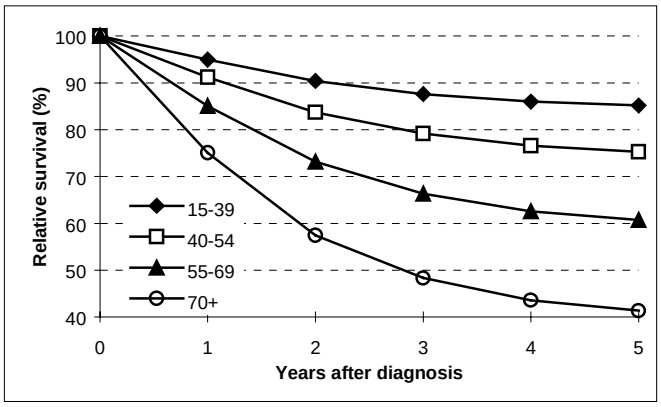
(D) Survival analysis, 1994-1997

	Cases	Deaths*
Age 15-39	94	8
Age 40-54	113	18
Age 55-69	89	30
Age 70+	62	34
All (age 15+)	358	90

** Case follow-up to 30/06/1999*

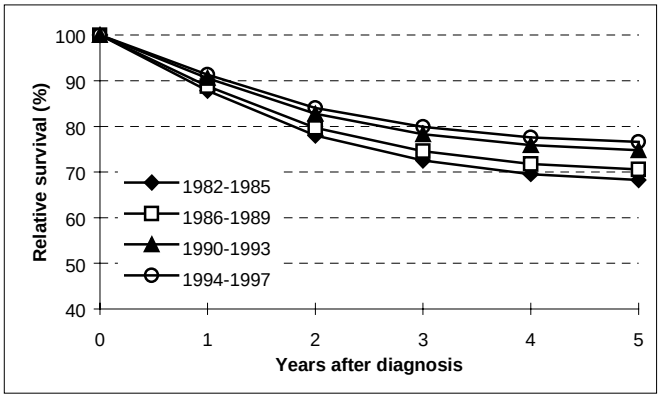
Cervical cancer (females)

2. Historical data (diagnosis 1982 to 1997): relative survival (%) by age at diagnosis



Age at diagnosis	R. Surv. at 5 years (%)	Relative risk**
15 - 39 yr	85.1	(1.00)
40 - 54	75.3	1.80 (1.33 - 2.42)
55 - 69	60.7	3.12 (2.33 - 4.17)
70 and over	41.3	5.53 (4.05 - 7.53)

3. Historical data (ages 15 - 70+): relative survival (%) by period of diagnosis

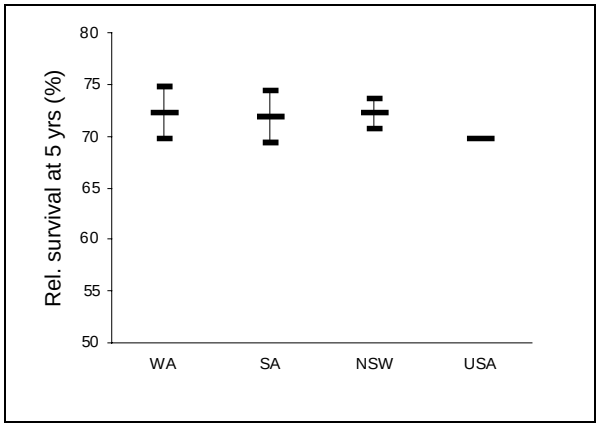


Period of diagnosis	R. Surv. at 5 years (%)	Relative risk**
1982 - 1985	68.3	(1.00)
1986 - 1989	70.5	0.95 (0.74 - 1.22)
1990 - 1993	74.8	0.85 (0.65 - 1.11)
1994 - 1997	76.6	0.70 (0.53 - 1.06)

*** Risk takes both age and period into acccount*

Comparisons

Cervical cancer survival was similar in all areas considered.



4.20 Uterus

The five-year relative survival of Western Australian women with uterine cancer diagnosed in the period 1982-1997 was 80.7% (78.2 – 83.4).

Age at diagnosis

In recent years, survival decreased significantly with increasing age, from 96.6% at one year in the 40-54 year age group to 82.5% in the 70 years and over age group. There were insufficient data to produce estimates for the 15-39 year age group. Survival decreased with time since diagnosis from 90.9% to 80.9% during the five- year period, for all age groups combined . This difference was statistically significant.

For cases diagnosed in the period 1982-1997, five-year survival decreased significantly with increasing age, from 92.5% in the 15-39 year age group to 62.2% in the 70 years and over age group.

Period of diagnosis

Five-year relative survival between 1982-85 and 1994-97 has shown no significant trend.

Uterine cancer (females)

1. Recent data: Persons aged 15 years or over at diagnosis, 1994-1997

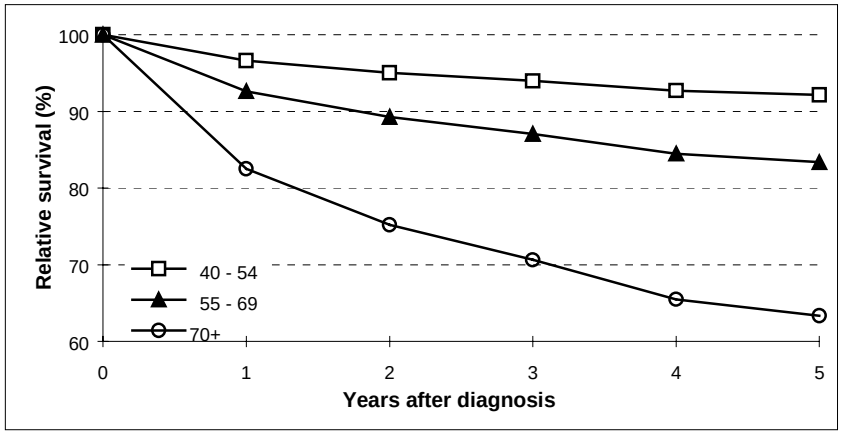
(A) Cases diagnosed in 1994-1997: relative survival (%)

Age at diagnosis	Years after diagnosis 1 year	2 years	3 years	4 years	5 years
40 - 54	96.6 *(94.9 - 98.3)*	95.0 *(92.6 - 97.5)*	94.0 *(91.0 - 96.9)*	92.7 *(89.2 - 96.2)*	92.2 *(88.4 - 96.0)*
55 - 69	92.6 *(90.2 - 95.0)*	89.3 *(85.9 - 92.6)*	87.1 *(83.1 - 91.0)*	84.5 *(79.8 - 89.2)*	83.4 *(78.4 - 88.4)*
70+	82.5 *(77.7 - 87.3)*	75.2 *(69.0 - 81.4)*	70.6 *(63.6 - 77.7)*	65.5 *(57.5 - 73.5)*	63.4 *(54.8 - 71.9)*
All (Ages 15+)	90.9 *(88.3 - 93.6)*	86.9 *(83.4 - 90.4)*	84.5 *(80.5 - 88.6)*	81.8 *(77.0 - 86.5)*	80.9 *(75.9 - 85.9)*

(C) Age-adjusted rates, 1994-1997 (per 100,000)

	Incidence	Mortality
40 - 54	12.8	1.3
55 - 69	40.7	7.1
70+	54.4	16.3
All (Ages 15+)	13.3	2.4

(B) Relative survival curves for cases diagnosed in 1994-1997



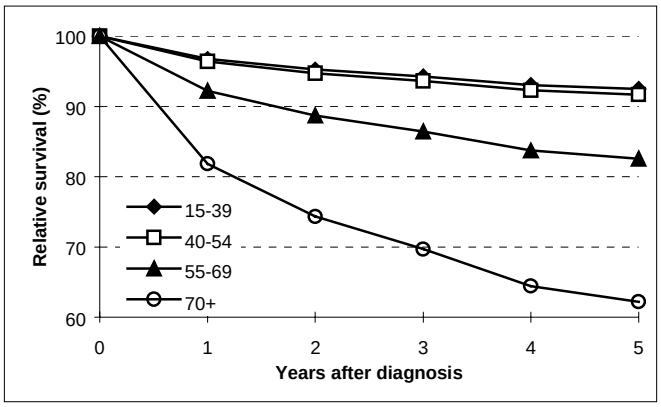
(D) Survival analysis, 1994-1997

	Cases	Deaths*
Age 15-39	16	0
Age 40-54	85	7
Age 55-69	162	33
Age 70+	145	53
All (age 15+)	408	93

** Case follow-up to 30/06/1999*

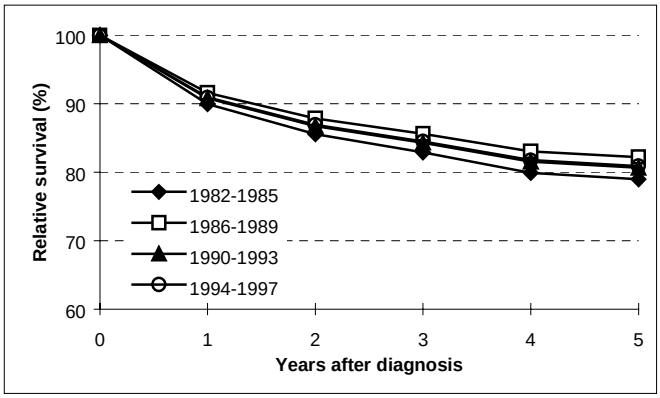
Uterine cancer (females)

2. Historical data (diagnosis 1982 to 1997): relative survival (%) by age at diagnosis



Age at diagnosis	R. Surv. at 5 years (%)	Relative risk**
15 - 39 yr	92.5	(1.00)
40 - 54	91.7	1.12 (0.37 - 3.39)
55 - 69	82.5	2.49 (0.88 - 7.03)
70 and over	62.2	6.25 (2.23 - 17.54)

3. Historical data (ages 15 - 70+): relative survival (%) by period of diagnosis

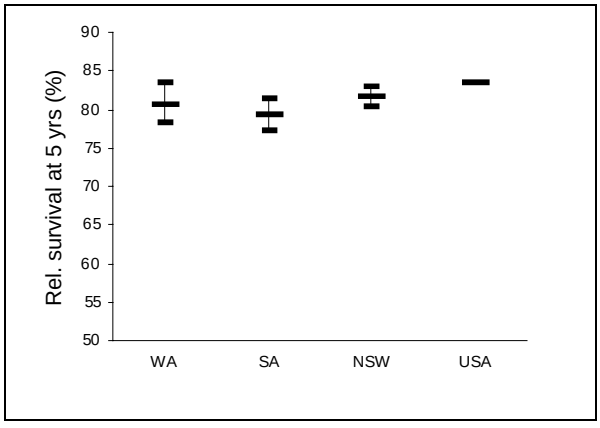


Period of diagnosis	R. Surv. at 5 years (%)	Relative risk**
1982 - 1985	79.0	(1.00)
1986 - 1989	82.2	0.74 (0.50 - 1.09)
1990 - 1993	80.7	0.86 (0.60 - 1.24)
1994 - 1997	80.9	0.80 (0.55 - 1.17)

*** Risk takes both age and period into acccount*

Comparisons

Survival after cancer of the uterus was similar in all areas considered.



4.21 Ovary

The five-year relative survival of Western Australian women with ovarian cancer diagnosed in the period 1982-1997 was 35.8% (32.8 – 38.7).

Age at diagnosis

In recent years, survival decreased with increasing age from 91.1% at one year in the 15-39 year age group to 56.0% in the 70 years and over age group. The difference between the 15-39 year age group and the 70 years and over age group was statistically significant. Survival decreased with time since diagnosis, for all ages combined, from 71.6% to 39.2% during the five- year period. This difference was statistically significant.

For cases diagnosed in the period 1982-1997, five-year survival decreased with increasing age, from 72.6% in the 15-39 year age group to 14.4% in the 70 years and over age group. This was statistically significant.

Period of diagnosis

Five-year relative survival between 1982-85 and 1994-97 has shown a non-significant increase.

Ovarian cancer (females)

1. Recent data: Persons aged 15 years or over at diagnosis, 1994-1997

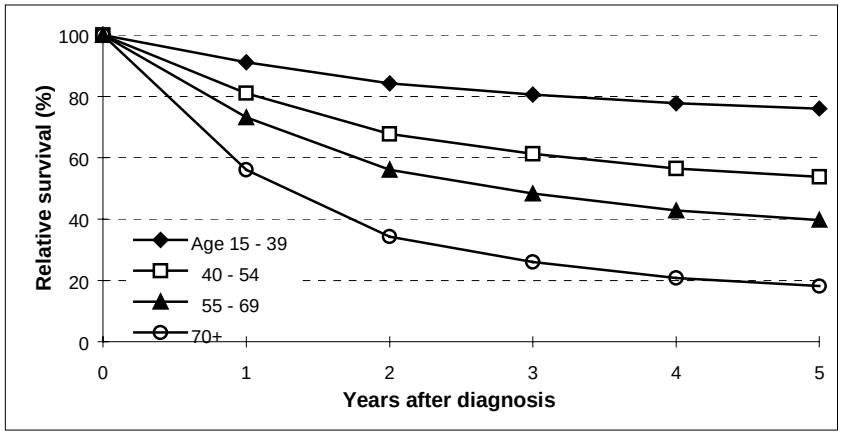
(A) Cases diagnosed in 1994-1997: relative survival (%)

Age at diagnosis	Years after diagnosis 1 year	2 years	3 years	4 years	5 years
15 - 39	91.1 *(87.2 - 95.1)*	84.2 *(77.6 - 90.8)*	80.6 *(72.7 - 88.5)*	77.7 *(68.8 - 86.7)*	76.1 *(66.6 - 85.5)*
40 - 54	81.0 *(77.3 - 84.8)*	67.8 *(62.3 - 73.3)*	61.3 *(55.1 - 67.6)*	56.5 *(49.8 - 63.2)*	53.8 *(46.8 - 60.8)*
55 - 69	73.1 *(68.8 - 77.4)*	56.1 *(50.3 - 61.8)*	48.3 *(42.2 - 54.4)*	42.7 *(36.3 - 49.2)*	39.7 *(33.2 - 46.2)*
70+	56.0 *(50.0 - 62.1)*	34.3 *(27.8 - 40.7)*	26.0 *(19.9 - 32.2)*	20.8 *(15.0 - 26.5)*	18.1 *(12.6 - 23.7)*
All (Ages 15+)	71.6 *(67.6 - 75.6)*	54.6 *(49.5 - 59.7)*	47.2 *(41.8 - 52.6)*	41.9 *(36.3 - 47.5)*	39.2 *(33.5 - 44.9)*

(C) Age-adjusted rates, 1994-1997 (per 100,000)

Incidence	Mortality
1.2	0.5
13.6	6.1
31.7	18.6
46.0	41.3
11.7	7.1

(B) Relative survival curves for cases diagnosed in 1994-1997



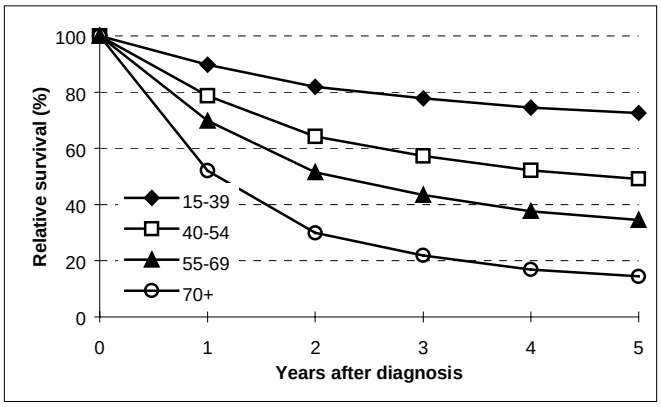
(D) Survival analysis, 1994-1997

	Cases	Deaths*
Age 15-39	18	6
Age 40-54	89	32
Age 55-69	125	67
Age 70+	129	101
All (age 15+)	361	206

** Case follow-up to 30/06/1999*

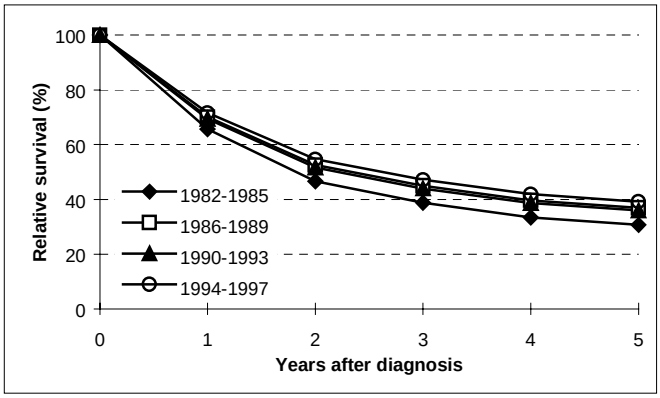
Ovarian cancer (females)

2. Historical data (diagnosis 1982 to 1997): relative survival (%) by age at diagnosis



Age at diagnosis	R. Surv. at 5 years (%)	Relative risk**
15 - 39 yr	72.6	(1.00)
40 - 54	49.2	2.27 (1.43 - 3.59)
55 - 69	34.5	3.37 (2.16 - 5.27)
70 and over	14.4	6.24 (3.98 - 9.79)

3. Historical data (ages 15 - 70+): relative survival (%) by period of diagnosis

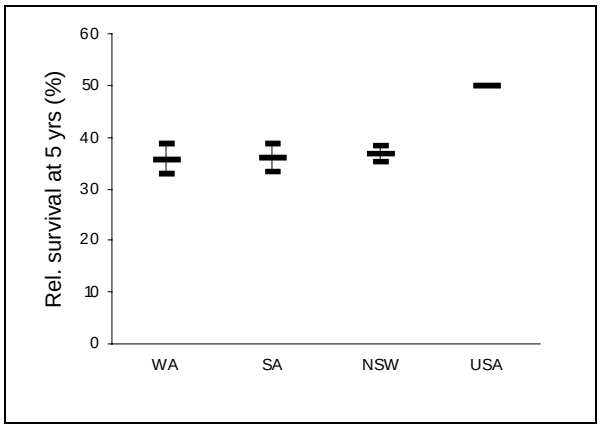


Period of diagnosis	R. Surv. at 5 years (%)	Relative risk**
1982 - 1985	30.7	(1.00)
1986 - 1989	36.9	0.87 (0.71 - 1.08)
1990 - 1993	35.9	0.83 (0.68 - 1.02)
1994 - 1997	39.2	0.74 (0.60 - 1.09)

*** Risk takes both age and period into acccount*

Comparisons

Ovarian cancer survival appeared similar in Australian states compared, but the American estimate was higher; it is unclear whether the American data included the "uncertain behaviour" or "borderline malignant potential" ovarian neoplasms; the Australian data do not.



4.22 Vulva/vagina

The five-year relative survival of Western Australians with vulval or vaginal cancers diagnosed in the period 1982-1997 was 66.5% (59.0 – 74.1).

Age at diagnosis

In recent years, survival decreased with increasing age from 90.1% at one year in the 40-54 year age group to 76.7% in the 70 years and over age group. This difference was not statistically significant. There were insufficient data to produce estimates for the 15-39 year age group. Survival decreased with time since diagnosis for all ages combined, from 84.1% to 68.9% during the 5 year follow-up period. This difference was not statistically significant.

For cases diagnosed in the period 1982-1997, five-year survival decreased with increasing age, from 91.6% in the 15-39 year age group to 55.4% in the 70 years and over age group. This was statistically significant.

Period of diagnosis

Five-year relative survival between 1982-85 and 1994-97 has shown no significant trend.

Vulval and vaginal cancer (females)

1. Recent data: Persons aged 15 years or over at diagnosis, 1994-1997

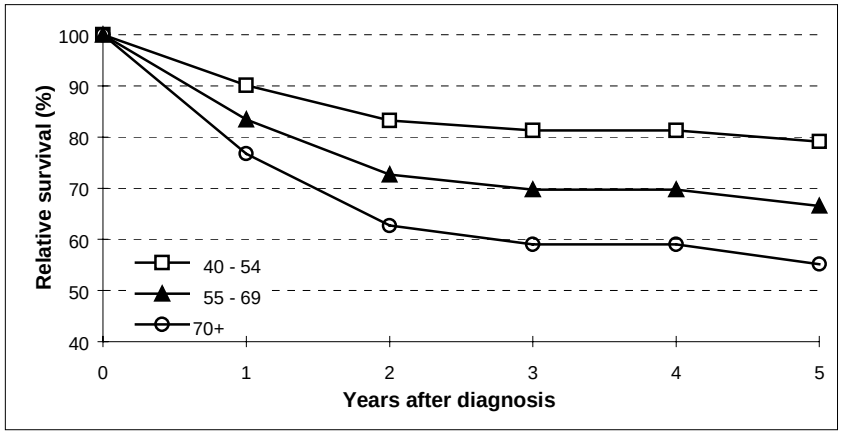
(A) Cases diagnosed in 1994-1997: relative survival (%)

Age at diagnosis	Years after diagnosis 1 year	2 years	3 years	4 years	5 years
40 - 54	90.1 *(82.0 - 98.2)*	83.2 *(70.3 - 96.1)*	81.3 *(67.1 - 95.5)*	81.3 *(67.2 - 95.4)*	79.1 *(63.6 - 94.6)*
55 - 69	83.4 *(74.8 - 92.1)*	72.6 *(60.0 - 85.3)*	69.7 *(56.2 - 83.3)*	69.7 *(56.6 - 82.9)*	66.6 *(52.2 - 80.9)*
70+	76.7 *(66.5 - 87.0)*	62.7 *(48.7 - 76.6)*	59.0 *(44.2 - 73.8)*	59.0 *(43.6 - 74.4)*	55.1 *(38.6 - 71.7)*
All (Ages 15+)	84.1 *(76.9 - 91.2)*	74.1 *(64.2 - 84.0)*	71.6 *(61.0 - 82.2)*	71.6 *(60.6 - 82.5)*	68.9 *(57.0 - 80.7)*

(C) Age-adjusted rates, 1994-1997 (per 100,000)

Incidence	Mortality
2.1	0.2
7.3	2.0
14.3	5.8
2.8	0.7

(B) Relative survival curves for cases diagnosed in 1994-1997



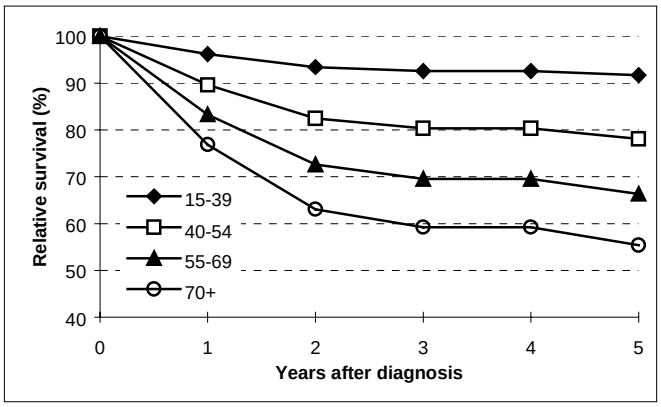
(D) Survival analysis, 1994-1997

	Cases	Deaths*
Age 15-39	10	0
Age 40-54	14	2
Age 55-69	28	7
Age 70+	43	25
All (age 15+)	95	34

** Case follow-up to 30/06/1999*

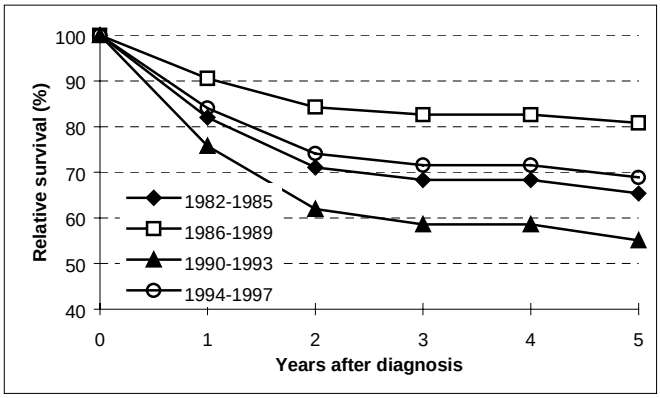
Vulval and vaginal cancer (females)

2. Historical data (diagnosis 1982 to 1997): relative survival (%) by age at diagnosis



Age at diagnosis	R. Surv. at 5 years (%)	Relative risk**
15 - 39 yr	91.6	(1.00)
40 - 54	78.1	2.53 (0.33 - 19.17)
55 - 69	66.3	4.41 (0.65 - 29.84)
70 and over	55.4	6.45 (1.03 - 40.16)

3. Historical data (ages 15 - 70+): relative survival (%) by period of diagnosis

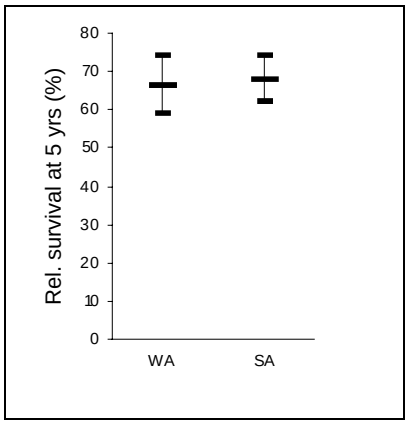


Period of diagnosis	R. Surv. at 5 years (%)	Relative risk**
1982 - 1985	65.3	(1.00)
1986 - 1989	80.8	0.57 (0.22 - 1.49)
1990 - 1993	55.1	1.49 (0.70 - 3.17)
1994 - 1997	68.9	1.05 (0.49 - 2.21)

*** Risk takes both age and period into acccount*

Comparisons

Only South Australian data were available for comparison; survival was no different from that in Western Australia.



4.23 Prostate

The five-year relative survival of Western Australian males with prostate cancer diagnosed in the period 1982-1997 was 79.8% (78.4 – 81.2).

Age at diagnosis

In recent years, survival to one year was similar for all age groups at around 98%. There were insufficient data to produce estimates for the 15-39 year age group. Survival decreased significantly with time since diagnosis, for all ages combined, from 98.3% to 93.3% during the follow-up period.

Considering cases diagnosed in the entire period 1982-1997, relative survival was lowest in men over 70 years of age.

Period of diagnosis

Between 1982-85 and 1994-97 there was a consistent trend towards improvement in relative survival, but confidence intervals were wide and the changes were not statistically significant.

Prostate cancer (males)

1. Recent data: Persons aged 15 years or over at diagnosis, 1994-1997

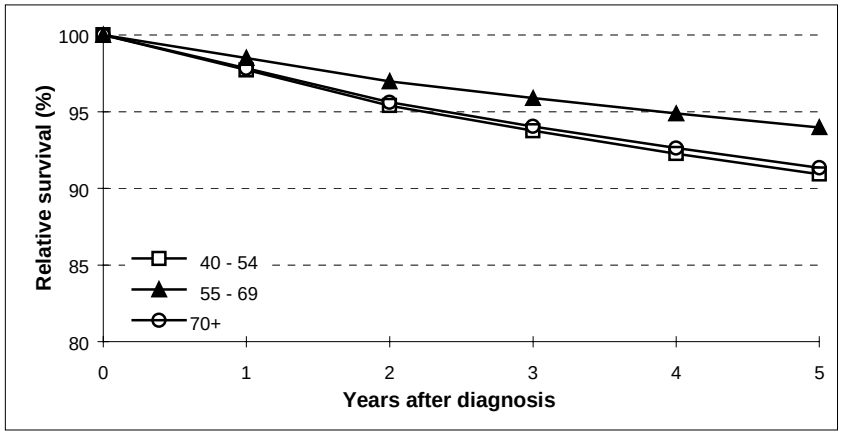
(A) Cases diagnosed in 1994-1997: relative survival (%)

Age at diagnosis	Years after diagnosis 1 year	2 years	3 years	4 years	5 years
40 - 54	97.7 *(96.9 - 98.5)*	95.4 *(93.8 - 97.0)*	93.7 *(91.6 - 95.9)*	92.3 *(89.6 - 94.9)*	90.9 *(87.8 - 94.0)*
55 - 69	98.5 *(98.1 - 98.9)*	97.0 *(96.2 - 97.7)*	95.9 *(94.9 - 96.9)*	94.9 *(93.7 - 96.1)*	94.0 *(92.6 - 95.4)*
70+	97.8 *(97.2 - 98.4)*	95.6 *(94.5 - 96.7)*	94.0 *(92.5 - 95.5)*	92.6 *(90.8 - 94.4)*	91.3 *(89.2 - 93.5)*
All (Ages 15+)	98.3 *(97.9 - 98.8)*	96.6 *(95.8 - 97.4)*	95.4 *(94.3 - 96.5)*	94.3 *(93.0 - 95.6)*	93.3 *(91.7 - 94.9)*

(C) Age-adjusted rates, 1994-1997 (per 100,000)

	Incidence	Mortality
40 - 54	29.5	0.8
55 - 69	494.3	39.4
70+	1,012.1	314.5
All (Ages 15+)	144.7	24.7

(B) Relative survival curves for cases diagnosed in 1994-1997



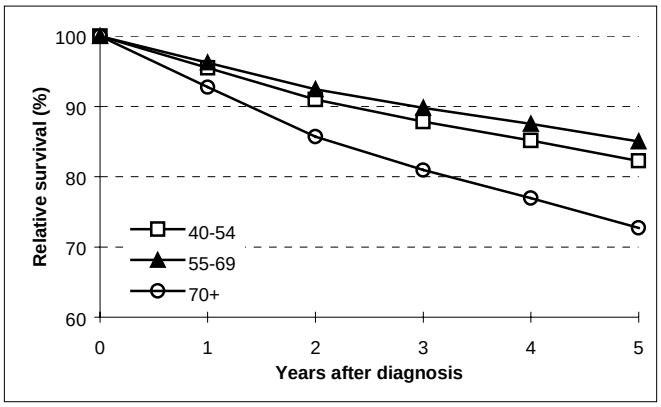
(D) Survival analysis, 1994-1997

	Cases	Deaths*
Age 15-39	*0*	*0*
Age 40-54	201	11
Age 55-69	1968	220
Age 70+	2055	735
All (age 15+)	4224	966

** Case follow-up to 30/06/1999*

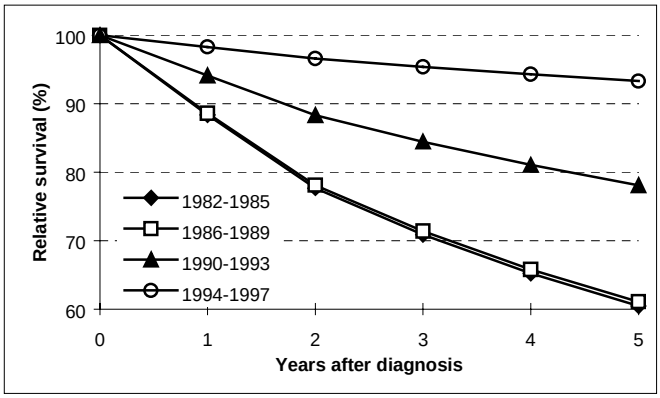
Prostate cancer (males)

2. Historical data (diagnosis 1982 to 1997): relative survival (%) by age at diagnosis



Age at diagnosis	R. Surv. at 5 years (%)
40 - 54	82.3
55 - 69	85.0
70 and over	72.7

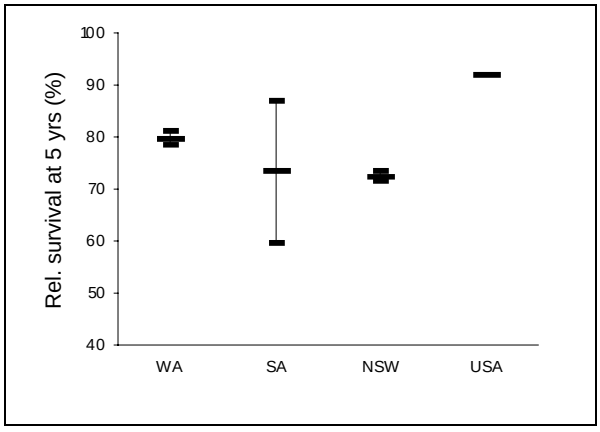
3. Historical data (ages 15 - 70+): relative survival (%) by period of diagnosis



Period of diagnosis	R. Surv. at 5 years (%)	Relative risk**
1982 - 1985	60.4	(1.00)
1986 - 1989	61.1	0.98 (0.83 - 1.16)
1990 - 1993	78.1	0.51 (0.43 - 1.64)
1994 - 1997	93.3	0.16 (0.12 - 4.86)

*** Risk takes both age and period into acccount*

Comparisons



Survival after prostate cancer appeared better in Western Australia than in New South Wales (but lower than in America). This is likely to be partly because the peak of prostate cancer incidence, contributed to by the use of PSA testing, occurred more recently in Western Australia than in New South Wales; and the New South Wales data were, on average, less recent. PSA testing, before it became common elsewhere, might be a possible explanation for the higher survival in America, although there is to date no published local evidence that survival has been improved by its use in Western Australia.

4.24 Testis

The five-year relative survival of Western Australian men with testicular cancer diagnosed in the period 1982-1997 was 95.7% (93.8 – 97.6).

Age at diagnosis

In recent years, survival appeared similar for all age groups but analyses were hindered by low numbers of deaths (i.e. good survival, at around 98%). Survival decreased with time since diagnosis from 98.3% to 93.3% during a 5 year follow-up period.

Period of diagnosis

For all age groups combined, 5-year survival between 1982-85 and 1994-97 increased consistently, however confidence intervals could not be calculated due to low numbers.

Testicular cancer (males)

1. Recent data: Persons aged 15 years or over at diagnosis, 1994-1997

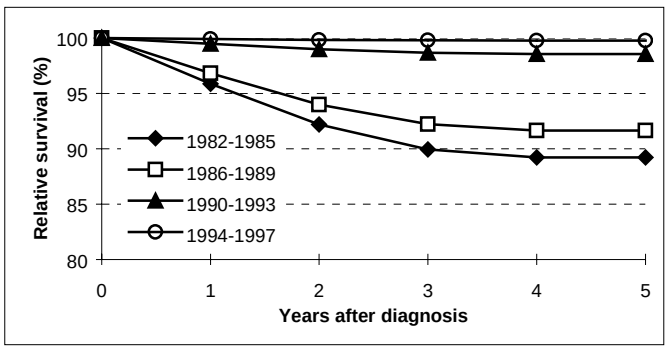
(A) Survival analysis, 1994-1997:

	Cases	Deaths*
Age 15-39	128	1
Age 40-54	49	0
Age 55-69	16	1
Age 70+	3	1
All (age 15+)	196	3

(B) Age-adjusted rates, 1994-1997 (per 100,000)

	Incidence	Mortality
Age 15-39	8.5	0.2
Age 40-54	6.7	0.1
Age 55-69	4.0	0
Age 70+	1.7	0.5
All (age 15+)	7.0	0.2

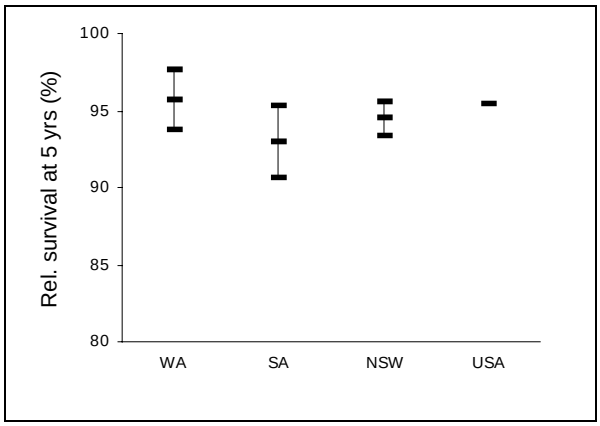
2. Historical data (ages 15 - 70+): relative survival (%) by period of diagnosis



Period of diagnosis	R. Surv. at 5 years (%)
1982 - 1985	89.2
1986 - 1989	91.6
1990 - 1993	98.6
1994 - 1997	99.8

Comparisons

Testicular cancer survival appeared similar in all areas compared.



4.25 Bladder

The five-year relative survival of Western Australians with bladder cancer diagnosed in the period 1982-1997 was 65.2% (62.1 – 68.3) for males, and 56.1% (50.9 – 61.3) for females.

Males

Age at diagnosis

In recent cases, relative survival at one year decreased with increasing age from 90.9% at one year in the 40-54 year age group to 77.2% in the 70 years and over age group. This difference was statistically significant. There were insufficient data to produce estimates for the 15-39 year age group. Survival decreased with time since diagnosis for all ages combined, from 81.3% to 60.7% during the 5 year follow-up period. This was statistically significant.

For cases diagnosed in the period 1982-1997, survival decreased with increasing age, from 91.5% in the 15-39 year age group to 55.3% in the 70 years and over age group. This difference was statistically significant.

Period of diagnosis

Five-year relative survival between 1982-85 and 1994-97 showed a significant decrease from 72.7% in 1982-85 to 60.7% in 1994-1997. This is most likely due to problems with data quality in the early years, when *in situ* tumours were more likely to be included.

Bladder cancer (males)

1. Recent data: Persons aged 15 years or over at diagnosis, 1994-1997

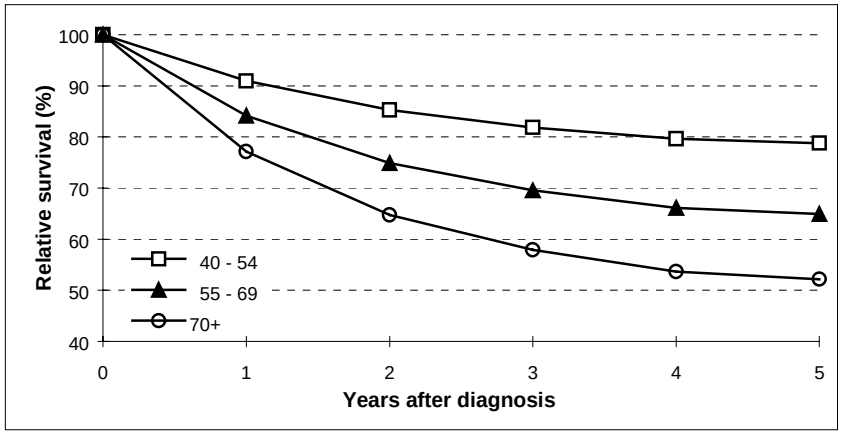
(A) Cases diagnosed in 1994-1997: relative survival (%)

Age at diagnosis	Years after diagnosis 1 year	2 years	3 years	4 years	5 years
40 - 54	90.9 *(87.0 - 94.8)*	85.3 *(79.2 - 91.3)*	81.9 *(74.6 - 89.1)*	79.6 *(71.6 - 87.6)*	78.8 *(70.5 - 87.2)*
55 - 69	84.2 *(80.5 - 87.8)*	74.9 *(69.7 - 80.1)*	69.5 *(63.5 - 75.6)*	66.1 *(59.5 - 72.7)*	64.9 *(58.1 - 71.7)*
70+	77.2 *(72.8 - 81.5)*	64.7 *(58.9 - 70.6)*	57.9 *(51.3 - 64.5)*	53.7 *(46.6 - 60.8)*	52.2 *(44.9 - 59.5)*
All (Ages 15+)	81.3 *(77.7 - 84.9)*	70.9 *(66.0 - 75.8)*	65.4 *(59.8 - 71.0)*	62.0 *(55.9 - 68.1)*	60.7 *(54.4 - 67.0)*

(C) Age-adjusted rates, 1994-1997 (per 100,000)

Incidence	Mortality
3.9	0.3
32.6	11.6
122.5	56.0
13.5	5.2

(B) Relative survival curves for cases diagnosed in 1994-1997



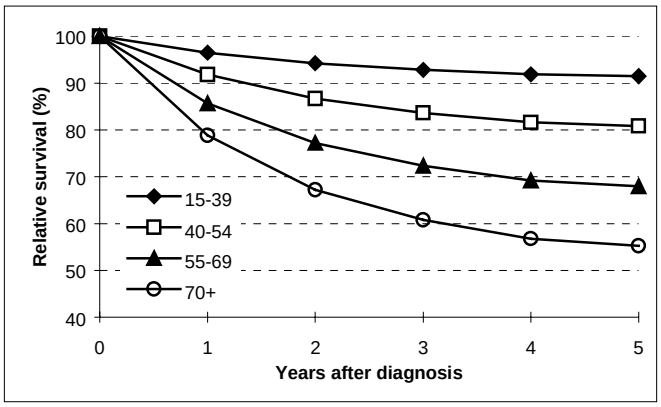
(D) Survival analysis, 1994-1997

	Cases	Deaths*
Age 15-39	6	0
Age 40-54	27	7
Age 55-69	130	50
Age 70+	253	147
All (age 15+)	416	204

** Case follow-up to 30/06/1999*

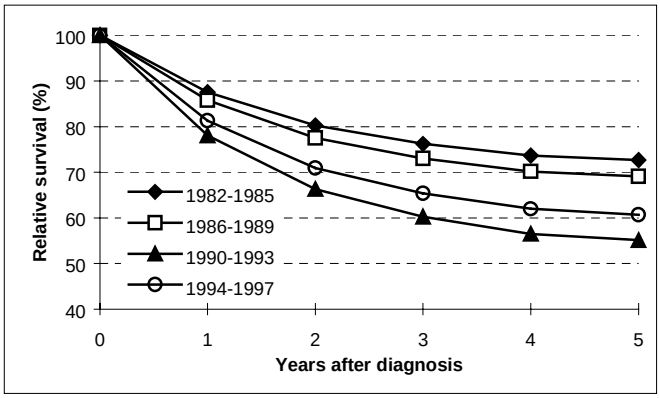
Bladder cancer (males)

2. Historical data (diagnosis 1982 to 1997): relative survival (%) by age at diagnosis



Age at diagnosis	R. Surv. at 5 years (%)	Relative risk**
15 - 39 yr	91.5	(1.00)
40 - 54	80.8	2.21 (0.56 - 8.66)
55 - 69	68.0	4.01 (1.07 - 14.95)
70 and over	55.3	6.03 (1.62 - 22.42)

3. Historical data (ages 15 - 70+): relative survival (%) by period of diagnosis



Period of diagnosis	R. Surv. at 5 years (%)	Relative risk**
1982 - 1985	72.7	(1.00)
1986 - 1989	69.1	1.14 (0.85 - 1.53)
1990 - 1993	55.1	1.74 (1.31 - 2.30)
1994 - 1997	60.7	1.42 (1.07 - 1.90)

*** Risk takes both age and period into acccount*

Females

Age at diagnosis

In recent cases, relative survival at one year was highest in the 40-54 year and 55-69 year age group at 75% and decreased to 57.6% in the 70 years and over age groups. The difference between the 55-69 year and 70 years and over age group was significant. There were insufficient data to produce estimates for the 15-39 year age group. Survival decreased with time since diagnosis for all ages combined, from 65.7% to 41.4% during the 5 year follow-up period.

For cases diagnosed in the period 1982-1997, survival decreased with increasing age, from 79.7% in the 15-39 year age group to 44.9% in the 70 years and over age group; this difference was not statistically significant.

Period of diagnosis

Five-year relative survival between 1982-85 and 1994-97 has shown a significant decrease, from 67.8% in 1982-85, to 41.4% in 1994-1997.

Bladder cancer (females)

1. Recent data: Persons aged 15 years or over at diagnosis, 1994-1997

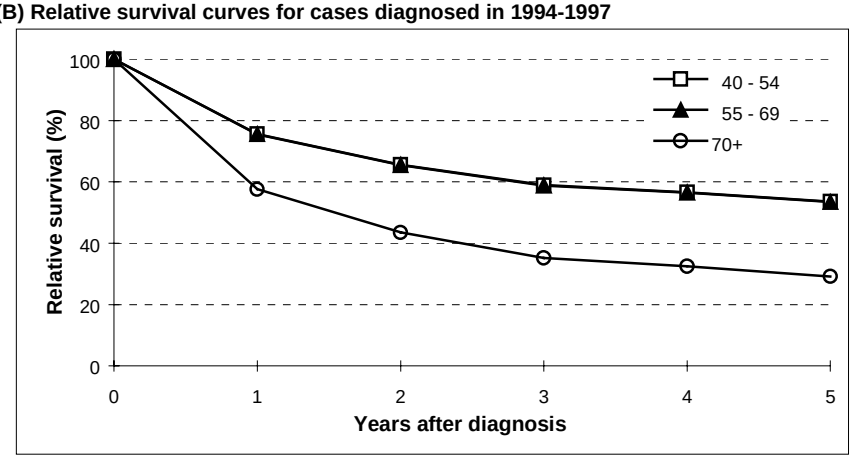
(A) Cases diagnosed in 1994-1997: relative survival (%)

Age at diagnosis	Years after diagnosis 1 year	2 years	3 years	4 years	5 years
40 - 54	75.6 *(63.2 - 88.0)*	65.6 *(49.5 - 81.7)*	58.9 *(40.9 - 77.0)*	56.6 *(38.0 - 75.2)*	53.6 *(34.2 - 72.9)*
55 - 69	75.5 *(67.4 - 83.6)*	65.5 *(55.2 - 75.7)*	58.8 *(47.3 - 70.2)*	56.4 *(44.6 - 68.2)*	53.4 *(41.1 - 65.7)*
70+	57.6 *(48.1 - 67.1)*	43.5 *(32.9 - 54.1)*	35.2 *(24.4 - 46.0)*	32.5 *(21.6 - 43.4)*	29.2 *(18.2 - 40.1)*
All (Ages 15+)	65.7 *(57.7 - 73.7)*	53.9 *(44.5 - 63.3)*	46.6 *(36.6 - 56.6)*	44.6 *(34.4 - 54.8)*	41.4 *(31.0 - 51.9)*

(C) Age-adjusted rates, 1994-1997 (per 100,000)

Incidence	Mortality
1.3	0.3
9.0	2.5
24.3	18.7
3.2	1.6

(B) Relative survival curves for cases diagnosed in 1994-1997



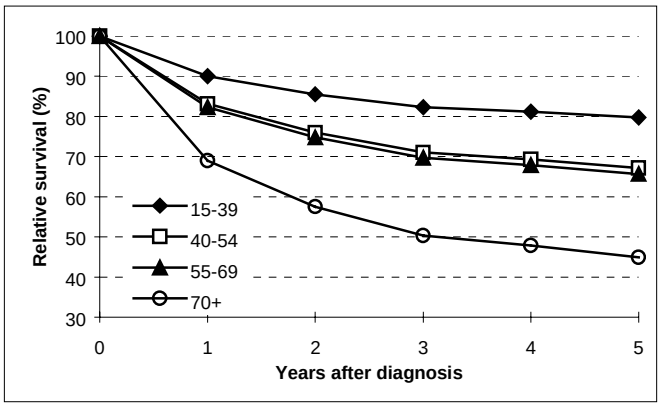
(D) Survival analysis, 1994-1997

	Cases	Deaths*
Age 15-39	2	0
Age 40-54	8	4
Age 55-69	36	16
Age 70+	73	51
All (age 15+)	119	71

** Case follow-up to 30/06/1999*

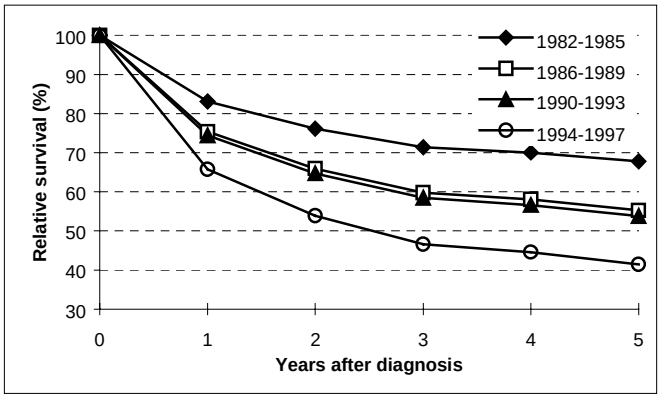
Bladder cancer (females)

2. Historical data (diagnosis 1982 to 1997): relative survival (%) by age at diagnosis



Age at diagnosis	R. Surv. at 5 years (%)	Relative risk**
15 - 39 yr	79.7	(1.00)
40 - 54	67.2	1.87 (0.39 - 8.92)
55 - 69	65.7	1.88 (0.42 - 8.40)
70 and over	44.9	3.70 (0.84 - 16.29)

3. Historical data (ages 15 - 70+): relative survival (%) by period of diagnosis

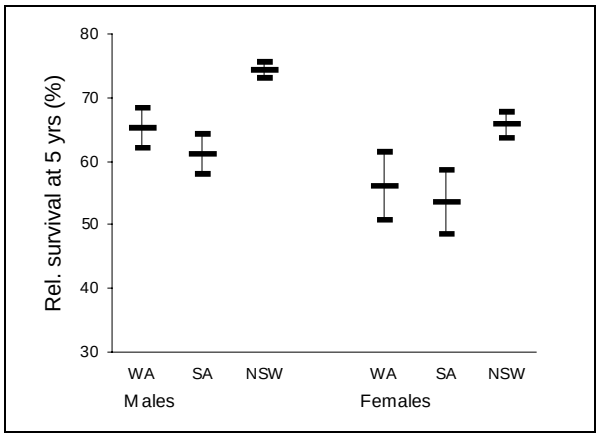


Period of diagnosis	R. Surv. at 5 years (%)	Relative risk**
1982 - 1985	67.8	(1.00)
1986 - 1989	55.2	1.62 (1.07 - 2.45)
1990 - 1993	53.8	1.53 (0.98 - 2.40)
1994 - 1997	41.4	2.29 (1.51 - 3.48)

*** Risk takes both age and period into acccount*

Comparisons

Bladder cancer survival was similar in Western Australia and South Australia for males and for females, but was lower than that reported for New South Wales. In several States in the past, before Registries routinely received pathology reports, there was some risk of non-invasive tumours being included in such statistics. While this is no longer a problem, such a practice would appear to improve survival, and may have affected the New South Wales survival most as the data were older.



4.26 Kidney (including renal pelvis & ureter)

The five-year relative survival of Western Australians with cancers of the kidney diagnosed in the period 1982-1997 was 56.5% (52.9 – 60.2) for males, and 51.9% (47.4 – 56.3) for females. Thirteen percent of the tumours were transitional-cell carcinomas.

Males

Age at diagnosis

In recent cases, relative survival at one year decreased with increasing age from 83.7% in the 15-39 year age group to 65.6% in the 70 years and over age group. This difference was statistically significant. Survival decreased with time since diagnosis for all ages combined, from 75.2% to 58.3% during the 5 year follow-up period. This was statistically significant.

For cases diagnosed in the period 1982-1997, survival decreased with increasing age from 69.0% in the 15-39 year age group to 41.7% in the 70 years and over age group. This difference was statistically significant.

Period of diagnosis

Five-year relative survival between 1982-85 and 1994-97 showed a non-significant increase.

Cancers of the kidney (males)

1. Recent data: Persons aged 15 years or over at diagnosis, 1994-1997

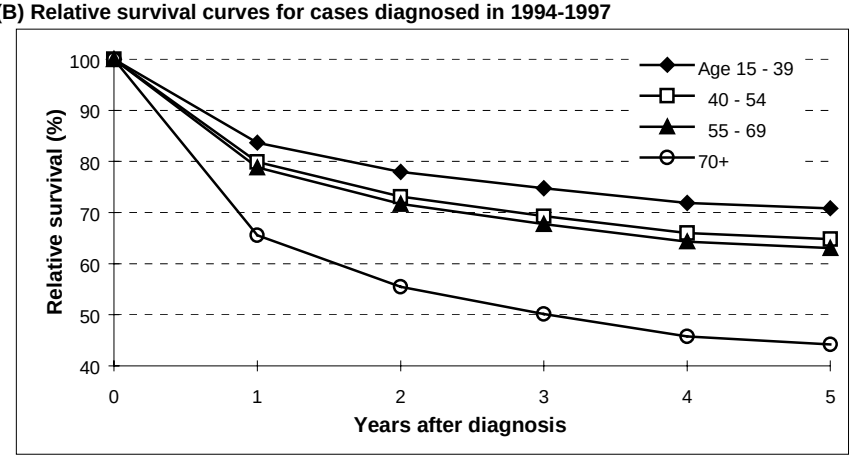
(A) Cases diagnosed in 1994-1997: relative survival (%)

Age at diagnosis	Years after diagnosis 1 year	2 years	3 years	4 years	5 years
15 - 39	83.7 *(74.6 - 92.8)*	78.0 *(66.2 - 89.7)*	74.7 *(61.6 - 87.9)*	71.9 *(57.6 - 86.2)*	70.8 *(56.1 - 85.6)*
40 - 54	79.9 *(74.3 - 85.5)*	73.1 *(66.1 - 80.1)*	69.3 *(61.5 - 77.1)*	66.0 *(57.6 - 74.4)*	64.8 *(56.1 - 73.4)*
55 - 69	78.8 *(74.0 - 83.6)*	71.7 *(65.7 - 77.6)*	67.7 *(61.2 - 74.3)*	64.3 *(57.2 - 71.5)*	63.1 *(55.7 - 70.4)*
70+	65.6 *(58.8 - 72.3)*	55.5 *(47.6 - 63.3)*	50.2 *(41.9 - 58.4)*	45.8 *(37.1 - 54.4)*	44.2 *(35.3 - 53.1)*
All (Ages 15+)	75.2 *(70.4 - 80.0)*	67.3 *(61.6 - 73.1)*	63.1 *(56.8 - 69.3)*	59.5 *(52.8 - 66.2)*	58.3 *(51.4 - 65.3)*

(C) Age-adjusted rates, 1994-1997 (per 100,000)

	Incidence	Mortality
15 - 39	0.6	0.1
40 - 54	7.6	2.4
55 - 69	29.2	13.7
70+	55.9	26.9
All (Ages 15+)	10.1	4.4

(B) Relative survival curves for cases diagnosed in 1994-1997



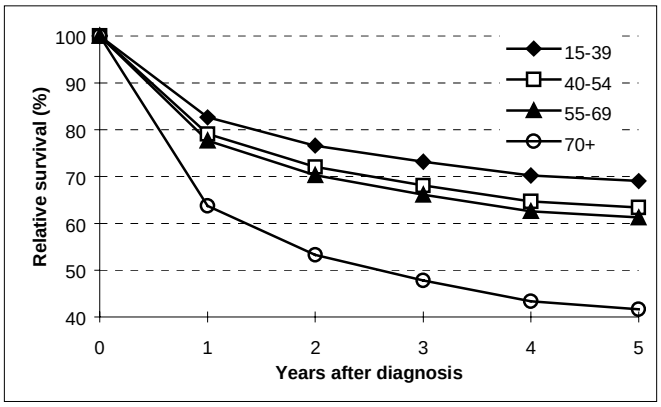
(D) Survival analysis, 1994-1997

	Cases	Deaths*
Age 15-39	10	2
Age 40-54	53	16
Age 55-69	115	41
Age 70+	114	77
All (age 15+)	292	136

** Case follow-up to 30/06/1999*

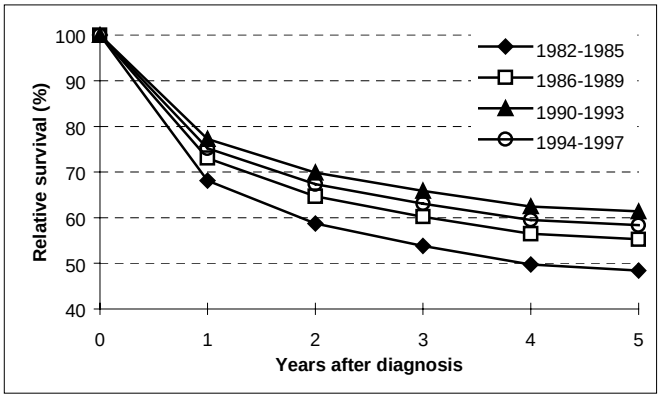
Cancers of the kidney (males)

2. Historical data (diagnosis 1982 to 1997): relative survival (%) by age at diagnosis



Age at diagnosis	R. Surv. at 5 years (%)	Relative risk**
15 - 39 yr	69.0	(1.00)
40 - 54	63.4	1.26 (0.67 - 2.35)
55 - 69	61.2	1.34 (0.73 - 2.44)
70 and over	41.7	2.37 (1.30 - 4.30)

3. Historical data (ages 15 - 70+): relative survival (%) by period of diagnosis



Period of diagnosis	R. Surv. at 5 years (%)	Relative risk**
1982 - 1985	48.4	(1.00)
1986 - 1989	55.2	1.17 (0.63 - 1.15)
1990 - 1993	61.4	1.42 (0.53 - 1.06)
1994 - 1997	58.3	1.31 (0.57 - 1.02)

*** Risk takes both age and period into acccount*

Females

Age at diagnosis

In recent cases, relative survival at one year decreased with increasing age from 79.8% in the 40-54 year age group to 56.6% in the 70 years and over age group. This difference was significant. There were insufficient data to produce estimates for the 15-39 year age group. Survival decreased with time since diagnosis for all ages combined, from 66.6% to 50.2% during the 5 year follow-up period. This was a significant decrease.

For cases diagnosed in the period 1982-1997, survival decreased with increasing age, from 79.2% in the 15-39 year age group to 38.3% in the 70 years and over age group. This difference was statistically significant.

Period of diagnosis

Five-year relative survival between 1982-85 and 1994-97 showed no significant trend.

Cancers of the kidney (females)

1. Recent data: Persons aged 15 years or over at diagnosis, 1994-1997

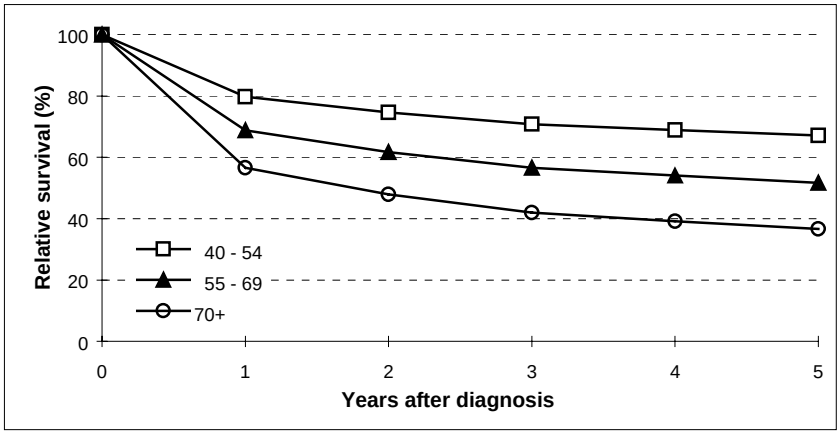
(A) Cases diagnosed in 1994-1997: relative survival (%)

Age at diagnosis	Years after diagnosis 1 year	2 years	3 years	4 years	5 years
40 - 54	79.8 *(72.6 - 86.9)*	74.6 *(66.1 - 83.2)*	70.8 *(61.3 - 80.3)*	68.9 *(58.9 - 78.8)*	67.1 *(56.7 - 77.5)*
55 - 69	68.8 *(61.3 - 76.3)*	61.7 *(53.1 - 70.2)*	56.6 *(47.3 - 65.8)*	54.0 *(44.5 - 63.6)*	51.7 *(41.9 - 61.5)*
70+	56.6 *(48.5 - 64.7)*	47.9 *(39.3 - 56.6)*	42.0 *(33.0 - 51.0)*	39.2 *(30.0 - 48.4)*	36.7 *(27.3 - 46.0)*
All (Ages 15+)	66.6 *(60.3 - 72.9)*	59.4 *(52.4 - 66.4)*	54.4 *(46.9 - 61.9)*	52.3 *(44.5 - 60.0)*	50.2 *(42.2 - 58.2)*

(C) Age-adjusted rates, 1994-1997 (per 100,000)

Incidence	Mortality
6.0	1.8
13.8	6.6
36.2	20.5
6.0	2.8

(B) Relative survival curves for cases diagnosed in 1994-1997



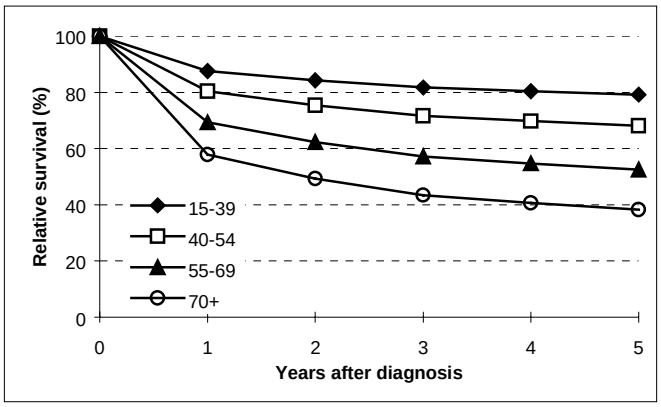
(D) Survival analysis, 1994-1997

	Cases	Deaths*
Age 15-39	7	3
Age 40-54	41	9
Age 55-69	54	24
Age 70+	102	62
All (age 15+)	204	98

** Case follow-up to 30/06/1999*

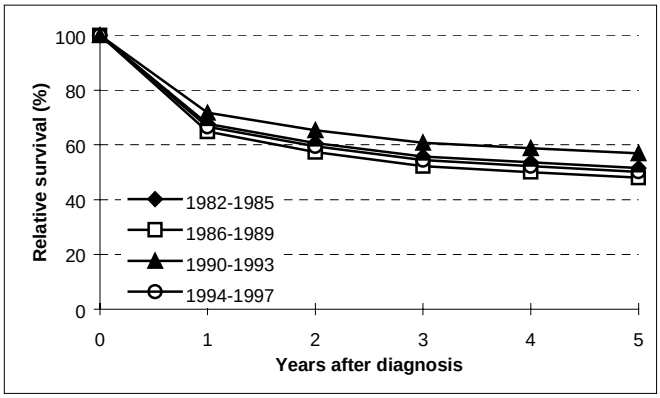
Cancers of the kidney (females)

2. Historical data (diagnosis 1982 to 1997): relative survival (%) by age at diagnosis



Age at diagnosis	R. Surv. at 5 years (%)	Relative risk**
15 - 39 yr	79.2	(1.00)
40 - 54	68.1	1.61 (0.69 - 3.72)
55 - 69	52.5	2.66 (1.21 - 5.85)
70 and over	38.3	4.04 (1.85 - 8.83)

3. Historical data (ages 15 - 70+): relative survival (%) by period of diagnosis

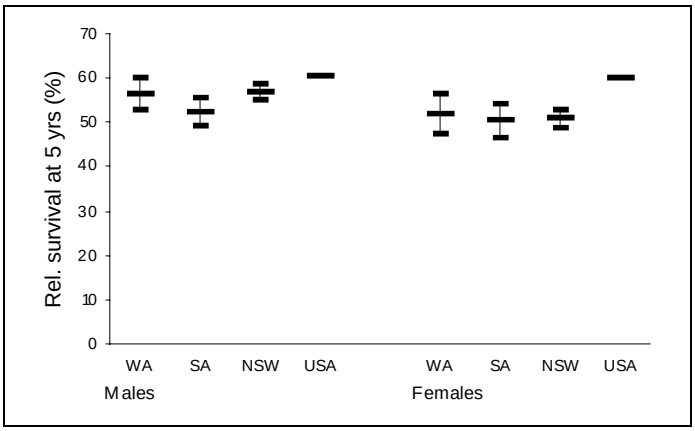


Period of diagnosis	R. Surv. at 5 years (%)	Relative risk**
1982 - 1985	51.6	(1.00)
1986 - 1989	48.0	1.13 (0.78 - 1.63)
1990 - 1993	56.9	0.87 (0.59 - 1.27)
1994 - 1997	50.2	1.04 (0.71 - 1.51)

*** Risk takes both age and period into acccount*

Comparisons

Survival after renal cancers was similar in all areas considered, for males and for females.



4.27 Brain

The five-year relative survival of Western Australians with cancers of the brain diagnosed in the period 1982-1997 was 19.6% (16.6 – 22.7) for males, and 17.8% (14.6 – 21.1) for females.

Males

Age at diagnosis

In recent cases, relative survival at one year decreased with increasing age from 79.4% at one year in the 15-39 year age group to 5.7% in the 70 years and over age group. The differences between all age groups at one to five-years were statistically significant. Survival decreased with time since diagnosis for all ages combined, from 33.5% at 1 year to 13.4% at 5 years.

For cases diagnosed in the period 1982-1997, survival decreased with increasing age, from 59.6% in the 15-39 year age group to 0.2% in the 70 years and over age group. This difference was statistically significant.

Period of diagnosis

Five-year relative survival between 1982-85 and 1994-97 has shown a non-significant decrease.

Cancers of the brain (males)

1. Recent data: Persons aged 15 years or over at diagnosis, 1994-1997

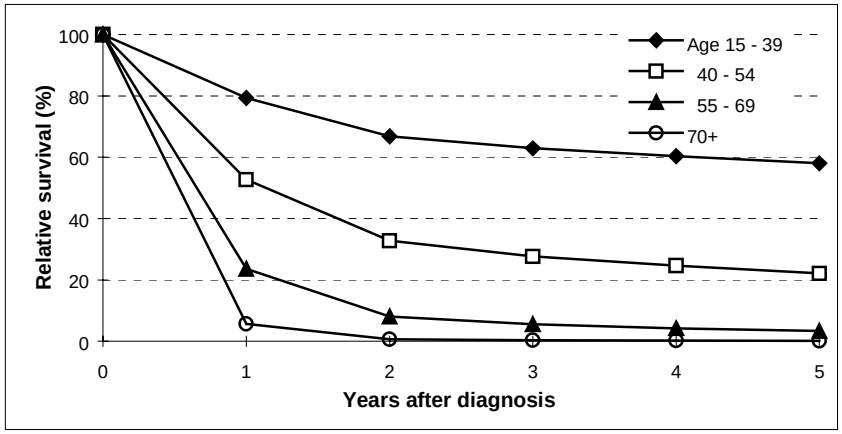
(A) Cases diagnosed in 1994-1997: relative survival (%)

Age at diagnosis	Years after diagnosis 1 year	2 years	3 years	4 years	5 years
15 - 39	79.4 *(73.6 - 85.1)*	66.8 *(58.6 - 75.0)*	62.9 *(54.1 - 71.7)*	60.3 *(51.1 - 69.5)*	58.0 *(48.5 - 67.5)*
40 - 54	52.7 *(44.8 - 60.6)*	32.7 *(24.5 - 41.0)*	27.7 *(19.7 - 35.7)*	24.6 *(16.8 - 32.4)*	22.1 *(14.5 - 29.7)*
55 - 69	23.6 *(17.3 - 29.9)*	8.1 *(4.2 - 11.9)*	5.5 *(2.4 - 8.6)*	4.3 *(1.6 - 6.9)*	3.3 *(1.1 - 5.6)*
70+	5.7 *(2.2 - 9.2)*	0.7 *(0.0 - 1.4)*	0.3 *(0.0 - 0.7)*	0.2 *(0.0 - 0.5)*	0.1 *(0.0 - 0.3)*
All (Ages 15+)	33.5 *(27.5 - 39.5)*	19.6 *(14.5 - 24.7)*	16.6 *(11.8 - 21.4)*	14.9 *(10.3 - 19.5)*	13.4 *(9.0 - 17.9)*

(C) Age-adjusted rates, 1994-1997 (per 100,000)

Incidence	Mortality
1.8	1.2
6.9	6.6
19.0	18.0
22.1	24.4
7.0	6.6

(B) Relative survival curves for cases diagnosed in 1994-1997



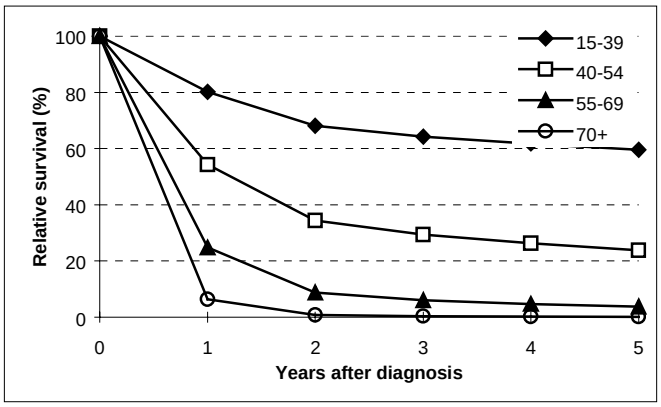
(D) Survival analysis, 1994-1997

	Cases	Deaths*
Age 15-39	28	13
Age 40-54	49	37
Age 55-69	76	71
Age 70+	47	46
All (age 15+)	200	167

** Case follow-up to 30/06/1999*

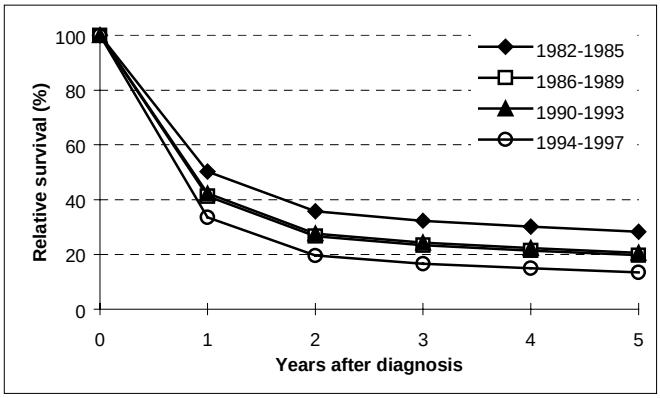
Cancers of the brain (males)

2. Historical data (diagnosis 1982 to 1997): relative survival (%) by age at diagnosis



Age at diagnosis	R. Surv. at 5 years (%)	Relative risk**
15 - 39 yr	59.6	(1.00)
40 - 54	23.8	2.77 (2.03 - 3.78)
55 - 69	3.8	6.25 (4.63 - 8.42)
70 and over	0.2	12.40 (8.99 - 17.09)

3. Historical data (ages 15 - 70+): relative survival (%) by period of diagnosis



Period of diagnosis	R. Surv. at 5 years (%)	Relative risk**
1982 - 1985	28.2	(1.00)
1986 - 1989	19.7	1.20 (0.90 - 1.59)
1990 - 1993	20.5	1.06 (0.81 - 1.39)
1994 - 1997	13.4	1.16 (0.88 - 1.52)

*** Risk takes both age and period into acccount*

Females

Age at diagnosis

In recent cases, relative survival at one year decreased with increasing age from 77.2% at one year in the 15-39 year age group to 8.3% in the 70 years and over age group. The differences between all age groups at one to five-years were statistically significant. Survival decreased with time since diagnosis for all ages combined, from 31.9% to 14.3% during the 5 year follow-up period. This was statistically significant.

For cases diagnosed in the period 1982-1997, five-year survival decreased with increasing age, from 59.2% in the 15-39 year age group to 0.7% in the 70 years and over age group. This difference was statistically significant.

Period of diagnosis

Five-year relative survival between 1982-85 and 1994-97 has shown no significant trend.

Cancers of the brain (females)

1. Recent data: Persons aged 15 years or over at diagnosis, 1994-1997

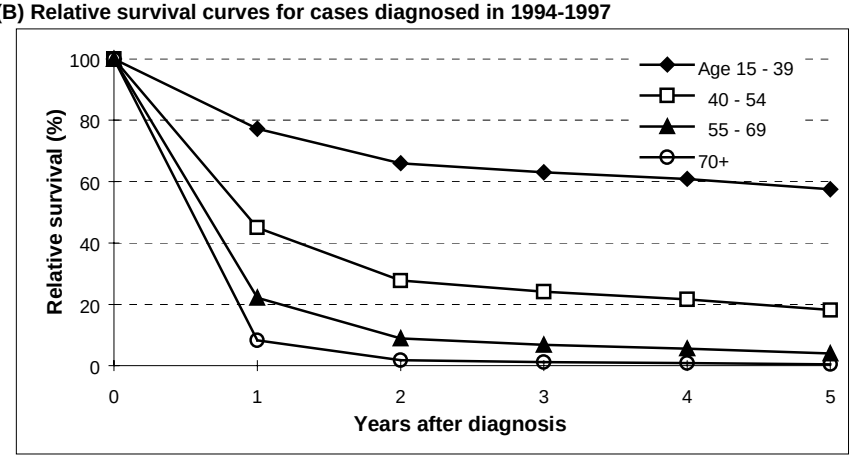
(A) Cases diagnosed in 1994-1997: relative survival (%)

Age at diagnosis	Years after diagnosis 1 year	2 years	3 years	4 years	5 years
15 - 39	77.2 *(70.2 - 84.2)*	66.0 *(56.7 - 75.3)*	63.1 *(53.3 - 72.9)*	60.9 *(50.7 - 71.1)*	57.5 *(46.8 - 68.2)*
40 - 54	45.0 *(35.5 - 54.6)*	27.7 *(18.4 - 37.1)*	24.1 *(15.1 - 33.2)*	21.6 *(12.9 - 30.4)*	18.1 *(9.8 - 26.4)*
55 - 69	22.2 *(14.9 - 29.4)*	8.9 *(4.1 - 13.7)*	6.8 *(2.7 - 11.0)*	5.6 *(1.9 - 9.2)*	4.0 *(1.0 - 7.0)*
70+	8.3 *(3.5 - 13.0)*	1.8 *(0.1 - 3.6)*	1.2 *(0.0 - 2.5)*	0.8 *(0.0 - 1.8)*	0.5 *(0.0 - 1.1)*
All (Ages 15+)	31.9 *(25.1 - 38.7)*	20.2 *(14.2 - 26.1)*	17.9 *(12.2 - 23.6)*	16.5 *(10.9 - 22.0)*	14.3 *(9.0 - 19.6)*

(C) Age-adjusted rates, 1994-1997 (per 100,000)

Incidence	Mortality
2.0	1.2
5.0	4.4
12.5	9.9
14.0	15.2
5.1	4.2

(B) Relative survival curves for cases diagnosed in 1994-1997



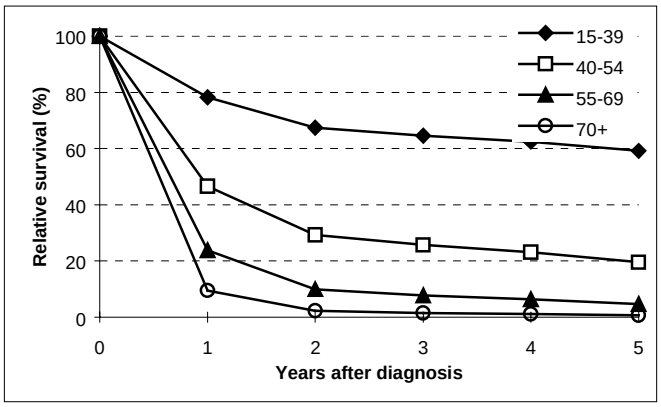
(D) Survival analysis, 1994-1997

	Cases	Deaths*
Age 15-39	26	9
Age 40-54	34	27
Age 55-69	50	46
Age 70+	41	40
All (age 15+)	151	122

** Case follow-up to 30/06/1999*

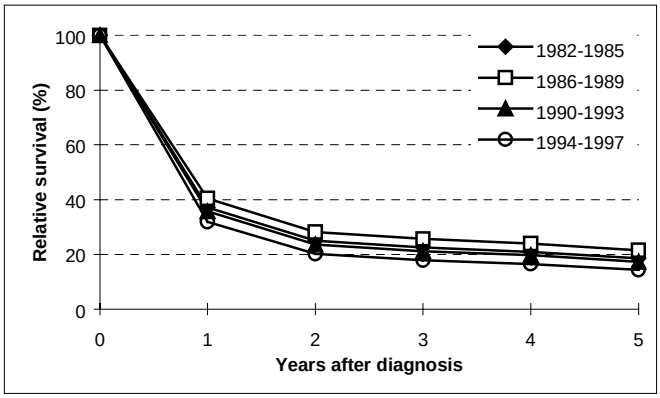
Cancers of the brain (females)

2. Historical data (diagnosis 1982 to 1997): relative survival (%) by age at diagnosis



Age at diagnosis	R. Surv. at 5 years (%)	Relative risk**
15 - 39 yr	59.2	(1.00)
40 - 54	19.6	3.08 (2.16 - 4.40)
55 - 69	4.7	5.83 (4.15 - 8.18)
70 and over	0.7	9.64 (6.81 - 13.65)

3. Historical data (ages 15 - 70+): relative survival (%) by period of diagnosis

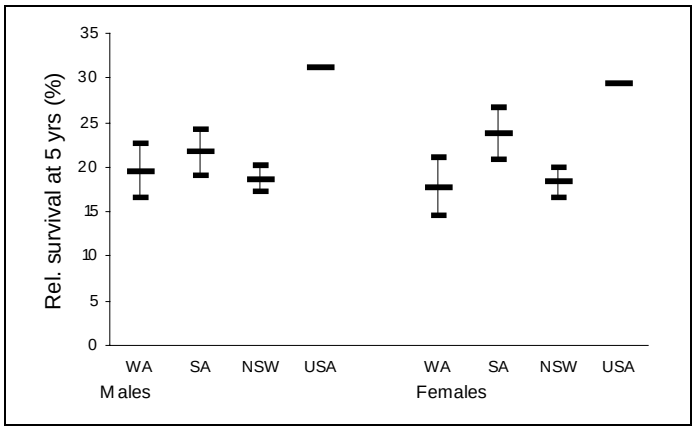


Period of diagnosis	R. Surv. at 5 years (%)	Relative risk**
1982 - 1985	18.6	(1.00)
1986 - 1989	21.5	0.90 (0.67 - 1.21)
1990 - 1993	17.3	0.87 (0.65 - 1.16)
1994 - 1997	14.3	0.98 (0.73 - 1.31)

*** Risk takes both age and period into acccount*

Comparisons

Survival after primary brain cancers was similar in the Australian states compared. However, survival rates in America appeared markedly higher; this is likely to have been influenced by the inclusion, in the 1980s, of benign tumours among the USA data.[8]



4.28 Thyroid

The five-year relative survival of Western Australians with cancers of the thyroid diagnosed in the period 1982-1997 was 85.5% (78.3 – 92.7) for males, and 93.8% (83.7 – 100.0) for females.

Males

Age at diagnosis

There were insufficient cases to permit analysis of survival by age group in recent years. Relative survival showed little variation with time, decreasing from 92.4% at one year to 91.3% at five-years. This difference was not statistically significant.

Period of diagnosis

Five-year relative survival between 1982-85 and 1994-97 has shown no consistent trend; relative risk calculations were not possible due to small numbers of deaths.

Thyroid cancer (males)

1. Recent data: Persons aged 15 years or over at diagnosis, 1994-1997

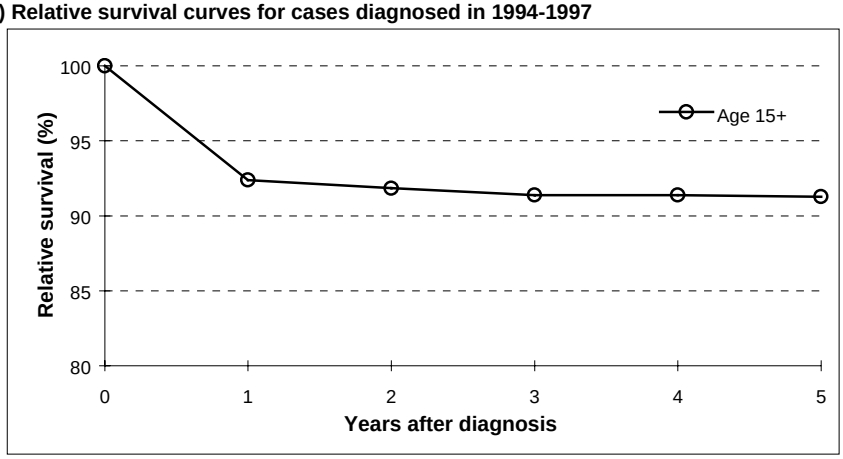
(A) Cases diagnosed in 1994-1997: relative survival (%)

Age at diagnosis	Years after diagnosis 1 year	2 years	3 years	4 years	5 years
All (Ages 15+)	92.4 *(85.3 - 99.5)*	91.8 *(84.4 - 99.3)*	91.4 *(83.7 - 99.1)*	91.4 *(83.8 - 99.0)*	91.3 *(83.6 - 99.0)*

(C) Age-adjusted rates, 1994-1997 (per 100,000)

Incidence	Mortality
2.8	0.5

(B) Relative survival curves for cases diagnosed in 1994-1997

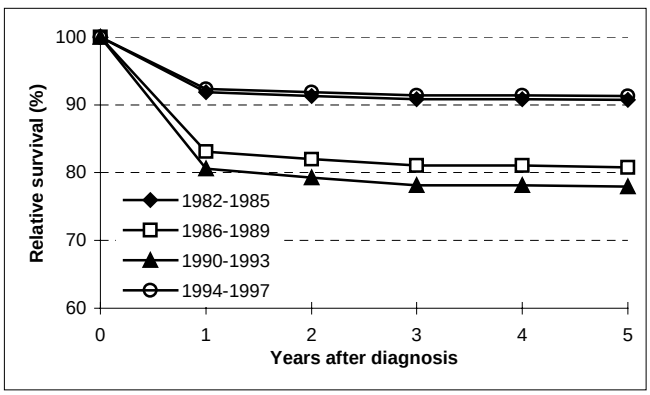


(D) Survival analysis, 1994-1997

	Cases	Deaths*
Age 15-39	21	0
Age 40-54	32	0
Age 55-69	16	7
Age 70+	11	4
All (age 15+)	80	11

** Case follow-up to 30/06/1999*

2. Historical data (ages 15 - 70+): relative survival (%) by period of diagnosis



Period of diagnosis	R. Surv. at 5 years (%)
1982 - 1985	90.8
1986 - 1989	80.8
1990 - 1993	77.9
1994 - 1997	91.3

Females

Age at diagnosis

There were insufficient cases to look at survival by age group in recent years. As for males, most deaths occurred early, and relative survival decreased marginally from 94.1% at one year to 93.5% at five-years.

Period of diagnosis

Five-year relative survival between 1982-85 and 1994-97 has shown a non-significant increase.

Thyroid cancer (females)

1. Recent data: Persons aged 15 years or over at diagnosis, 1994-1997

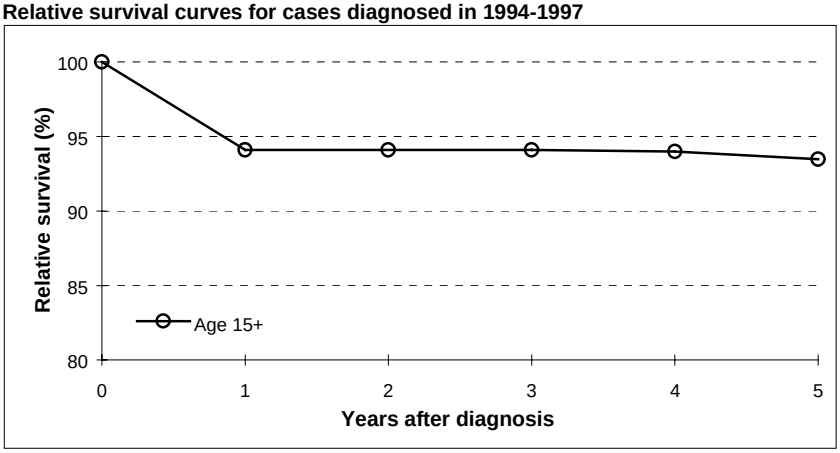
(A) Cases diagnosed in 1994-1997: relative survival (%)

Age at diagnosis	Years after diagnosis 1 year	2 years	3 years	4 years	5 years
All (Ages 15+)	94.1 *(89.9 - 98.3)*	94.1 *(89.6 - 98.6)*	94.1 *(89.9 - 98.4)*	94.0 *(89.7 - 98.3)*	93.5 *(88.6 - 98.3)*

(C) Age-adjusted rates, 1994-1997 (per 100,000)

Incidence	Mortality
7.1	0.6

(B) Relative survival curves for cases diagnosed in 1994-1997

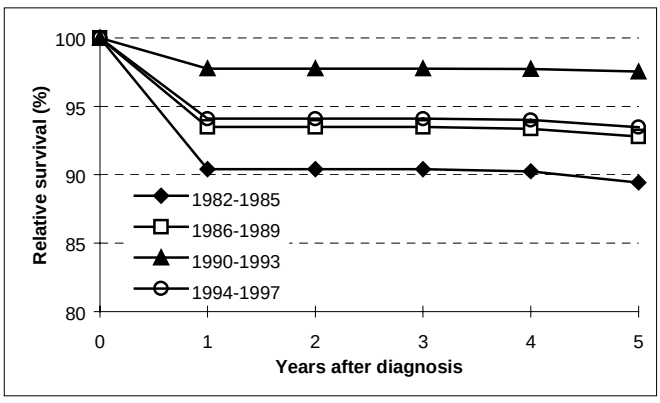


(D) Survival analysis, 1994-1997

	Cases	Deaths*
Age 15-39	75	1
Age 40-54	62	3
Age 55-69	39	5
Age 70+	29	14
All (age 15+)	205	23

** Case follow-up to 30/06/1999*

2. Historical data (ages 15 - 70+): relative survival (%) by period of diagnosis

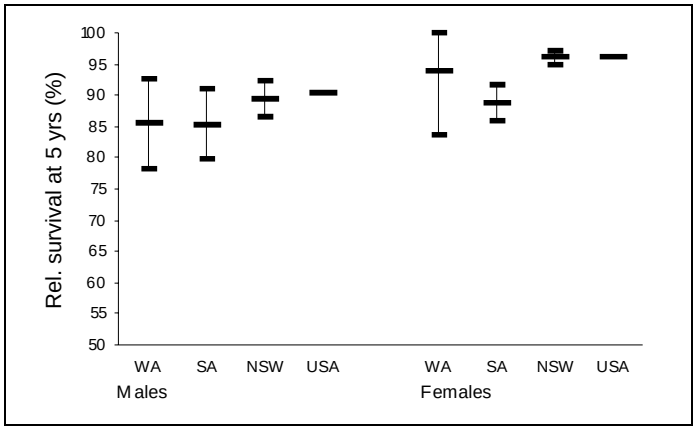


Period of diagnosis	R. Surv. at 5 years (%)	Relative risk**
1982 - 1985	89.4	(1.00)
1986 - 1989	92.8	0.80 (0.35 - 1.82)
1990 - 1993	97.5	0.31 (0.11 - 1.20)
1994 - 1997	93.5	0.50 (0.22 - 1.10)

*** Risk takes both age and period into acccount*

Comparisons

Survival after thyroid cancers was similar in all areas considered.



4.29 Hodgkin's lymphoma

The five-year relative survival of Western Australians with Hodgkin's lymphoma diagnosed in the period 1982-1997 was 86.3% (81.0 – 91.6) for males, and 88.8% (77.3 – 100.0) for females.

Males

Age at diagnosis

There were insufficient cases to look at survival by age group in recent years. Relative survival showed little variation with time, decreasing from 98.5% at one year to 96.0% at five-years. This difference was not statistically significant.

For cases diagnosed in the period 1982-1997, five-year survival decreased with increasing age, from 91.2% in the 15-39 year age group to 23.5% in the 70 years and over age group. This difference was statistically significant.

Period of diagnosis

Five-year relative survival between 1982-85 and 1994-97 has shown a non-significant increase.

Hodgkin's lymphoma (males)

1. Recent data: Persons aged 15 years or over at diagnosis, 1994-1997

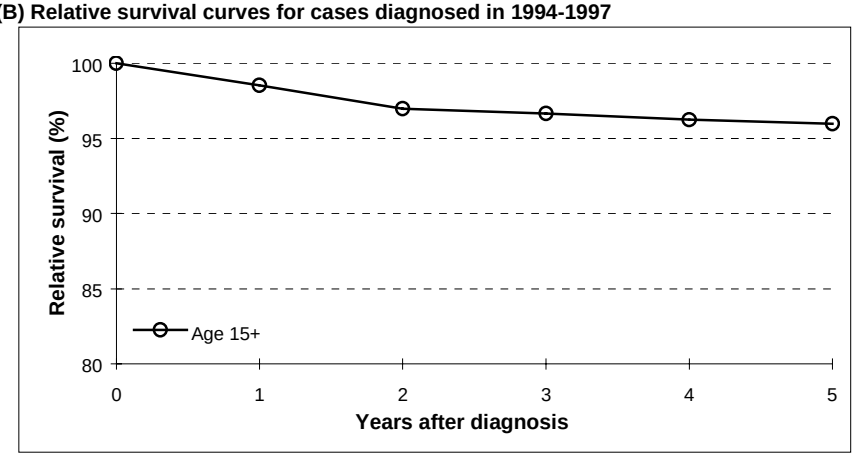
(A) Cases diagnosed in 1994-1997: relative survival (%)

Age at diagnosis	Years after diagnosis 1 year	2 years	3 years	4 years	5 years
All (Ages 15+)	98.5 *(95.4 - 100.0)*	97.0 *(91.0 - 100.0)*	96.6 *(90.1 - 100.0)*	96.2 *(88.9 - 100.0)*	96.0 *(88.1 - 100.0)*

(C) Age-adjusted rates, 1994-1997 (per 100,000)

Incidence	Mortality
1.6	0.2

(B) Relative survival curves for cases diagnosed in 1994-1997



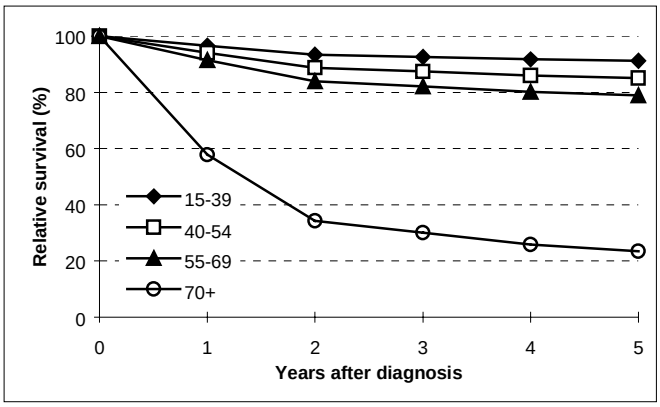
(D) Survival analysis, 1994-1997

	Cases	Deaths*
Age 15-39	24	1
Age 40-54	11	0
Age 55-69	5	0
Age 70+	5	2
All (age 15+)	45	3

** Case follow-up to 30/06/1999*

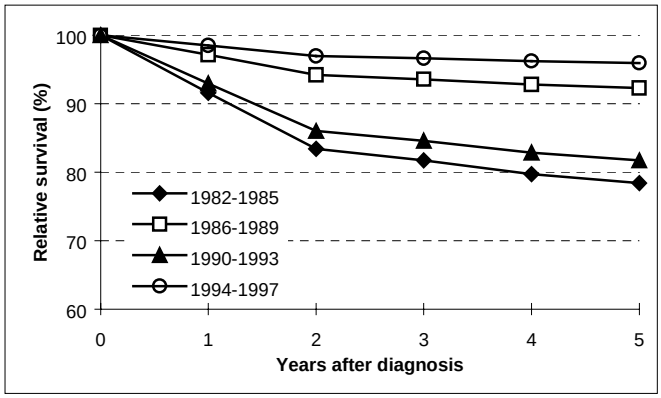
Hodgkin's lymphoma (males)

2. Historical data (diagnosis 1982 to 1997): relative survival (%) by age at diagnosis



Age at diagnosis	R. Surv. at 5 years (%)	Relative risk**
15 - 39 yr	91.2	(1.00)
40 - 54	85.1	1.93 (0.70 - 5.34)
55 - 69	78.9	2.72 (0.94 - 7.88)
70 and over	23.5	17.98 (7.22 - 44.78)

3. Historical data (ages 15 - 70+): relative survival (%) by period of diagnosis



Period of diagnosis	R. Surv. at 5 years (%)	Relative risk**
1982 - 1985	78.4	(1.00)
1986 - 1989	92.3	0.63 (0.23 - 1.74)
1990 - 1993	81.7	1.10 (0.46 - 2.61)
1994 - 1997	96.0	0.23 (0.05 - 1.00)

*** Risk takes both age and period into acccount*

Females

Age at diagnosis

There were 110 cases in the analysis, of whom 12 were known to have died. There were insufficient cases to permit analysis by age group in recent years. Relative survival showed little variation with time, decreasing from 98.4% at one year to 95.8% at five-years. This difference was not statistically significant.

Period of diagnosis

Five-year relative survival was best in the most recent period, but no relative risks could be calculated.

1. Recent data: Persons aged 15 years or over at diagnosis, 1994-1997

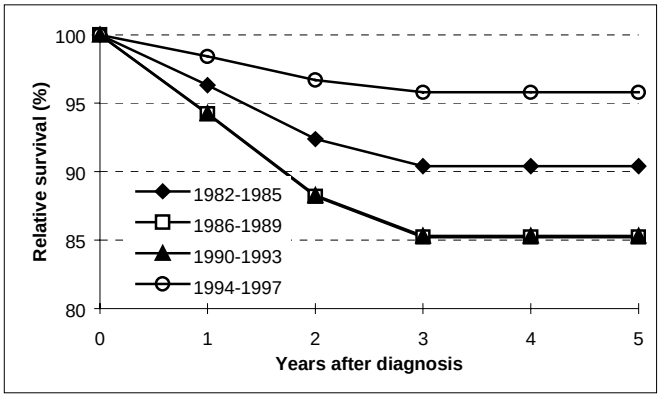
(A) Cases diagnosed in 1994-1997: relative survival (%)

Age at diagnosis	Years after diagnosis 1 year	2 years	3 years	4 years	5 years
All (Ages 15+)	98.4 *(94.7 - 100.0)*	96.7 *(89.1 - 100.0)*	95.8 *(86.5 - 100.0)*	95.8 *(86.6 - 100.0)*	95.8 *(86.6 - 100.0)*

(C) Age-adjusted rates, 1994-1997 (per 100,000)

Incidence	Mortality
2.0	0.5

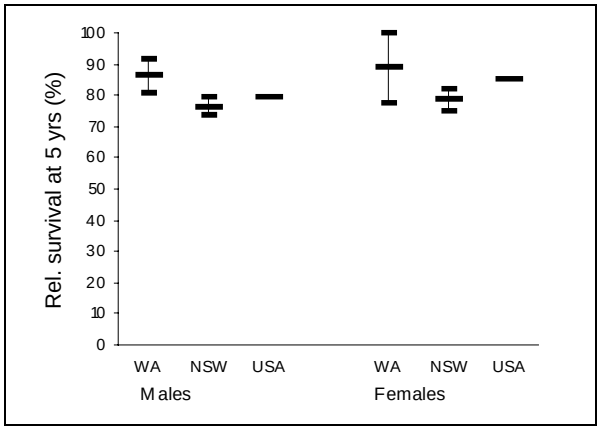
2. Historical data (ages 15 - 70+): relative survival (%) by period of diagnosis



Period of diagnosis	R. Surv. at 5 years (%)
1982 - 1985	90.4
1986 - 1989	85.2
1990 - 1993	85.3
1994 - 1997	95.8

Comparisons

Survival after Hodgkin's lymphoma appeared higher in Western Australia, for males and for females, than in New South Wales, but was similar to the American data available; no data were available from South Australia.



4.30 Non-Hodgkin's lymphoma

The five-year relative survival of Western Australians with non-Hodgkin's lymphoma diagnosed in the period 1982-1997 was 47.2% (44.2 – 50.3) for males, and 50.4% (47.2 – 53.6) for females.

Males

Age at diagnosis

In recent cases, relative survival at one year decreased with increasing age from 83.8% in the 15-39 year age group to 61.6% in the 70 years and over age group. The differences between all age groups, other than the 15-39 year and 40-54 year age groups, were statistically significant at one to five-years. Survival decreased with time since diagnosis for all ages combined, from 74.3% to 55.6% during the follow-up period. This was statistically significant.

For cases diagnosed in the period 1982-1997, five-year survival decreased markedly with increasing age at diagnosis, from 61.8% in the 15-39 year age group to 27.4% in the 70 years and over age group.

Period of diagnosis

Five-year relative survival between 1982-85 and 1994-97 has shown a non-significant increase.

Non-Hodgkin's lymphoma (males)

1. Recent data: Persons aged 15 years or over at diagnosis, 1994-1997

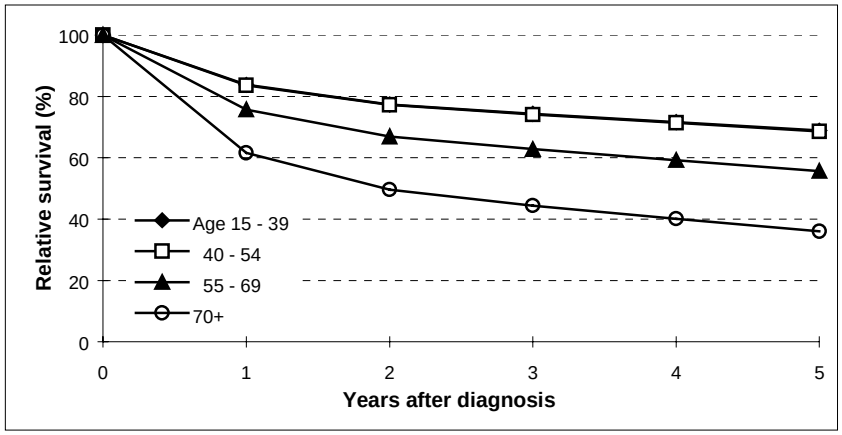
(A) Cases diagnosed in 1994-1997: relative survival (%)

Age at diagnosis	Years after diagnosis 1 year	2 years	3 years	4 years	5 years
15 - 39	83.8 *(79.3 - 88.2)*	77.4 *(71.6 - 83.2)*	74.3 *(67.8 - 80.8)*	71.6 *(64.6 - 78.6)*	68.8 *(61.3 - 76.4)*
40 - 54	83.6 *(80.1 - 87.2)*	77.2 *(72.6 - 81.8)*	74.1 *(68.9 - 79.2)*	71.4 *(65.8 - 76.9)*	68.6 *(62.6 - 74.6)*
55 - 69	75.7 *(71.6 - 79.9)*	66.9 *(61.8 - 72.1)*	62.8 *(57.2 - 68.4)*	59.2 *(53.3 - 65.2)*	55.7 *(49.4 - 62.0)*
70+	61.6 *(56.2 - 67.0)*	49.6 *(43.5 - 55.8)*	44.4 *(38.0 - 50.8)*	40.1 *(33.5 - 46.8)*	36.0 *(29.3 - 42.8)*
All (Ages 15+)	74.3 *(70.6 - 78.0)*	65.6 *(61.1 - 70.1)*	61.8 *(57.0 - 66.6)*	58.7 *(53.6 - 63.8)*	55.6 *(50.2 - 61.0)*

(C) Age-adjusted rates, 1994-1997 (per 100,000)

Incidence	Mortality
3.0	0.5
15.7	3.7
33.4	14.5
87.6	57.8
15.9	6.8

(B) Relative survival curves for cases diagnosed in 1994-1997



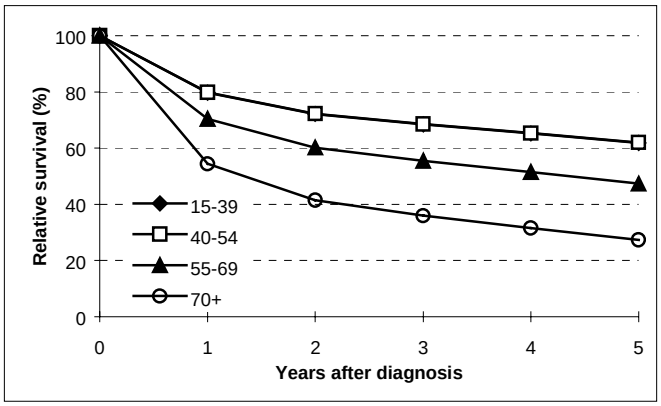
(D) Survival analysis, 1994-1997

	Cases	Deaths*
Age 15-39	48	17
Age 40-54	112	32
Age 55-69	141	54
Age 70+	183	116
All (age 15+)	484	219

** Case follow-up to 30/06/1999*

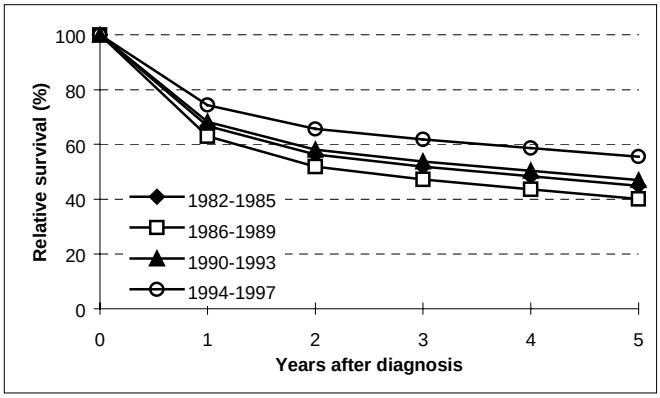
Non-Hodgkin's lymphoma (males)

2. Historical data (diagnosis 1982 to 1997): relative survival (%) by age at diagnosis



Age at diagnosis	R. Surv. at 5 years (%)	Relative risk**
15 - 39 yr	61.8	(1.00)
40 - 54	62.0	1.01 (0.74 - 1.39)
55 - 69	47.4	1.57 (1.17 - 2.09)
70 and over	27.4	2.73 (2.07 - 3.62)

3. Historical data (ages 15 - 70+): relative survival (%) by period of diagnosis



Period of diagnosis	R. Surv. at 5 years (%)	Relative risk**
1982 - 1985	44.9	(1.00)
1986 - 1989	40.0	1.12 (0.89 - 1.41)
1990 - 1993	46.9	0.92 (0.73 - 1.15)
1994 - 1997	55.6	0.72 (0.57 - 1.09)

*** Risk takes both age and period into acccount*

Females

Age at diagnosis

In recent cases, relative survival at one year decreased with increasing age, from 88.2% in the 15-39 year age group to 56.4% in the 70 years and over age group. The differences between all age groups, other than the 15-39 year and 40-54 year age groups, were statistically significant at one to five-years. Survival decreased with time since diagnosis for all ages combined, from 71.1% to 50.6% during the 5 year follow-up period. This was statistically significant.

For cases diagnosed in the period 1982-1997, five-year survival decreased with increasing age, from 75.7% in the 15-39 year age group to 28.3% in the 70 years and over age group. This difference was statistically significant.

Period of diagnosis

Five-year relative survival between 1982-85 and 1994-97 has shown no significant trend.

Non-Hodgkin's lymphoma (females)

1. Recent data: Persons aged 15 years or over at diagnosis, 1994-1997

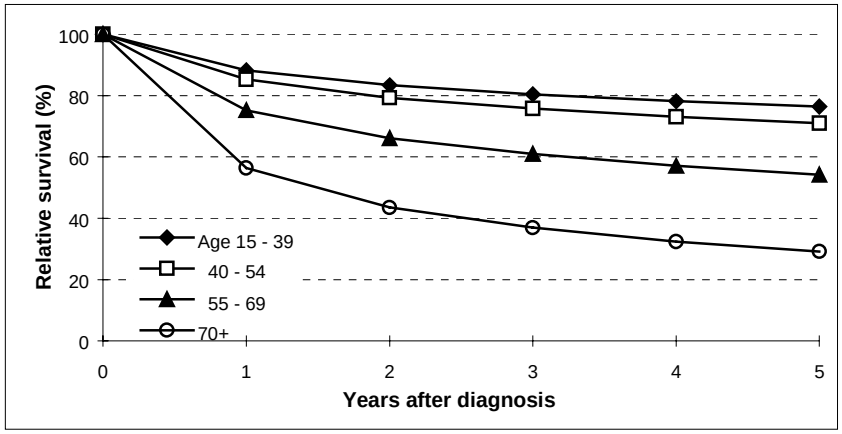
(A) Cases diagnosed in 1994-1997: relative survival (%)

Age at diagnosis	Years after diagnosis 1 year	2 years	3 years	4 years	5 years
15 - 39	88.2 *(83.3 - 93.2)*	83.4 *(76.6 - 90.1)*	80.4 *(72.7 - 88.2)*	78.2 *(69.6 - 86.7)*	76.4 *(67.2 - 85.5)*
40 - 54	85.3 *(81.4 - 89.1)*	79.3 *(74.2 - 84.4)*	75.8 *(70.0 - 81.6)*	73.1 *(66.8 - 79.4)*	71.0 *(64.3 - 77.7)*
55 - 69	75.2 *(70.6 - 79.8)*	66.1 *(60.4 - 71.8)*	60.9 *(54.7 - 67.2)*	57.1 *(50.4 - 63.8)*	54.2 *(47.2 - 61.2)*
70+	56.4 *(50.6 - 62.2)*	43.5 *(37.2 - 49.7)*	37.0 *(30.6 - 43.3)*	32.4 *(26.0 - 38.8)*	29.2 *(22.7 - 35.6)*
All (Ages 15+)	71.1 *(66.9 - 75.3)*	61.6 *(56.7 - 66.5)*	56.7 *(51.4 - 61.9)*	53.1 *(47.6 - 58.7)*	50.6 *(44.8 - 56.3)*

(C) Age-adjusted rates, 1994-1997 (per 100,000)

Incidence	Mortality
2.0	0.6
12.0	4.2
28.5	15.6
55.6	34.3
11.8	5.8

(B) Relative survival curves for cases diagnosed in 1994-1997



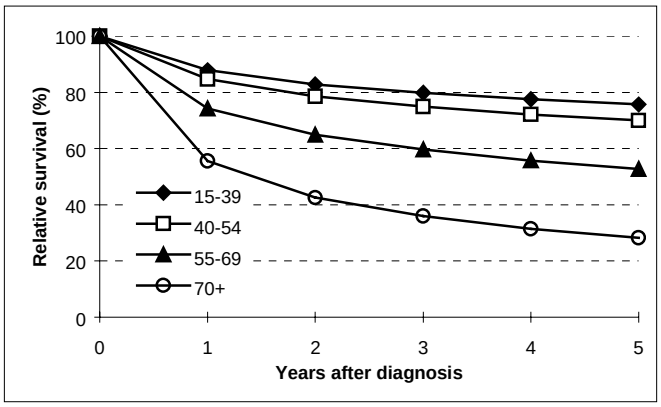
(D) Survival analysis, 1994-1997

	Cases	Deaths*
Age 15-39	30	7
Age 40-54	80	23
Age 55-69	116	50
Age 70+	183	122
All (age 15+)	409	202

** Case follow-up to 30/06/1999*

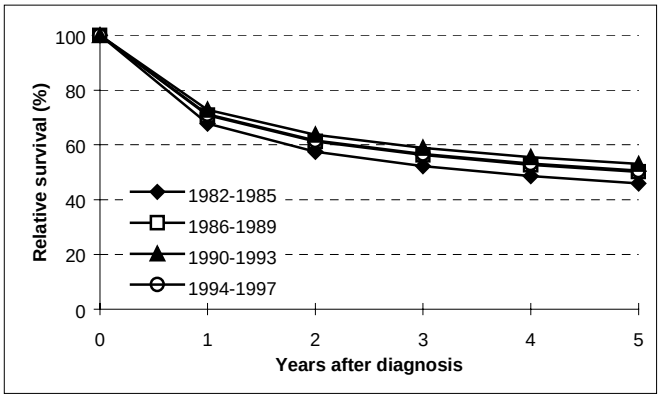
Non-Hodgkin's lymphoma (females)

2. Historical data (diagnosis 1982 to 1997): relative survival (%) by age at diagnosis



Age at diagnosis	R. Surv. at 5 years (%)	Relative risk**
15 - 39 yr	75.7	(1.00)
40 - 54	70.0	1.27 (0.78 - 2.07)
55 - 69	52.8	2.28 (1.45 - 3.57)
70 and over	28.3	4.57 (2.95 - 7.10)

3. Historical data (ages 15 - 70+): relative survival (%) by period of diagnosis

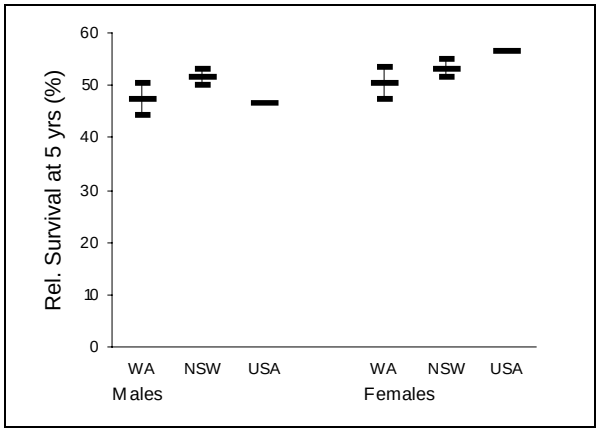


Period of diagnosis	R. Surv. at 5 years (%)	Relative risk**
1982 - 1985	45.9	(1.00)
1986 - 1989	50.2	0.83 (0.64 - 1.07)
1990 - 1993	53.0	0.76 (0.59 - 1.02)
1994 - 1997	50.6	0.80 (0.62 - 1.03)

*** Risk takes both age and period into acccount*

Comparisons

Survival after non-Hodgkin's lymphoma was similar in Western Australia, New South Wales and America; no separate data were available for South Australia.



4.31 All lymphomas

The five-year relative survival of Western Australians with any form of lymphoma diagnosed in the period 1982-1997 was 53.2% (50.3 – 56.0) for males, and 55.9% (52.9 – 58.9) for females.

Males

Age at diagnosis

In recent cases, relative survival decreased with increasing age, from 90.0% at one year in the 15-39 year age group to 61.6% in the 70 years and over age group. Survival decreased with increasing time since diagnosis for all ages combined, from 76.5% to 59.7% during the 5 year follow-up period. This was statistically significant.

For cases diagnosed in the entire period 1982-1997, survival decreased significantly with increasing age, from 74.7% in the 15-39 year age group to 27.4% in the 70 years and over age group.

Period of diagnosis

Five-year relative survival between 1982-85 and 1994-97 has shown a non-significant increase.

Lymphomas (all) (males)

1. Recent data: Persons aged 15 years or over at diagnosis, 1994-1997

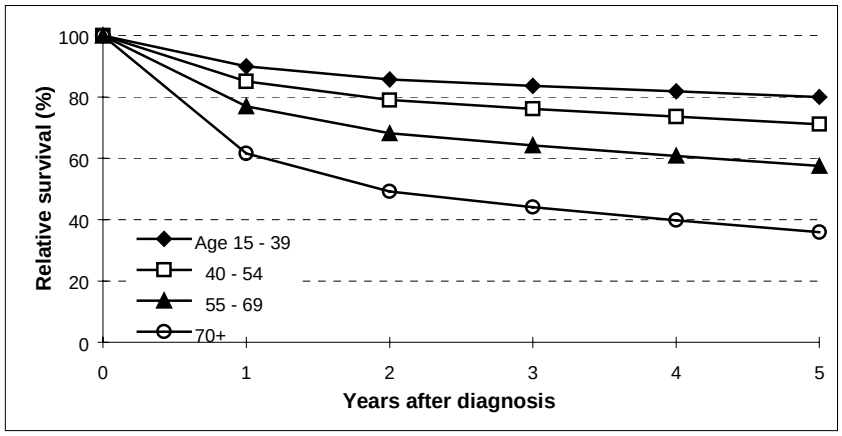
(A) Cases diagnosed in 1994-1997: relative survival (%)

Age at diagnosis	Years after diagnosis 1 year	2 years	3 years	4 years	5 years
15 - 39	90.0 *(87.2 - 92.7)*	85.7 *(82.0 - 89.4)*	83.6 *(79.5 - 87.8)*	81.8 *(77.2 - 86.4)*	80.0 *(75.0 - 85.0)*
40 - 54	85.1 *(81.9 - 88.3)*	79.0 *(74.7 - 83.2)*	76.1 *(71.4 - 80.9)*	73.6 *(68.5 - 78.7)*	71.1 *(65.6 - 76.7)*
55 - 69	76.9 *(72.9 - 80.9)*	68.1 *(63.1 - 73.1)*	64.2 *(58.8 - 69.6)*	60.8 *(55.0 - 66.6)*	57.5 *(51.4 - 63.6)*
70+	61.6 *(56.2 - 66.9)*	49.2 *(43.1 - 55.3)*	44.1 *(37.7 - 50.4)*	39.8 *(33.3 - 46.4)*	36.0 *(29.3 - 42.6)*
All (Ages 15+)	76.5 *(73.1 - 80.0)*	68.3 *(64.1 - 72.5)*	65.0 *(60.4 - 69.5)*	62.3 *(57.4 - 67.1)*	59.7 *(54.6 - 64.8)*

(C) Age-adjusted rates, 1994-1997 (per 100,000)

Incidence	Mortality
4.8	0.8
17.5	4.1
36.4	15.6
93.1	61.7
18.1	7.5

(B) Relative survival curves for cases diagnosed in 1994-1997



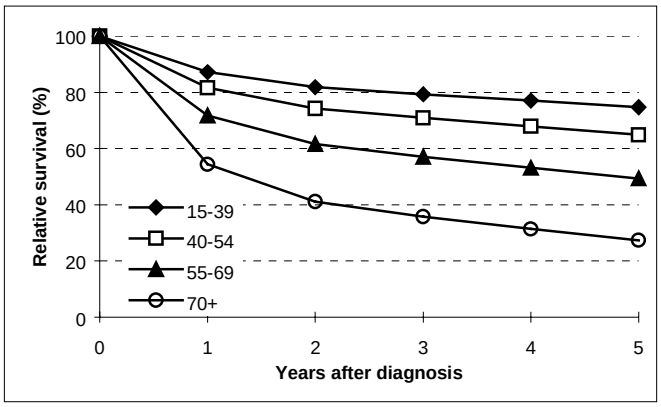
(D) Survival analysis, 1994-1997

	Cases	Deaths*
Age 15-39	72	18
Age 40-54	123	32
Age 55-69	146	54
Age 70+	188	118
All (age 15+)	529	222

** Case follow-up to 30/06/1999*

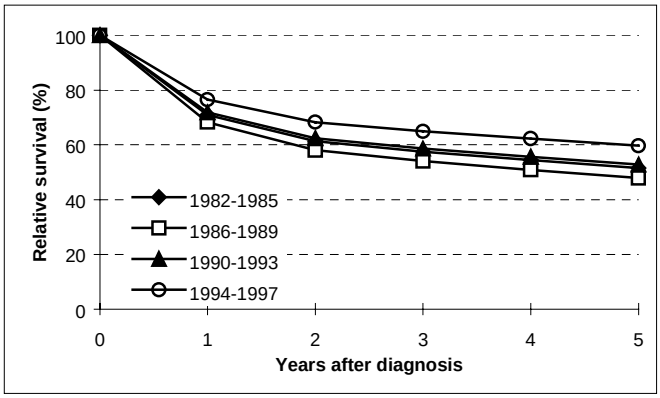
Lymphomas (all) (males)

2. Historical data (diagnosis 1982 to 1997): relative survival (%) by age at diagnosis



Age at diagnosis	R. Surv. at 5 years (%)	Relative risk**
15 - 39 yr	74.7	(1.00)
40 - 54	64.9	1.53 (1.13 - 2.06)
55 - 69	49.4	2.48 (1.89 - 3.26)
70 and over	27.4	4.58 (3.53 - 5.96)

3. Historical data (ages 15 - 70+): relative survival (%) by period of diagnosis



Period of diagnosis	R. Surv. at 5 years (%)	Relative risk**
1982 - 1985	51.6	(1.00)
1986 - 1989	47.9	1.07 (0.86 - 1.34)
1990 - 1993	52.8	0.93 (0.74 - 1.15)
1994 - 1997	59.7	0.72 (0.57 - 1.11)

*** Risk takes both age and period into acccount*

Females

Age at diagnosis

In recent cases, relative survival decreased with increasing age from 93.8% at one year in the 15-39 year age group to 57.4% in the 70 years and over age group. The differences between all age groups were statistically significant at one to five years. Survival decreased with time since diagnosis for all ages combined, from 74.5% to 56.2% during the 5 year follow-up period. This was statistically significant.

For cases diagnosed in the period 1982-1997, five-year survival decreased with increasing age, from 86.4% in the 15-39 year age group to 28.3% in the 70 years and over age group. This difference was statistically significant.

Period of diagnosis

Five-year relative survival between 1982-85 and 1994-97 has shown no significant trend.

Lymphomas (all) (females)

1. Recent data: Persons aged 15 years or over at diagnosis, 1994-1997

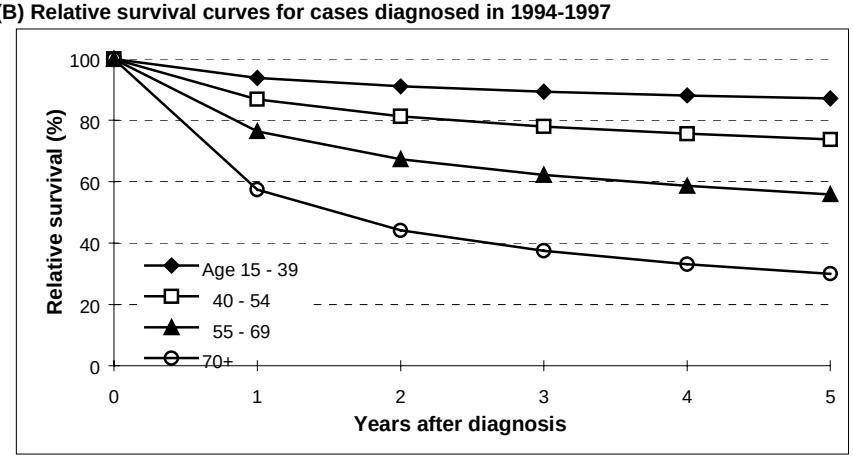
(A) Cases diagnosed in 1994-1997: relative survival (%)

Age at diagnosis	Years after diagnosis 1 year	2 years	3 years	4 years	5 years
15 - 39	93.8 *(91.4 - 96.3)*	91.1 *(87.6 - 94.5)*	89.4 *(85.3 - 93.4)*	88.1 *(83.6 - 92.6)*	87.1 *(82.3 - 92.0)*
40 - 54	86.9 *(83.4 - 90.4)*	81.3 *(76.6 - 86.0)*	78.0 *(72.7 - 83.4)*	75.6 *(69.8 - 81.4)*	73.8 *(67.6 - 80.0)*
55 - 69	76.5 *(72.1 - 80.8)*	67.3 *(61.8 - 72.8)*	62.2 *(56.2 - 68.3)*	58.6 *(52.2 - 65.1)*	55.9 *(49.1 - 62.7)*
70+	57.4 *(51.8 - 63.0)*	44.1 *(38.0 - 50.2)*	37.5 *(31.2 - 43.7)*	33.1 *(26.8 - 39.5)*	30.0 *(23.6 - 36.4)*
All (Ages 15+)	74.5 *(70.7 - 78.3)*	65.7 *(61.1 - 70.2)*	61.2 *(56.3 - 66.2)*	58.3 *(53.1 - 63.5)*	56.2 *(50.8 - 61.6)*

(C) Age-adjusted rates, 1994-1997 (per 100,000)

Incidence	Mortality
4.5	1.0
12.9	4.3
31.1	15.9
64.7	41.8
14.3	6.6

(B) Relative survival curves for cases diagnosed in 1994-1997



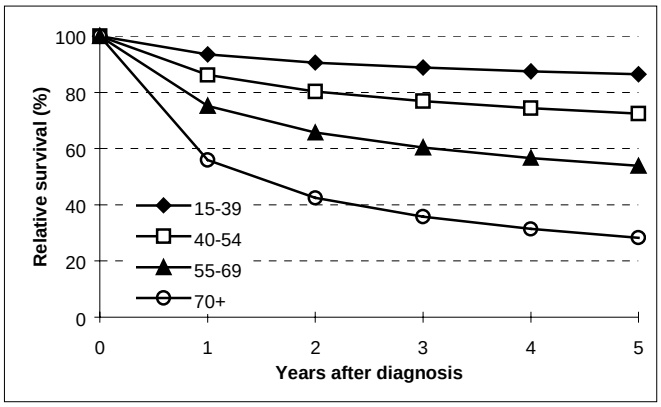
(D) Survival analysis, 1994-1997

	Cases	Deaths*
Age 15-39	64	7
Age 40-54	85	23
Age 55-69	122	51
Age 70+	193	127
All (age 15+)	464	208

** Case follow-up to 30/06/1999*

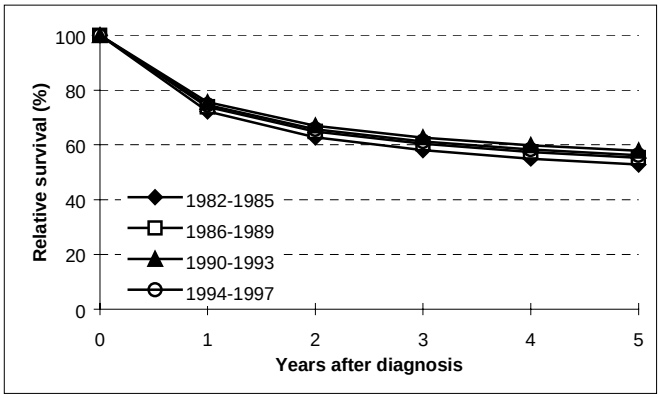
Lymphomas (all) (females)

2. Historical data (diagnosis 1982 to 1997): relative survival (%) by age at diagnosis



Age at diagnosis	R. Surv. at 5 years (%)	Relative risk**
15 - 39 yr	86.4	(1.00)
40 - 54	72.4	2.21 (1.41 - 3.46)
55 - 69	53.8	4.22 (2.81 - 6.35)
70 and over	28.3	8.74 (5.88 - 12.98)

3. Historical data (ages 15 - 70+): relative survival (%) by period of diagnosis

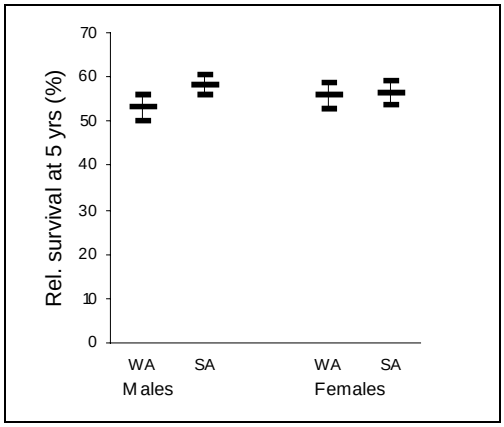


Period of diagnosis	R. Surv. at 5 years (%)	Relative risk**
1982 - 1985	52.8	(1.00)
1986 - 1989	55.3	0.87 (0.68 - 1.13)
1990 - 1993	57.8	0.81 (0.63 - 1.04)
1994 - 1997	56.2	0.81 (0.63 - 1.04)

*** Risk takes both age and period into acccount*

Comparisons

Considering all lymphomas together, survival was simliar in Western Australia and South Australia.



4.32 Leukaemia in adults

The five-year relative survival of adult Western Australians with leukaemia diagnosed in the period 1982-1997 was 32.8% (29.5 – 36.0) for males, and 30.4% (26.7 – 34.1) for females.

Males

Age at diagnosis

In recent cases, relative survival at one year was highest in those aged 40-54 years at 71.2% and decreased to 46.4% in those aged 70 years and over. Survival decreased with time since diagnosis for all ages combined, from 57.1% to 31.4% during the 5 year follow-up period. This was statistically significant.

For cases diagnosed in the period 1982-1997, five-year survival showed the same pattern with increasing age, being highest in the 40-54 year age group at 49.6% and decreasing to 20.9% in the 70 years and over age group. This difference was statistically significant.

Period of diagnosis

Five-year relative survival between 1982-85 and 1994-97 has shown a non-significant decrease.

Leukaemia (males)

1. Recent data: Persons aged 15 years or over at diagnosis, 1994-1997

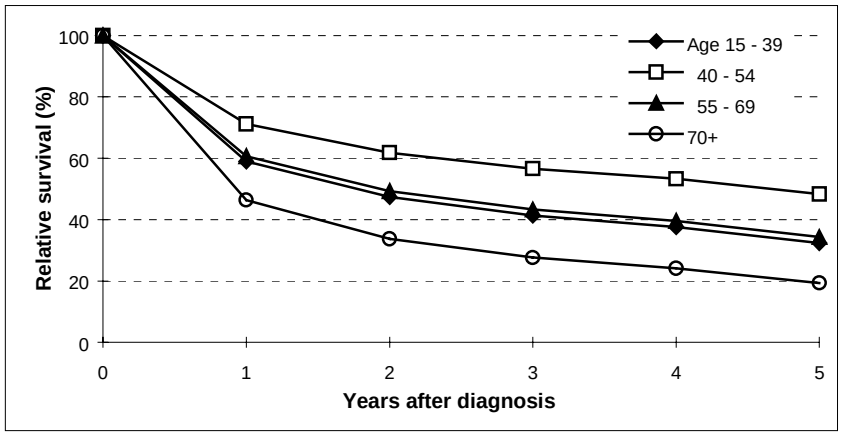
(A) Cases diagnosed in 1994-1997: relative survival (%)

Age at diagnosis	Years after diagnosis 1 year	2 years	3 years	4 years	5 years
15 - 39	59.0 *(51.4 - 66.5)*	47.4 *(38.9 - 55.8)*	41.3 *(32.6 - 50.0)*	37.6 *(28.8 - 46.4)*	32.3 *(23.5 - 41.2)*
40 - 54	71.2 *(64.7 - 77.7)*	61.8 *(54.0 - 69.7)*	56.6 *(48.1 - 65.1)*	53.3 *(44.5 - 62.1)*	48.4 *(39.1 - 57.7)*
55 - 69	60.6 *(54.4 - 66.9)*	49.3 *(42.2 - 56.3)*	43.3 *(36.0 - 50.6)*	39.6 *(32.2 - 47.0)*	34.3 *(26.8 - 41.8)*
70+	46.4 *(39.9 - 52.8)*	33.7 *(27.2 - 40.3)*	27.6 *(21.3 - 34.0)*	24.1 *(17.9 - 30.3)*	19.4 *(13.5 - 25.3)*
All (Ages 15+)	57.1 *(51.9 - 62.3)*	45.6 *(40.0 - 51.2)*	39.7 *(34.0 - 45.5)*	36.4 *(30.6 - 42.2)*	31.4 *(25.5 - 37.3)*

(C) Age-adjusted rates, 1994-1997 (per 100,000)

Incidence	Mortality
3.1	2.0
7.0	2.5
22.2	15.3
72.7	55.2
11.2	7.3

(B) Relative survival curves for cases diagnosed in 1994-1997



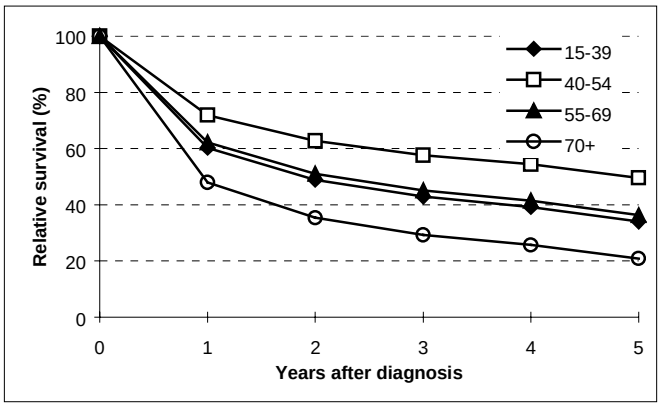
(D) Survival analysis, 1994-1997

	Cases	Deaths*
Age 15-39	43	26
Age 40-54	49	18
Age 55-69	87	54
Age 70+	140	111
All (age 15+)	319	209

** Case follow-up to 30/06/1999*

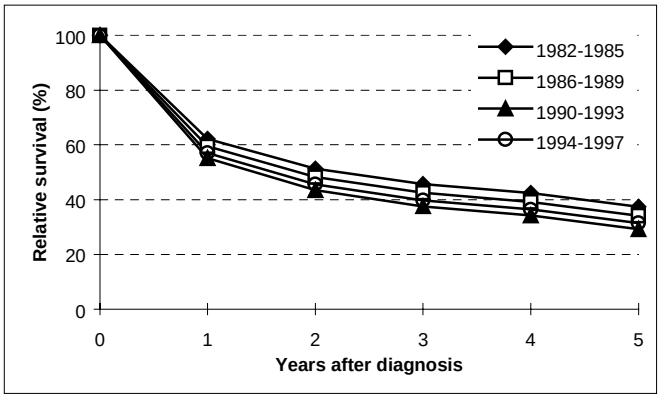
Leukaemia (males)

2. Historical data (diagnosis 1982 to 1997): relative survival (%) by age at diagnosis



Age at diagnosis	R. Surv. at 5 years (%)	Relative risk**
15 - 39 yr	34.0	(1.00)
40 - 54	49.6	0.64 (0.47 - 1.14)
55 - 69	36.3	0.95 (0.74 - 1.21)
70 and over	20.9	1.45 (1.15 - 1.84)

3. Historical data (ages 15 - 70+): relative survival (%) by period of diagnosis



Period of diagnosis	R. Surv. at 5 years (%)	Relative risk**
1982 - 1985	37.4	(1.00)
1986 - 1989	34.1	1.15 (0.90 - 1.47)
1990 - 1993	29.2	1.27 (1.01 - 1.59)
1994 - 1997	31.4	1.22 (0.97 - 1.53)

*** Risk takes both age and period into acccount*

Females

Age at diagnosis

In recent cases, relative survival was very similar in the 15-39, 40-54 and 55-69 year age groups at around 60% at one year. This decreased to 41.5% in the 70 years and over age group. The differences between the three youngest and the oldest age group were statistically significant at 1-5 years. Survival decreased with time since diagnosis for all ages combined, from 54.0% to 29.8% during the 5 year follow-up period. This was statistically significant.

For cases diagnosed in the period 1982-1997, five-year survival was around 38% in the three younger age groups and 19.1% in the 70 years and over age group. This difference was statistically significant.

Period of diagnosis

Five-year relative survival between 1982-85 and 1994-97 has shown a non-significant decrease.

Leukaemia (females)

1. Recent data: Persons aged 15 years or over at diagnosis, 1994-1997

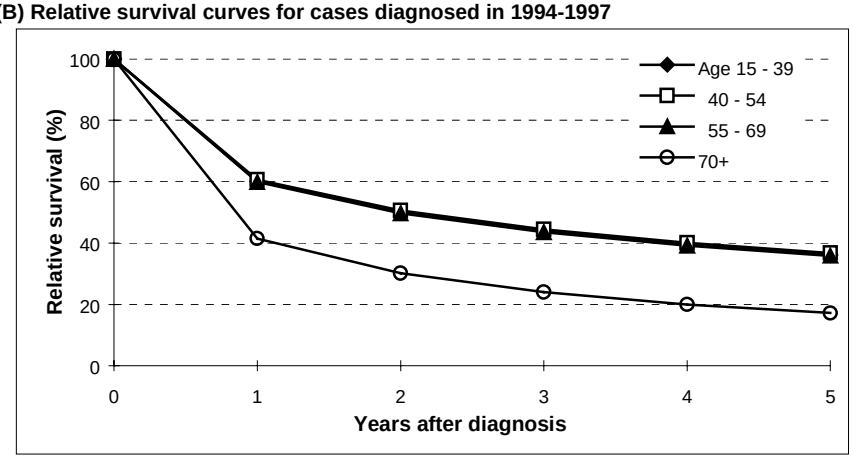
(A) Cases diagnosed in 1994-1997: relative survival (%)

Age at diagnosis	Years after diagnosis 1 year	2 years	3 years	4 years	5 years
15 - 39	60.1 *(51.8 - 68.5)*	50.0 *(40.7 - 59.3)*	43.8 *(34.2 - 53.5)*	39.4 *(29.5 - 49.3)*	36.1 *(26.1 - 46.1)*
40 - 54	60.7 *(51.6 - 69.7)*	50.6 *(40.5 - 60.7)*	44.5 *(33.9 - 55.0)*	40.1 *(29.3 - 50.9)*	36.8 *(25.9 - 47.7)*
55 - 69	59.9 *(52.5 - 67.3)*	49.7 *(41.5 - 58.0)*	43.5 *(35.0 - 52.1)*	39.1 *(30.4 - 47.8)*	35.8 *(27.0 - 44.6)*
70+	41.5 *(33.9 - 49.1)*	30.2 *(22.8 - 37.5)*	24.0 *(17.1 - 31.0)*	20.0 *(13.4 - 26.6)*	17.2 *(10.8 - 23.6)*
All (Ages 15+)	54.0 *(48.0 - 60.0)*	43.3 *(37.0 - 49.7)*	37.2 *(30.8 - 43.6)*	32.9 *(26.5 - 39.4)*	29.8 *(23.3 - 36.3)*

(C) Age-adjusted rates, 1994-1997 (per 100,000)

Incidence	Mortality
3.2	1.8
5.7	2.6
13.5	7.6
36.3	31.0
7.4	4.6

(B) Relative survival curves for cases diagnosed in 1994-1997



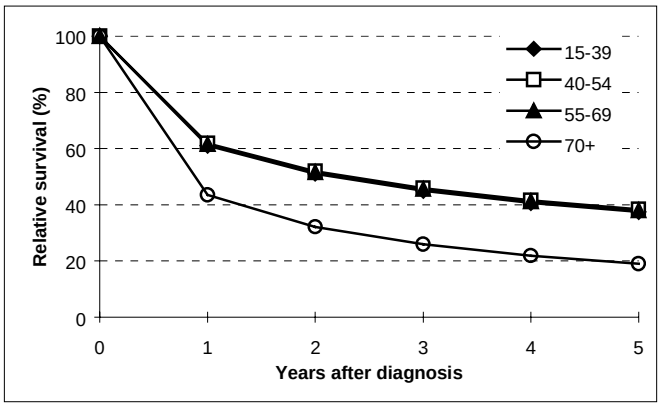
(D) Survival analysis, 1994-1997

	Cases	Deaths*
Age 15-39	41	20
Age 40-54	38	16
Age 55-69	54	29
Age 70+	108	90
All (age 15+)	241	155

** Case follow-up to 30/06/1999*

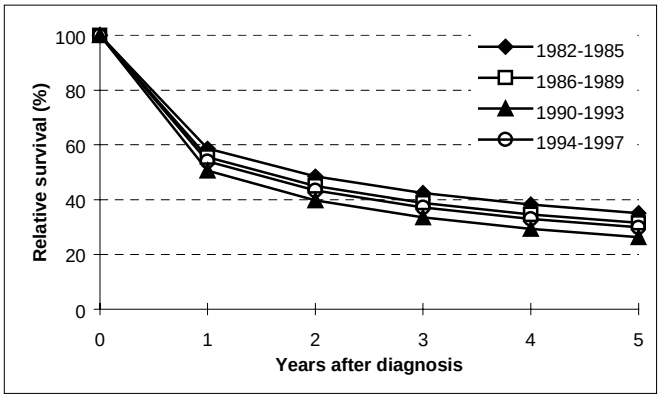
Leukaemia (females)

2. Historical data (diagnosis 1982 to 1997): relative survival (%) by age at diagnosis



Age at diagnosis	R. Surv. at 5 years (%)	Relative risk**
15 - 39 yr	37.4	(1.00)
40 - 54	38.4	0.98 (0.69 - 1.40)
55 - 69	38.0	1.01 (0.75 - 1.35)
70 and over	19.1	1.73 (1.32 - 2.26)

3. Historical data (ages 15 - 70+): relative survival (%) by period of diagnosis

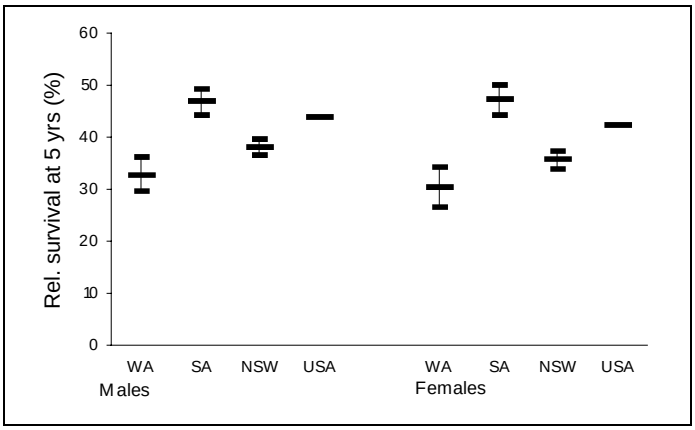


Period of diagnosis	R. Surv. at 5 years (%)	Relative risk**
1982 - 1985	35.1	(1.00)
1986 - 1989	31.5	1.09 (0.82 - 1.45)
1990 - 1993	26.3	1.29 (1.00 - 1.68)
1994 - 1997	29.8	1.22 (0.94 - 1.59)

*** Risk takes both age and period into acccount*

Comparisons

Western Australian leukaemia survival appeared lower than in other areas considered. This is thought to be partly due to difficulties in obtaining timely notification of some cancers that are often diagnosed by non-histological methods.



4.33 Leukaemia in children

The five-year relative survival of Western Australian children with leukaemia diagnosed in the period 1982-1997 was 71.0% (63.5 – 78.6) for males, and 74.0% (no interval available) for females.

Males

Follow-up duration

In recent cases, relative survival was 86.8% at one year decreasing to 74.6% at five-years; this difference was not statistically significant. There were 143 males and 115 females included in the analyses.

Period of diagnosis

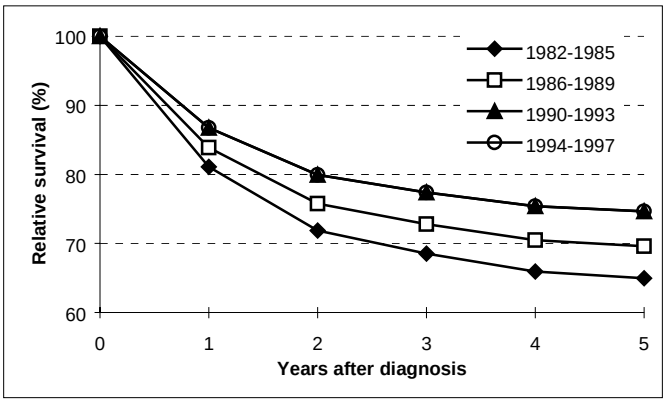
Five-year relative survival between 1982-85 and 1994-97 increased from 65.0 to 74.6%, however it was not possible to estimate relative risks.

Leukaemia in children (males)

1. Recent data: Persons aged 0-14 years at diagnosis, 1994-1997

(A) Cases diagnosed in 1994-1997: relative survival (%)						(C) Age-adjusted rates, 1994-1997 (per 100,000)	
Age at diagnosis	Years after diagnosis 1 year	2 years	3 years	4 years	5 years	Incidence	Mortality
All (Ages 0 - 14)	86.8 *(78.0 - 95.5)*	79.9 *(67.9 - 91.9)*	77.4 *(64.2 - 90.5)*	75.4 *(61.3 - 89.4)*	74.6 *(60.2 - 89.1)*	4.9	1.5

2. Historical data (ages 0 - 14): relative survival (%) by period of diagnosis



Period of diagnosis	R. Surv. at 5 years (%)
1982 - 1985	65.0
1986 - 1989	69.6
1990 - 1993	74.6
1994 - 1997	74.6

Females

Follow-up duration

In recent cases, relative survival was 96.3% at one year decreasing to 93.4% at five-years. This difference was not significant.

Period of diagnosis

Five-year relative survival between 1982-85 and 1994-97 increased from 62.0% to 93.4%.

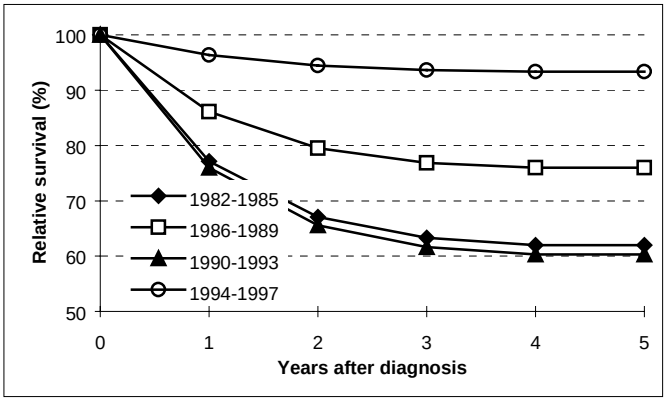
Leukaemia in children (females)

1. Recent data: Persons aged 0-14 years at diagnosis, 1994-1997

(A) Cases diagnosed in 1994-1997: relative survival (%)

Age at diagnosis	Years after diagnosis 1 year	2 years	3 years	4 years	5 years	(C) Age-adjusted rates, 1994-1997 (per 100,000) Incidence	Mortality
All (Ages 0 - 14)	96.3 *(91.2 - 100)*	94.4 *(86.8 - 100)*	93.6 *(85.0 - 100)*	93.4 *(84.3 - 100)*	93.4 *(84.2 - 100)*	4.5	0.4

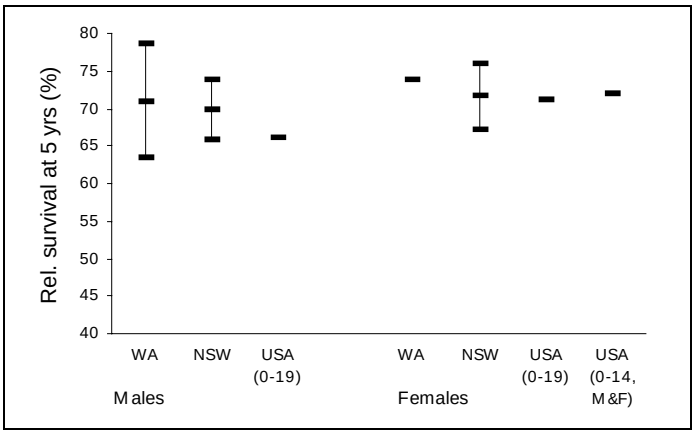
2. Historical data (ages 0 - 14): relative survival (%) by period of diagnosis



Period of diagnosis	R. Surv. at 5 years (%)
1982 - 1985	62.0
1986 - 1989	76.0
1990 - 1993	60.3
1994 - 1997	93.4

Comparisons

Similar survival rates were observed for childhood leukaemia in all areas considered, for males and for females; some comparisons had to be based on differing age groups or both sexes combined.



4.34 Myeloma

The five-year relative survival of Western Australians with myeloma diagnosed in the period 1982-1997 was 30.2% (25.0 – 35.4) for males, and 26.4% (21.4 – 31.5) for females.

Males

Age at diagnosis

In recent cases, relative survival at one year was similar in the 40-54 year and 55-69 year age groups at around 76.5% compared with 59.0% in the 70 years and over age group. This difference was significant. There were insufficient cases to report on the 15-39 year age group. Survival decreased with time since diagnosis for all ages combined, from 68.9% to 28.1% during the 5 year follow-up period. This decrease was statistically significant.

For cases diagnosed in the period 1982-1997, five-year survival was highest in the 15-39 year age group at 50.1% decreasing to 16.0% in the 70 years and over age group. This difference was statistically significant.

Period of diagnosis

Five-year relative survival between 1982-85 and 1994-97 has shown no significant trend.

Myeloma (males)

1. Recent data: Persons aged 15 years or over at diagnosis, 1994-1997

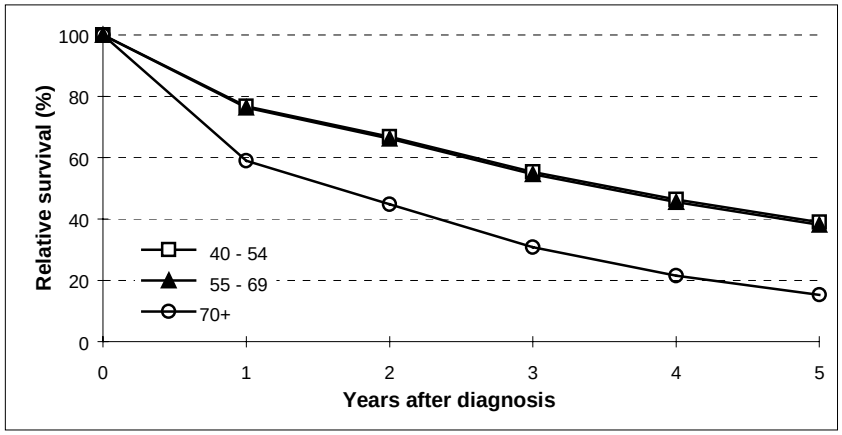
(A) Cases diagnosed in 1994-1997: relative survival (%)

Age at diagnosis	Years after diagnosis 1 year	2 years	3 years	4 years	5 years
40 - 54	76.8 *(68.2 - 85.4)*	66.9 *(55.7 - 78.0)*	55.4 *(42.1 - 68.7)*	46.4 *(31.9 - 60.9)*	39.0 *(24.0 - 54.1)*
55 - 69	76.3 *(69.4 - 83.1)*	66.2 *(57.5 - 74.9)*	54.6 *(44.3 - 64.9)*	45.5 *(34.3 - 56.7)*	38.1 *(26.5 - 49.8)*
70+	59.0 *(50.0 - 67.9)*	44.8 *(34.9 - 54.6)*	30.8 *(20.9 - 40.6)*	21.6 *(12.4 - 30.7)*	15.3 *(7.1 - 23.4)*
All (Ages 15+)	68.9 *(61.9 - 76.0)*	56.9 *(48.6 - 65.3)*	44.2 *(35.0 - 53.4)*	35.0 *(25.6 - 44.5)*	28.1 *(18.6 - 37.5)*

(C) Age-adjusted rates, 1994-1997 (per 100,000)

Incidence	Mortality
3.1	1.4
11.7	9.0
35.6	31.0
4.7	3.6

(B) Relative survival curves for cases diagnosed in 1994-1997



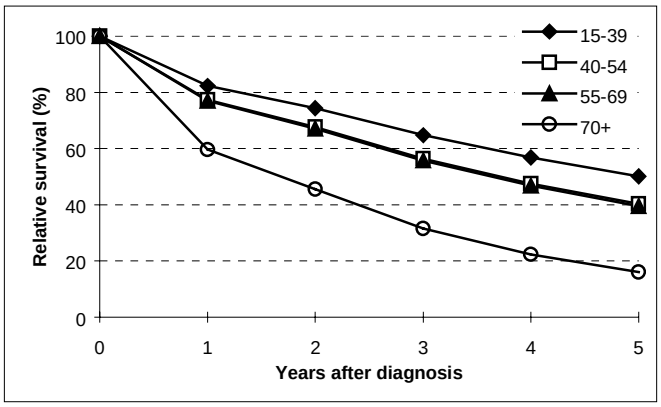
(D) Survival analysis, 1994-1997

	Cases	Deaths*
Age 15-39	1	0
Age 40-54	22	12
Age 55-69	45	20
Age 70+	73	55
All (age 15+)	141	87

** Case follow-up to 30/06/1999*

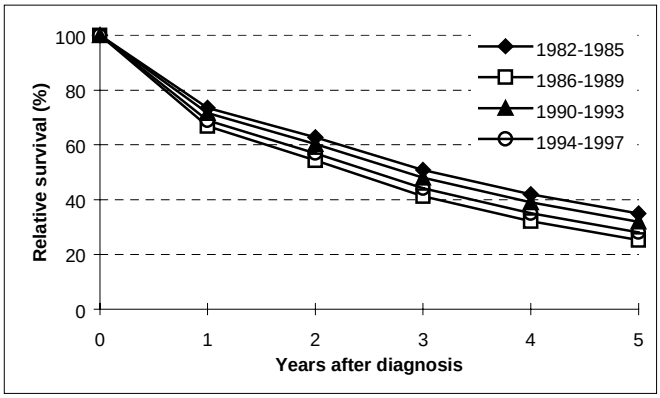
Myeloma (males)

2. Historical data (diagnosis 1982 to 1997): relative survival (%) by age at diagnosis



Age at diagnosis	R. Surv. at 5 years (%)	Relative risk**
15 - 39 yr	50.1	(1.00)
40 - 54	40.3	1.28 (0.49 - 3.33)
55 - 69	39.5	1.31 (0.52 - 3.29)
70 and over	16.0	2.55 (1.02 - 6.37)

3. Historical data (ages 15 - 70+): relative survival (%) by period of diagnosis



Period of diagnosis	R. Surv. at 5 years (%)	Relative risk**
1982 - 1985	34.9	(1.00)
1986 - 1989	25.2	1.11 (0.77 - 1.61)
1990 - 1993	31.9	1.04 (0.73 - 1.50)
1994 - 1997	28.1	1.09 (0.76 - 1.58)

*** Risk takes both age and period into acccount*

Females

Age at diagnosis

In recent cases, relative survival at one year after diagnosis was highest in those aged 40-54 years, 77.1%, decreasing to 65.7% in the 70 years and over age group. This difference was not significant. There were insufficient cases to report on the 15-39 year age group. Survival decreased with time since diagnosis for all ages combined, from 70.1% to 24.5% during the 5 year follow-up period. This was statistically significant.

For cases diagnosed in the period 1982-1997, five-year survival was significantly higher in the 15-39 year age group at 75.9% decreasing to 20.8% in the 70 years and over age group.

Period of diagnosis

Five-year relative survival between 1982-85 and 1994-97 showed no consistent trend. Survival was significantly worse in 1990-1993 than previously, but improved for persons diagnosed in 1994-1997.

Myeloma (females)

1. Recent data: Persons aged 15 years or over at diagnosis, 1994-1997

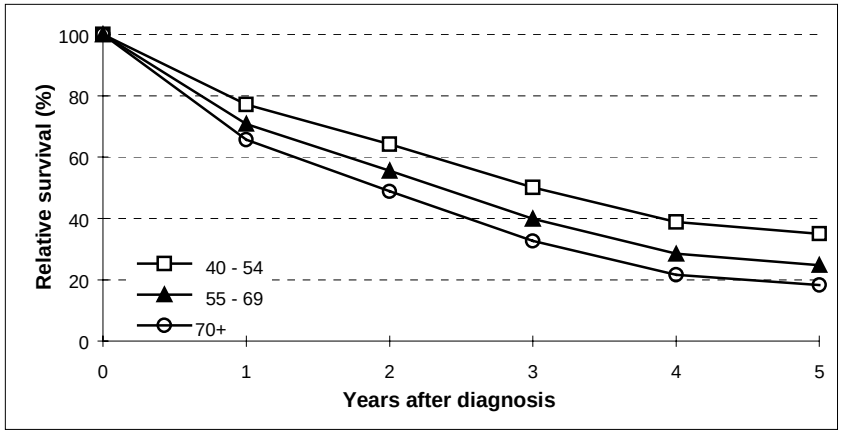
(A) Cases diagnosed in 1994-1997: relative survival (%)

Age at diagnosis	Years after diagnosis 1 year	2 years	3 years	4 years	5 years
40 - 54	77.1 *(67.9 - 86.3)*	64.2 *(51.6 - 76.9)*	50.1 *(34.9 - 65.3)*	38.8 *(22.7 - 54.9)*	35.0 *(18.8 - 51.2)*
55 - 69	70.8 *(62.7 - 78.9)*	55.5 *(45.4 - 65.6)*	39.9 *(28.8 - 51.0)*	28.4 *(17.5 - 39.4)*	24.8 *(14.1 - 35.5)*
70+	65.7 *(57.2 - 74.2)*	48.8 *(38.8 - 58.8)*	32.7 *(22.3 - 43.0)*	21.6 *(12.1 - 31.1)*	18.3 *(9.2 - 27.4)*
All (Ages 15+)	70.1 *(62.9 - 77.2)*	54.6 *(46.0 - 63.3)*	39.3 *(29.9 - 48.6)*	28.0 *(18.8 - 37.2)*	24.5 *(15.4 - 33.5)*

(C) Age-adjusted rates, 1994-1997 (per 100,000)

Incidence	Mortality
2.2	0.9
8.6	7.0
23.0	16.1
3.3	2.3

(B) Relative survival curves for cases diagnosed in 1994-1997



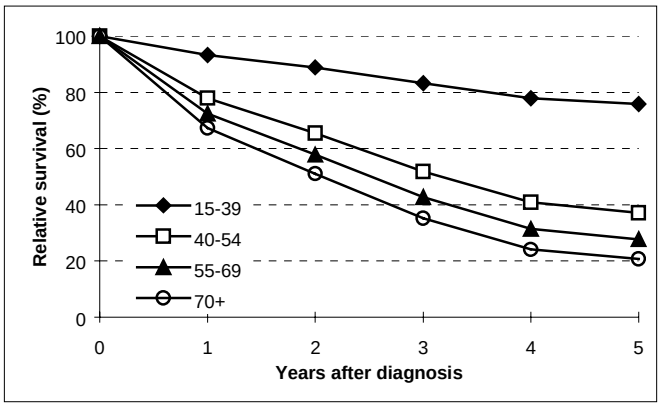
(D) Survival analysis, 1994-1997

	Cases	Deaths*
Age 15-39	3	1
Age 40-54	15	6
Age 55-69	34	23
Age 70+	66	49
All (age 15+)	118	79

** Case follow-up to 30/06/1999*

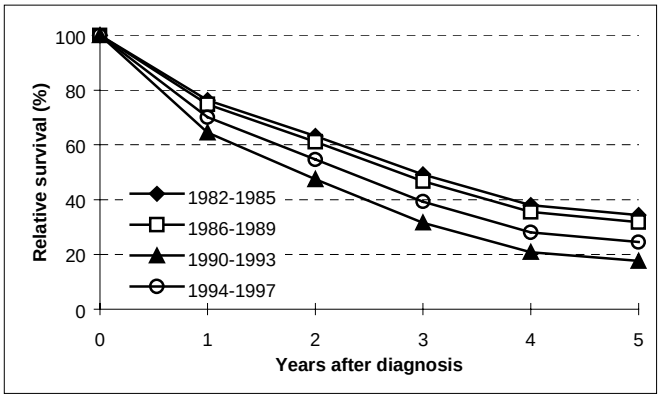
Myeloma (females)

2. Historical data (diagnosis 1982 to 1997): relative survival (%) by age at diagnosis



Age at diagnosis	R. Surv. at 5 years (%)	Relative risk**
15 - 39 yr	75.9	(1.00)
40 - 54	37.2	3.30 (0.44 - 24.74)
55 - 69	27.8	4.38 (0.60 - 32.00)
70 and over	20.8	5.34 (0.73 - 38.88)

3. Historical data (ages 15 - 70+): relative survival (%) by period of diagnosis

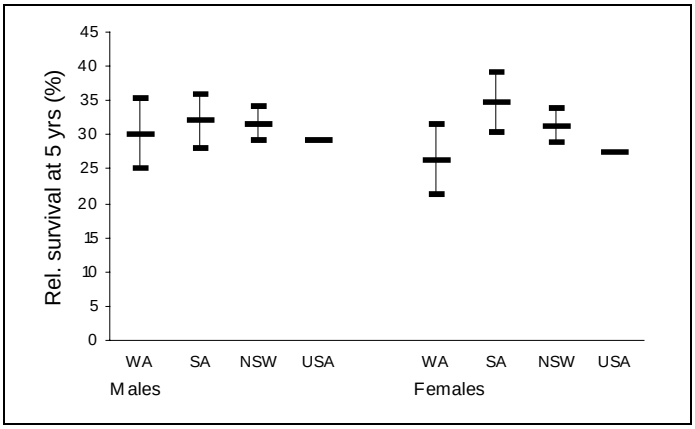


Period of diagnosis	R. Surv. at 5 years (%)	Relative risk**
1982 - 1985	34.3	(1.00)
1986 - 1989	31.8	1.05 (0.70 - 1.56)
1990 - 1993	17.6	1.58 (1.11 - 2.26)
1994 - 1997	24.5	1.33 (0.92 - 1.93)

*** Risk takes both age and period into acccount*

Comparisons

Myeloma survival appeared similar in Western Australia and the other areas considered.



4.35 Cancers of unknown primary site

The five-year relative survival of Western Australians with cancers of unknown primary site diagnosed in the period 1982-1997 was 12.3% (10.8 – 13.8) for males, and 9.2% (7.8 – 10.5) for females.

Males

Age at diagnosis

In recent cases, relative survival was highest in the 15-39 year age group at 62.7% at one year decreasing to 11.5% in the 70 years and over age group. This difference was significant. Survival decreased with time since diagnosis for all ages combined, from 19.9% to 11.8% during the 5 year follow-up period. This was statistically significant.

For cases diagnosed in the period 1982-1997, five-year survival decreased significantly from 52.5% in the 15-39 year age group to 4.9% in the 70 years and over age group.

Period of diagnosis

Five-year relative survival between 1982-85 and 1994-97 has shown no significant trend.

Cancers of unknown primary site (males)

1. Recent data: Persons aged 15 years or over at diagnosis, 1994-1997

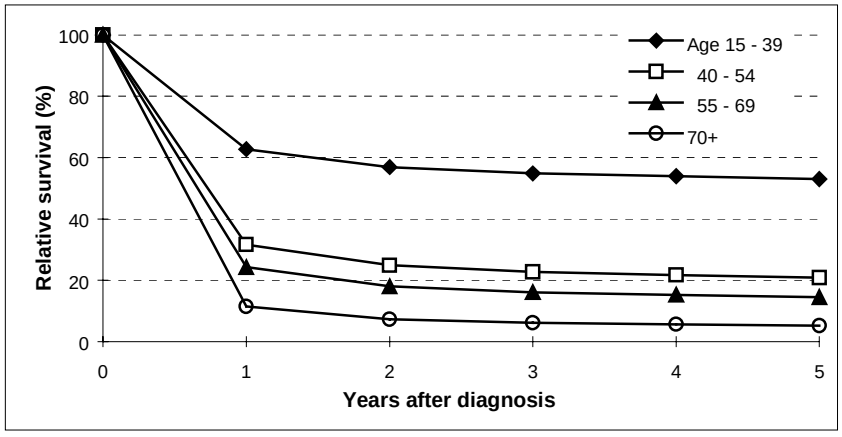
(A) Cases diagnosed in 1994-1997: relative survival (%)

Age at diagnosis	Years after diagnosis 1 year	2 years	3 years	4 years	5 years
15 - 39	62.7 *(53.5 - 72.0)*	56.9 *(46.8 - 67.1)*	54.9 *(44.5 - 65.3)*	53.9 *(43.4 - 64.4)*	53.0 *(42.4 - 63.6)*
40 - 54	31.6 *(25.3 - 38.0)*	24.9 *(18.9 - 30.9)*	22.7 *(16.9 - 28.5)*	21.8 *(16.0 - 27.5)*	20.9 *(15.2 - 26.6)*
55 - 69	24.3 *(20.2 - 28.4)*	18.0 *(14.4 - 21.7)*	16.1 *(12.6 - 19.7)*	15.3 *(11.8 - 18.8)*	14.5 *(11.1 - 18.0)*
70+	11.5 *(8.8 - 14.1)*	7.3 *(5.2 - 9.4)*	6.1 *(4.3 - 8.0)*	5.7 *(3.9 - 7.5)*	5.2 *(3.5 - 7.0)*
All (Ages 15+)	19.9 *(16.8 - 23.1)*	14.5 *(11.8 - 17.3)*	13.0 *(10.4 - 15.6)*	12.4 *(9.8 - 14.9)*	11.8 *(9.3 - 14.3)*

(C) Age-adjusted rates, 1994-1997 (per 100,000)

	Incidence	Mortality
15 - 39	1.2	0.5
40 - 54	8.7	4.1
55 - 69	46.7	35.7
70+	145.5	110.9
All (Ages 15+)	18.7	13.4

(B) Relative survival curves for cases diagnosed in 1994-1997



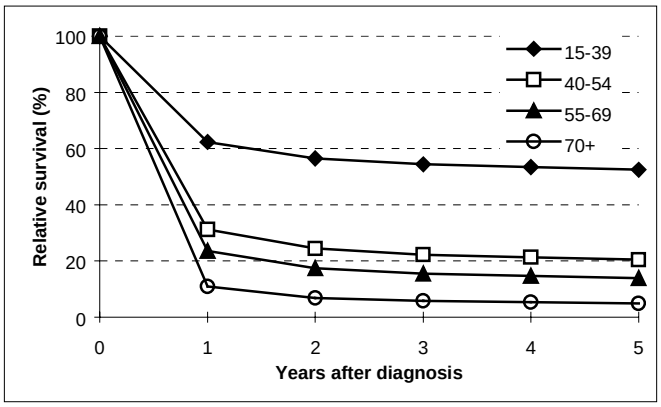
(D) Survival analysis, 1994-1997

	Cases	Deaths*
Age 15-39	18	8
Age 40-54	62	43
Age 55-69	183	150
Age 70+	297	268
All (age 15+)	560	469

** Case follow-up to 30/06/1999*

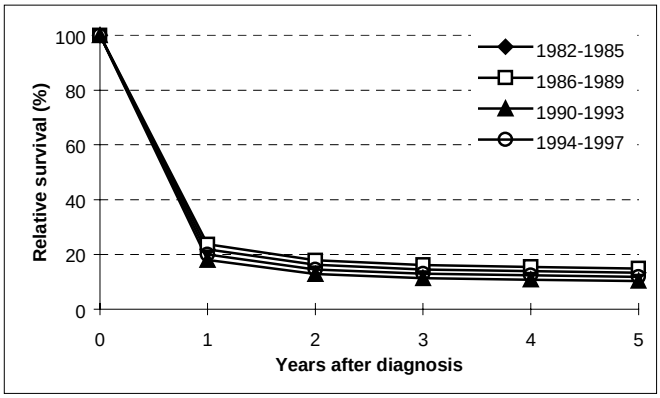
Cancers of unknown primary site (males)

2. Historical data (diagnosis 1982 to 1997): relative survival (%) by age at diagnosis



Age at diagnosis	R. Surv. at 5 years (%)	Relative risk**
15 - 39 yr	52.5	(1.00)
40 - 54	20.4	2.47 (1.76 - 3.46)
55 - 69	13.9	3.04 (2.22 - 4.16)
70 and over	4.9	4.65 (3.40 - 6.35)

3. Historical data (ages 15 - 70+): relative survival (%) by period of diagnosis



Period of diagnosis	R. Surv. at 5 years (%)	Relative risk**
1982 - 1985	13.3	(1.00)
1986 - 1989	14.8	0.97 (0.82 - 1.14)
1990 - 1993	10.3	1.06 (0.91 - 1.24)
1994 - 1997	11.8	0.99 (0.84 - 1.15)

*** Risk takes both age and period into acccount*

Females

Age at diagnosis

In recent cases, relative survival was highest in the 15-39 year age group at 37.3% decreasing to 5.0% in the 70 years and over age group at one year. This difference was significant. Survival decreased with time since diagnosis for all ages combined, from 10.4% to 5.0% during the 5 year follow-up period. This was statistically significant.

For cases diagnosed in the period 1982-1997, five-year survival showed a significant decrease from 33.1% in the 15-39 year age group to 3.3% in the 70 years and over age group. This decrease was significant.

Period of diagnosis

Five-year relative survival between 1982-85 and 1994-97 showed a significant decrease from 13.6 to 5.0%.

Cancers of unknown primary site (females)

1. Recent data: Persons aged 15 years or over at diagnosis, 1994-1997

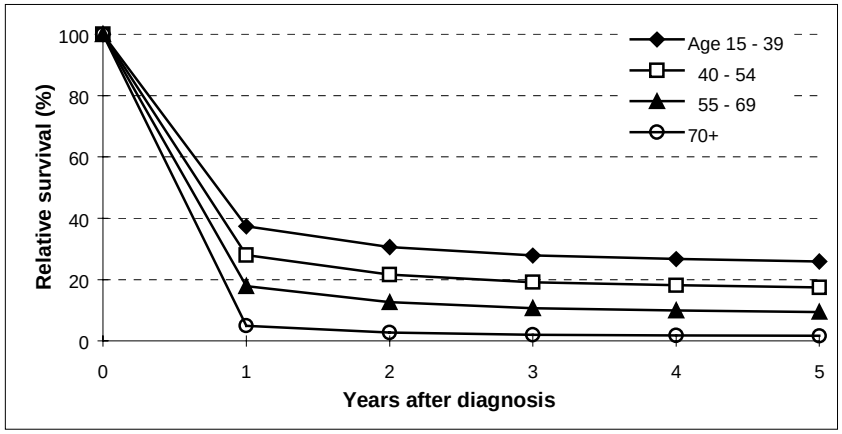
(A) Cases diagnosed in 1994-1997: relative survival (%)

Age at diagnosis	Years after diagnosis 1 year	2 years	3 years	4 years	5 years
15 - 39	37.3 *(25.3 - 49.4)*	30.6 *(18.7 - 42.4)*	27.8 *(16.2 - 39.5)*	26.7 *(15.2 - 38.2)*	25.9 *(14.5 - 37.4)*
40 - 54	28.0 *(20.4 - 35.6)*	21.6 *(14.5 - 28.7)*	19.1 *(12.4 - 25.9)*	18.1 *(11.5 - 24.8)*	17.5 *(10.9 - 24.0)*
55 - 69	17.9 *(13.6 - 22.2)*	12.6 *(9.0 - 16.3)*	10.7 *(7.3 - 14.1)*	9.9 *(6.7 - 13.2)*	9.5 *(6.3 - 12.6)*
70+	5.0 *(3.4 - 6.6)*	2.7 *(1.6 - 3.8)*	2.0 *(1.1 - 2.9)*	1.8 *(1.0 - 2.6)*	1.6 *(0.9 - 2.4)*
All (Ages 15+)	10.4 *(8.0 - 12.8)*	6.8 *(4.9 - 8.7)*	5.7 *(4.0 - 7.4)*	5.2 *(3.6 - 6.9)*	5.0 *(3.4 - 6.6)*

(C) Age-adjusted rates, 1994-1997 (per 100,000)

	Incidence	Mortality
15 - 39	0.9	0.5
40 - 54	4.2	2.7
55 - 69	25.8	21.4
70+	95.3	85.4
All (Ages 15+)	11.2	9.3

(B) Relative survival curves for cases diagnosed in 1994-1997



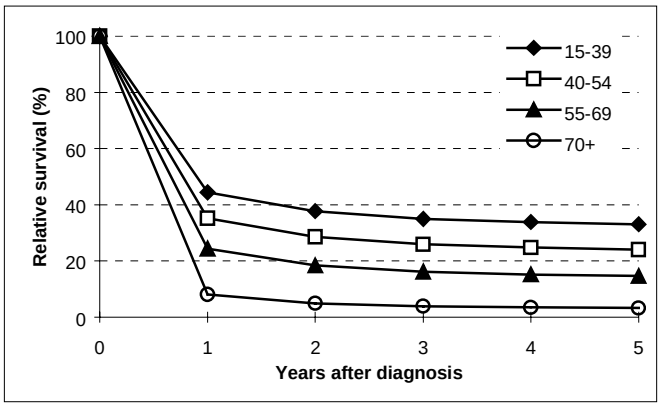
(D) Survival analysis, 1994-1997

	Cases	Deaths*
Age 15-39	15	12
Age 40-54	28	20
Age 55-69	103	84
Age 70+	291	279
All (age 15+)	437	395

** Case follow-up to 30/06/1999*

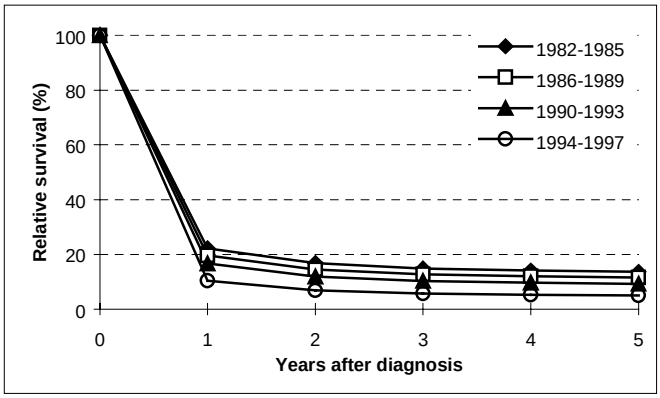
Cancers of unknown primary site (females)

2. Historical data (diagnosis 1982 to 1997): relative survival (%) by age at diagnosis



Age at diagnosis	R. Surv. at 5 years (%)	Relative risk**
15 - 39 yr	33.1	(1.00)
40 - 54	24.1	1.29 (0.89 - 1.87)
55 - 69	14.6	1.75 (1.25 - 2.44)
70 and over	3.3	3.04 (2.20 - 4.21)

3. Historical data (ages 15 - 70+): relative survival (%) by period of diagnosis



Period of diagnosis	R. Surv. at 5 years (%)	Relative risk**
1982 - 1985	13.6	(1.00)
1986 - 1989	11.6	1.03 (0.86 - 1.24)
1990 - 1993	9.3	1.09 (0.91 - 1.29)
1994 - 1997	5.0	1.36 (1.14 - 1.62)

*** Risk takes both age and period into acccount*

Comparisons

No data were available for comparison.

4.36 All cancers

The five-year relative survival of all Western Australians with cancer diagnosed in the period 1982-1997 was 51.5% (51.0 – 52.1) for males, and 60.4% (59.8 – 61.0) for females.

Males

Age at diagnosis

In recent cases, relative survival was highest in the 15-39 year age group at 90.5% at one year decreasing to 69.7% in the 70 years and over age group. The differences between all age groups at one to five years were significant. Survival decreased significantly with time since diagnosis, for all ages combined, from 74.7% to 59.2% for all ages combined.

For cases diagnosed in the period 1982-1997, five-year survival decreased from 78.4% in the 15-39 year age group to 42.5% in the 70 years and over age group. The difference between each age group was statistically significant.

Period of diagnosis

Five-year relative survival between 1982-85 and 1994-97 has shown a non-significant increase.

All cancers (males)

1. Recent data: Persons aged 15 years or over at diagnosis, 1994-1997

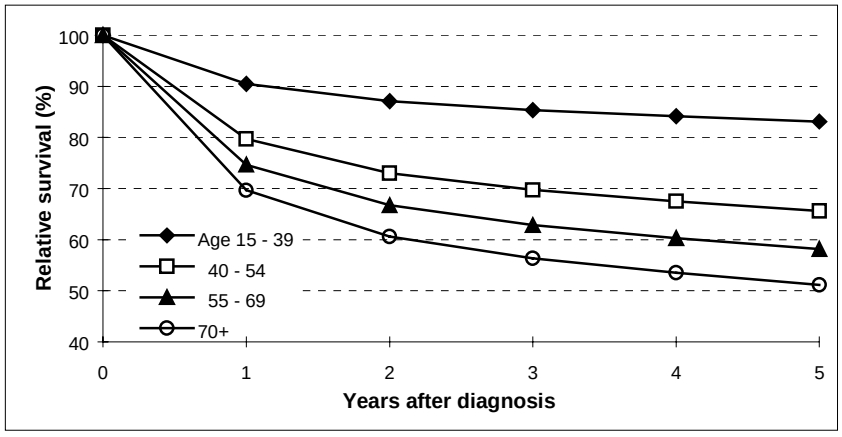
(A) Cases diagnosed in 1994-1997: relative survival (%)

Age at diagnosis	Years after diagnosis 1 year	2 years	3 years	4 years	5 years
15 - 39	90.5 *(89.7 - 91.3)*	87.1 *(86.1 - 88.1)*	85.3 *(84.2 - 86.5)*	84.1 *(82.9 - 85.4)*	83.1 *(81.8 - 84.4)*
40 - 54	79.7 *(78.8 - 80.6)*	73.0 *(71.9 - 74.1)*	69.7 *(68.5 - 70.9)*	67.5 *(66.2 - 68.8)*	65.6 *(64.3 - 67.0)*
55 - 69	74.7 *(73.9 - 75.4)*	66.7 *(65.8 - 67.6)*	62.9 *(61.9 - 63.8)*	60.3 *(59.3 - 61.3)*	58.2 *(57.1 - 59.3)*
70+	69.7 *(68.8 - 70.6)*	60.6 *(59.6 - 61.7)*	56.3 *(55.2 - 57.4)*	53.5 *(52.3 - 54.7)*	51.2 *(50.0 - 52.4)*
All (Ages 15+)	74.7 *(74.0 - 75.4)*	67.0 *(66.2 - 67.8)*	63.4 *(62.5 - 64.3)*	61.1 *(60.2 - 62.0)*	59.2 *(58.3 - 60.2)*

(C) Age-adjusted rates, 1994-1997 (per 100,000)

Incidence	Mortality
56.2	9.6
287.2	87.8
1,467.7	548.1
3,180.4	1,754.5
519.3	215.9

(B) Relative survival curves for cases diagnosed in 1994-1997



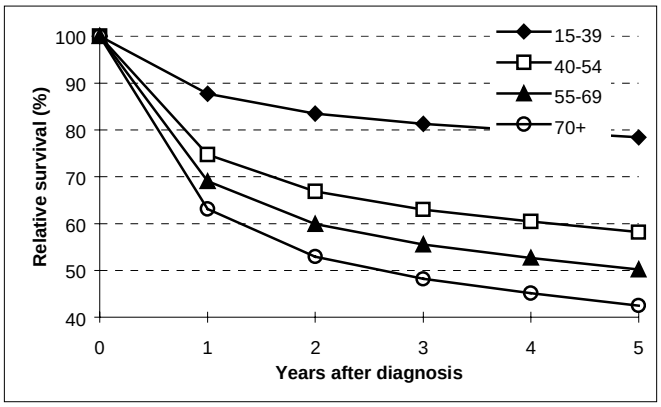
(D) Survival analysis, 1994-1997

	Cases	Deaths*
Age 15-39	842	142
Age 40-54	2022	638
Age 55-69	5845	2287
Age 70+	6479	3808
All (age 15+)	15188	6875

** Case follow-up to 30/06/1999*

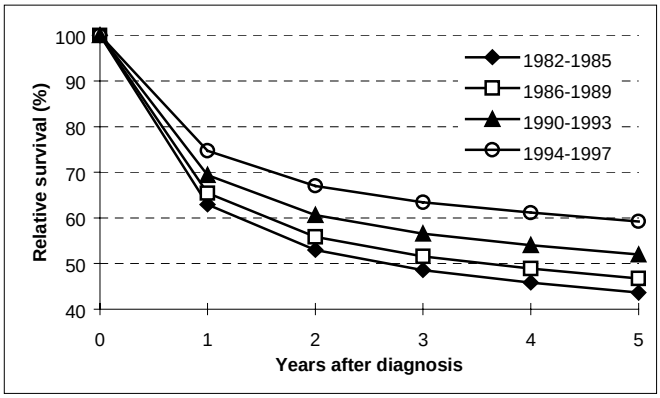
All cancers (males)

2. Historical data (diagnosis 1982 to 1997): relative survival (%) by age at diagnosis



Age at diagnosis	R. Surv. at 5 years (%)	Relative risk**
15 - 39 yr	78.4	(1.00)
40 - 54	58.2	2.27 (2.08 - 2.49)
55 - 69	50.2	2.93 (2.69 - 3.18)
70 and over	42.5	3.62 (3.33 - 3.93)

3. Historical data (ages 15 - 70+): relative survival (%) by period of diagnosis



Period of diagnosis	R. Surv. at 5 years (%)	Relative risk**
1982 - 1985	43.6	(1.00)
1986 - 1989	46.7	0.92 (0.88 - 1.04)
1990 - 1993	51.9	0.78 (0.75 - 1.23)
1994 - 1997	59.2	0.62 (0.59 - 1.55)

*** Risk takes both age and period into acccount*

Females

Age at diagnosis

In recent cases, relative survival was highest in the 15-39 year age group at 91.6% decreasing to 66.0% in the 70 years and over age group at one year. The differences between all age groups at one to five years were significant. Survival decreased significantly with time since diagnosis, from 78.5% at 1 year to 63.1% at 5 years, for all ages combined.

For cases diagnosed in the period 1982-1997, five-year survival showed a significant decrease from 82.5% in the 15-39 year age group to 40.3% in the 70 years and over age group. This decrease was significant between all age groups.

Period of diagnosis

Five-year relative survival between 1982-85 and 1994-97 showed a non-significant increase from 57.3% to 63.1%.

All cancers (females)

1. Recent data: Persons aged 15 years or over at diagnosis, 1994-1997

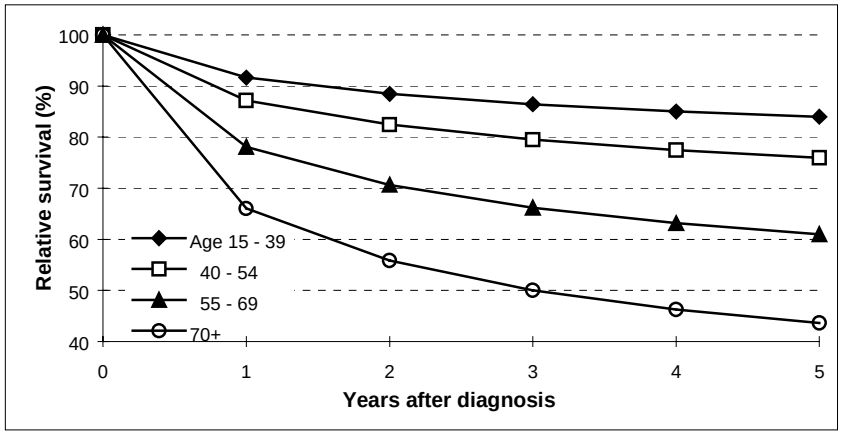
(A) Cases diagnosed in 1994-1997: relative survival (%)

Age at diagnosis	Years after diagnosis 1 year	2 years	3 years	4 years	5 years
15 - 39	91.6 *(91.0 - 92.3)*	88.4 *(87.6 - 89.3)*	86.4 *(85.4 - 87.5)*	85.0 *(83.9 - 86.1)*	84.0 *(82.8 - 85.2)*
40 - 54	87.1 *(86.5 - 87.8)*	82.4 *(81.6 - 83.3)*	79.5 *(78.5 - 80.4)*	77.4 *(76.4 - 78.5)*	75.9 *(74.8 - 77.0)*
55 - 69	78.1 *(77.3 - 78.9)*	70.6 *(69.6 - 71.7)*	66.2 *(65.1 - 67.3)*	63.1 *(61.9 - 64.3)*	61.0 *(59.7 - 62.2)*
70+	66.0 *(64.9 - 67.1)*	55.8 *(54.6 - 57.1)*	50.0 *(48.7 - 51.4)*	46.2 *(44.9 - 47.6)*	43.6 *(42.2 - 45.1)*
All (Ages 15+)	78.5 *(77.8 - 79.2)*	71.6 *(70.7 - 72.4)*	67.6 *(66.6 - 68.5)*	64.9 *(63.9 - 65.9)*	63.1 *(62.1 - 64.1)*

(C) Age-adjusted rates, 1994-1997 (per 100,000)

Incidence	Mortality
74.1	11.4
399.7	99.7
920.3	347.2
1,531.7	909.2
373.7	138.8

(B) Relative survival curves for cases diagnosed in 1994-1997



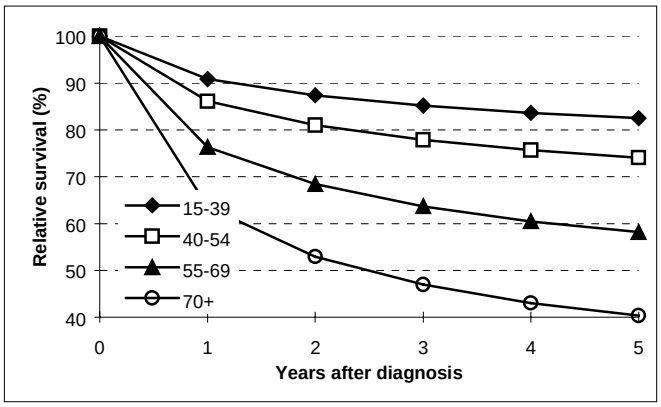
(D) Survival analysis, 1994-1997

	Cases	Deaths*
Age 15-39	1137	151
Age 40-54	2701	556
Age 55-69	3641	1194
Age 70+	4481	2691
All (age 15+)	11960	4592

** Case follow-up to 30/06/1999*

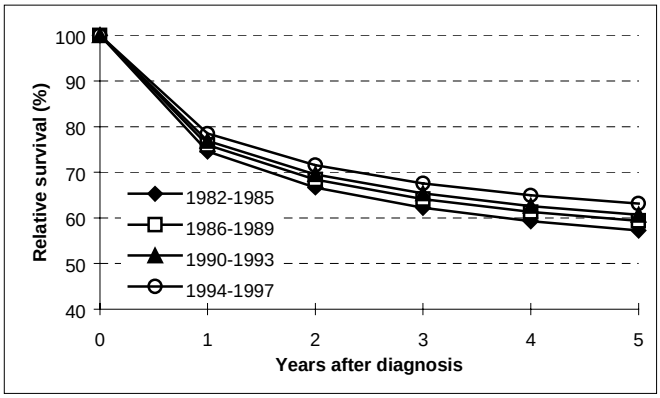
All cancers (females)

2. Historical data (diagnosis 1982 to 1997): relative survival (%) by age at diagnosis



Age at diagnosis	R. Surv. at 5 years (%)	Relative risk**
15 - 39 yr	82.5	(1.00)
40 - 54	74.1	1.57 (1.44 - 1.72)
55 - 69	58.2	2.83 (2.61 - 3.07)
70 and over	40.3	4.75 (4.38 - 5.14)

3. Historical data (ages 15 - 70+): relative survival (%) by period of diagnosis



Period of diagnosis	R. Surv. at 5 years (%)	Relative risk**
1982 - 1985	57.3	(1.00)
1986 - 1989	59.3	0.93 (0.89 - 1.02)
1990 - 1993	60.7	0.89 (0.85 - 1.06)
1994 - 1997	63.1	0.83 (0.78 - 1.15)

*** Risk takes both age and period into acccount*

5. Survival by cancer subtype and extent of disease

5.1 Lung cancer (Data from Sir Charles Gairdner Hospital)

The hospital based cancer registry at Sir Charles Gairdner Hospital collects detailed data for several tumour types, and staff have supplied data concerning relative survival for lung cancer, for inclusion in this report; a more detailed description is found in the report **Lung cancer at Sir Charles Gairdner Hospital 1999.**[5] Numbers of cases and deaths during the period of analysis are shown in Table 5.1.

"Stage" refers to a terminology commonly applied to cancers on the basis of their size, number of affected lymph nodes and other factors, aimed at grouping cases in a way that can be useful when planning treatment and assessing outcomes. There a number of different staging systems in use for different kinds of cancers; the TNM staging underlying the summary staging presented here was based on the UICC.[9]

Table 5.1 Subgroupings of lung cancer for survival analysis, Sir Charles Gairdner Hospital, 1996-1999 (follow up to November 1999).

Grouping	Cases	Deaths
Morphology		
Adenocarcinoma	226	141
Squamous cell carcinoma (SCC)	192	113
Large cell carcinoma	131	89
Small cell carcinoma	143	101
Morphology and disease extent		
Small cell		
Stage III	46	32
Stage IV	70	55
Non-small cell		
Stage I	90	32
Stage II	51	27
Stage III	191	127
Stage IV	190	152

Relative survival for persons with squamous cell carcinoma appeared better than for those with other types, especially small cell carcinoma (Fig. 5.1).

For small cell carcinoma, there were insufficient cases of stages I and II for analysis; 1-year relative survival was 42% for stage III, and 29% for stage IV (Fig. 5.2). Variation of survival with stage was very marked for non-small cell tumours (Fig. 5.3), with one-year survival of 82% for stage I and only 22% for stage IV.

These data have been compared favourably with those in other areas,[5] and serve to illustrate the usefulness of the hospital-based Cancer Registry in providing data to use in the evaluation of patient outcomes. Extension of such analyses to assess the effects of treatment is expected in the near future, when the number of cases is larger and when registries at several hospitals are able to combine their data.

Fig. 5.1 Relative survival by tumour morphology, lung cancer, Sir Charles Gairdner Hospital, 1996-1999.

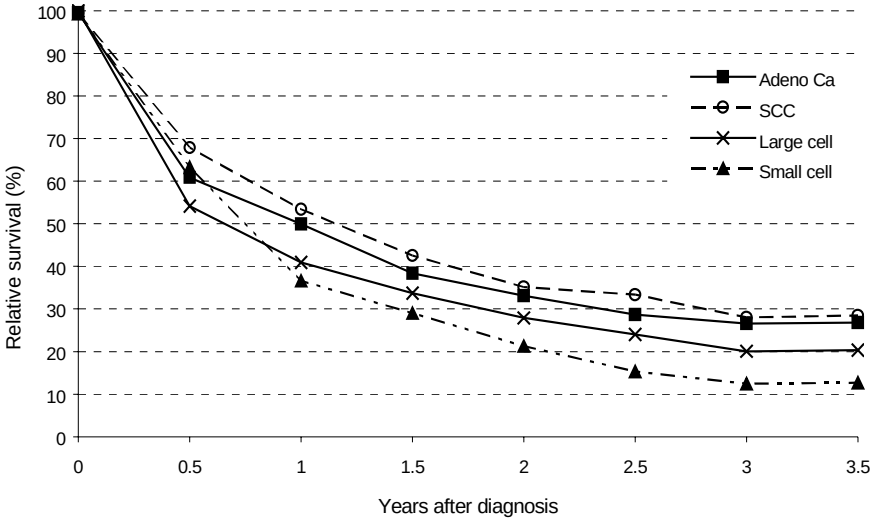


Fig. 5.2 Relative survival by stage, small cell lung cancer, Sir Charles Gairdner Hospital, 1996-1999.

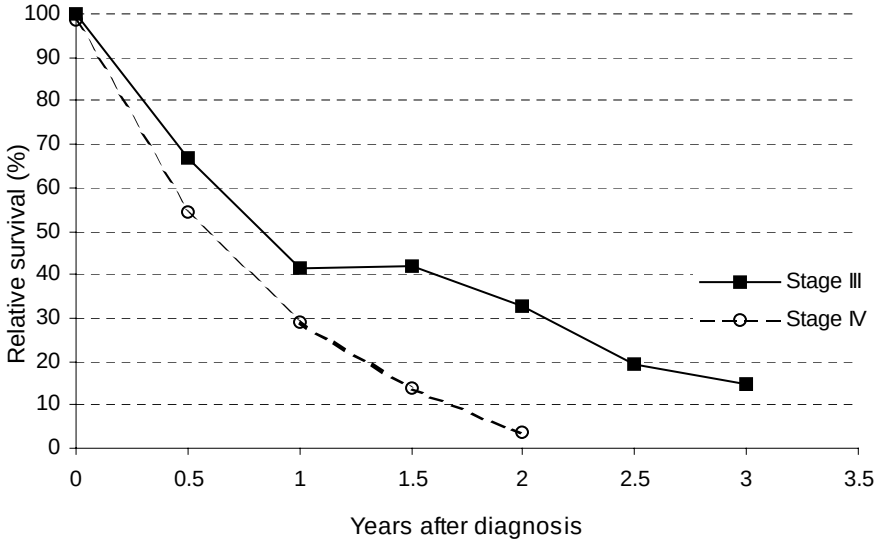
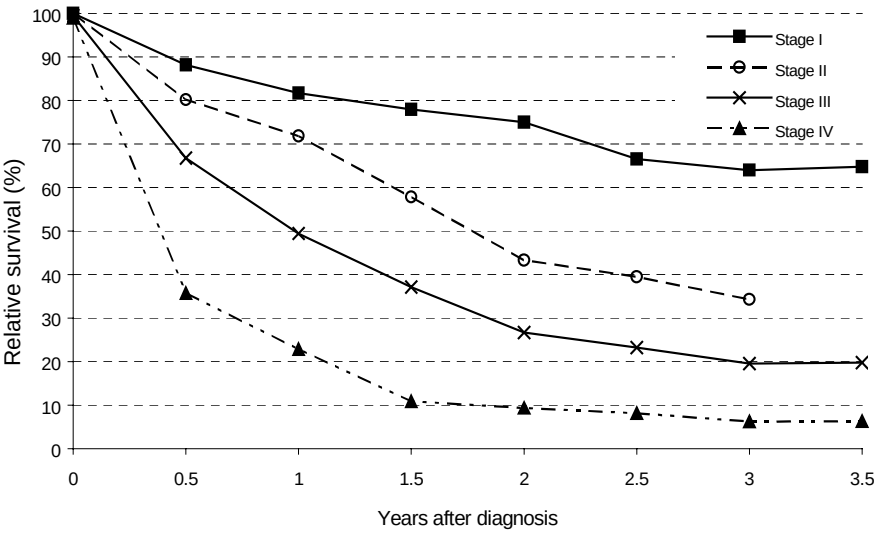


Fig. 5.3 Relative survival by stage, non-small cell lung cancer, Sir Charles Gairdner Hospital, 1996-1999.



5.2 Breast cancer

Survival statistics were calculated for women with breast cancer diagnosed in 1997 and 1998, considering primary tumour size (available for 1600 of 1823 cases) and number of tumour-affected lymph nodes (available for 1292 cases).

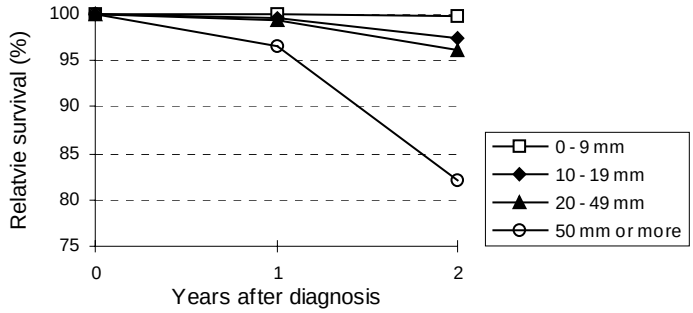
Tumour size

At both 1 year and 2 years after diagnosis, relative survival was poorer for larger tumours. However, in association with low numbers of cases, confidence intervals were wide, and only at two years was survival significantly worse for the largest tumours. These results are shown in Table 5.2 and graphically in Fig. 5.4.

Table 5.2 Breast cancer, Western Australia, 1997-1998: relative survival and size of primary tumour.

Tumour size	Cases	Relative survival (%) at - 1 year	2 years
0 - 9 mm	376	99.95 *(99.68 - 100.00)*	99.74 *(98.28 - 100.00)*
10 - 19 mm	710	99.53 *(99.03 - 100.00)*	97.49 *(95.64 - 99.33)*
20 - 49 mm	461	99.28 *(98.43 - 100.00)*	96.13 *(92.73 - 99.54)*
50 mm or more	53	96.46 *(92.46 - 100.00)*	82.20 *(67.60 - 96.81)*

Figure 5.4 Breast cancer, Western Australia, 1997-1998: relative survival and size of primary tumour.



Cancer-affected lymph nodes

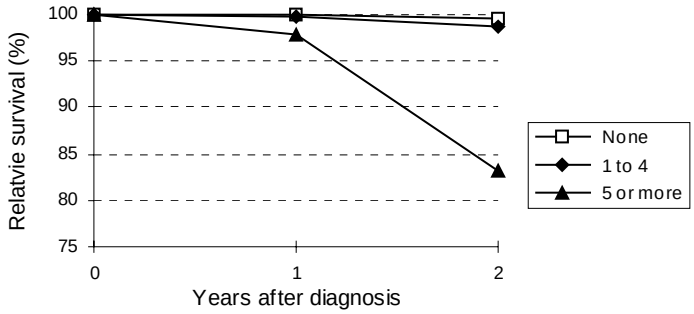
Variation of survival with the number of tumour-affected lymph nodes associated with breast cancers is shown in Table 5.3 and Figure 5.5. Survival at two years was similar for persons with 0 and 1-4 affected nodes, but was much lower for persons with 5 or more affected nodes. However, confidence intervals were wide.

The differences were not statistically significant, and while these trends are in agreement with those observed elsewhere, clear demonstration of survival benefit of earlier detection of breast cancers using local data will have to await future analyses with longer follow-up and more cases. The Registry continues to collect tumour size and lymph node information, although the special funding which initially supported this is no longer available.

Table 5.3 Breast cancer, Western Australia, 1997-1998: relative survival and number of associated tumour-affected lymph nodes.

Nodes affected	Cases	Relative survival (%) at - 1 year	2 years
None	753	99.94 *(99.18 - 100.00)*	99.5 *(97.5 - 100.0)*
1 to 4	385	99.85 *(98.88 - 100.00)*	98.8 *(95.0 - 100.0)*
5 or more	154	97.86 *(83.87 - 100.00)*	83.2 *(53.0 - 100.0)*

Figure 5.5 Breast cancer, Western Australia, 1997-1998: relative survival and number of associated tumour-affected lymph nodes.



5.3 Cutaneous melanoma

Cases of melanoma of the skin diagnosed in the period 1982 to 1997, for which Clark level[6] or Breslow tumour thickness[7] measurements were available, were assessed to examine variations in relative survival; all age groups and both males and females were included. A thicknes measure was available for 86% of 1982-1997 tumours, and a Clark level for 82%.

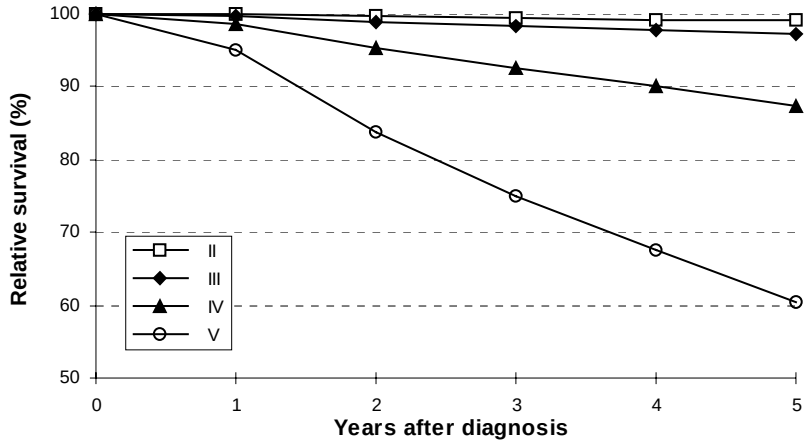
Relative survival decreased with increasing thickness, survival was significantly worse than for thinner tumours. Likewise, relative survival was worse for tumours with higher Clark level, and all differences were statistically significant at 5 years (Table 5.4, Fig. 5.6).

These data clearly suggest the potential for improvement in outcomes if tumours can be diagnosed when relatively early in their development.

Table 5.4. Cutaneous melanoma, Western Australia, 1982-1997: relative survival and Clark level (males and females).

Clark level	Cases	Relative survival (%) at - 1 year	2 years	3 years	4 years	5 years
II	3269	99.9 *(99.8 - 100.0)*	99.7 *(99.5 - 99.9)*	99.5 *(99.2 - 99.8)*	99.3 *(98.8 - 99.7)*	99.1 *(98.5 - 99.6)*
III	1724	99.7 *(99.6 - 99.8)*	99 *(98.6 - 99.4)*	98.4 *(97.7 - 99.1)*	97.8 *(96.9 - 98.7)*	97.2 *(96.0 - 98.3)*
IV	2012	98.6 *(98.1 - 99.2)*	95.3 *(94.3 - 96.4)*	92.6 *(91.2 - 94.0)*	90 *(88.3 - 91.7)*	87.3 *(85.3 - 89.4)*
V	202	95.1 *(92.7 - 97.4)*	83.7 *(78.7 - 88.7)*	75.1 *(68.4 - 81.8)*	67.6 *(59.6 - 75.6)*	60.4 *(51.3 - 69.6)*

Fig. 5.6 Cutaneous melanoma, Western Australia, 1982-1997: relative survival and Clark level (males and females).



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