

# Appendix I: Topography and morphology codes

**Table A1: Details of cancer sites and groups used in this report by ICD-10<sup>1</sup> codes**

ICD-10 description	ICD-10	Included in report
<b>ALL MALIGNANT TUMOURS</b>	<b>C00–C96</b>	<b>Yes</b>
<b>LIP, ORAL CAVITY &amp; PHARYNX (C00–C14)</b>		
Lip	C00	No
Tongue	C01, C02	No
Major salivary glands	C07, C08	Yes
Gum	C03	No
Floor of mouth	C04	No
Other & unspecified parts of mouth	C05, C06	No
<b>Oral cavity</b>	<b>C01–C06</b>	<b>Yes</b>
Oropharynx	C09, C10	No
Nasopharynx	C11	No
Hypopharynx including pyriform sinus	C12, C13	No
<b>Pharynx</b>	<b>C09–C13</b>	<b>Yes</b>
Other & unspecified sites of lip, oral cavity & pharynx	C14	No
<b>DIGESTIVE ORGANS (C15–C26)</b>		
Oesophagus	C15	Yes
Stomach	C16	Yes
Small intestine including duodenum	C17	No
Colon	C18	Yes
Rectum including rectosigmoid, anal canal and anus	C19–C21	Yes
Liver & intrahepatic bile ducts	C22	Yes
Gallbladder & other biliary tract	C23, C24	Yes
Pancreas	C25	Yes
<b>RESPIRATORY SYSTEM &amp; INTRATHORACIC ORGANS (C30–C39)</b>		
Nose, nasal cavities, middle ear & accessory sinuses	C30, C31	No
Larynx	C32	Yes
Trachea, bronchus & lung	C33, C34	Yes
Thymus, heart, mediastinum & pleura	C37, C38	No
<b>BONES, JOINTS &amp; ARTICULAR CARTILAGE (C40–C41)</b>		
	C40, C41	No
<b>MELANOMA (C43)</b>		
	C43	Yes
<b>MESOTHELIAL &amp; SOFT TISSUE (C45–C49)</b>		
Mesothelioma	C45	Yes
Kaposi sarcoma	C46	No
Retroperitoneum & peritoneum	C48	No
Other connective tissue (incl. peripheral nerves etc)	C47, C49	Yes
<b>BREAST (C50) and FEMALE GENITAL ORGANS (C51–C58)</b>		
Breast	C50	Yes
Cervix uteri	C53	Yes
Body of uterus	C54, C55	Yes
Ovary	C56	Yes
Placenta	C58	No
Vulva & other/unspecified female genital organs	C51, C52, C57	No

**Table A1 (continued)**

ICD-10 description	ICD-10	Included in report
<b>MALE GENITAL ORGANS (C60–C63)</b>		
Prostate	C61	Yes
Testis	C62	Yes
Penis & other male genital organs	C60, C63	No
<b>URINARY TRACT (C64–C68)</b>		
Kidney, except renal pelvis	C64	Yes
Bladder	C67	Yes
Renal pelvis & other/unspecified urinary organs	C65, C66, C68	Yes
<b>EYE, BRAIN &amp; OTHER PARTS OF CENTRAL NERVOUS SYSTEM (C69–C72)</b>		
Eye	C69	No
Meninges	C70	No
Brain	C71	No
Cranial nerves, spinal cord & unspecified CNS	C72	No
<b>Central nervous system</b>	<b>C70–2</b>	<b>Yes</b>
<b>THYROID &amp; OTHER ENDOCRINE GLANDS (C73–C75)</b>		
Thyroid gland	C73	Yes
Other endocrine glands and related structures	C74, C75	No
<b>III-DEFINED &amp; UNKNOWN PRIMARY SITE (C76–C80)</b>		<b>Yes</b>
<b>MALIGNANT NEOPLASMS OF LYMPHOID, HAEMATOPOIETIC AND RELATED TISSUE (C81–C96)</b>		
Hodgkin lymphoma	C81	Yes
<b>Non-Hodgkin lymphoma</b>	<b>C82–85</b>	<b>Yes</b>
Malignant immunoproliferative disease	C88	No
Multiple myeloma and malignant plasma cell neoplasms	C90	Yes
Acute lymphoid leukaemia	C91.0	Yes
Chronic lymphoid leukaemia	C91.1	Yes
Acute myeloid leukaemia	C92.0	Yes
Chronic myeloid leukaemia	C92.1	Yes
Monocytic leukaemia	C93	No
Other specified leukaemia	C94	No
Unspecified cell leukaemia	C95	No
Other & unspecified haematopoietic neoplasms	C96	No

**Table A2: Details of morphology groups used in this report by ICDO-3<sup>2</sup> codes**

**Groups of malignant tumours considered to be histologically 'different' (adapted from JW Berg<sup>3</sup>)**

These definitions are used unless otherwise specified

Group	Range of ICDO-3 morphology codes
Squamous and transitional cell carcinoma	805–808, 812–13
Adenocarcinoma	814, 816, 819–22, 826–33, 835–55, 857, 894
Other specific carcinoma	803–4, 815, 817–8, 823, 824, 825, 834, 856, 858–67
Unspecified carcinoma	801–2
Sarcomas and soft tissue tumour	868–71, 880–92, 899, 904, 912–3, 915–25, 937, 954–8
Kaposi sarcoma	914
Mesothelioma	905
Other specified types of cancer	872–9, 893, 895–8, 900–3, 906–11, 926–36, 938–53, 973–5, 976
Leukaemia	980–94, 995, 996, 998
Lymphoma	959–72
No histological confirmation	999, 0, 800

Groups were defined by ICDO-3 morphology codes for selected cancers. Results are presented in the tables only for the major morphology groups for a given cancer (hence deaths in morphology groups shown may not add to total deaths). Listed below are the morphology subgroups, with definitions where these are subsets of groups defined above, for which separate survival estimates are included in the body of the report.

**Morphology subgroups used in analyses by cancer site**

**All cancer** – All morphology groups as above

**Lung cancer** – Small cell carcinoma (804); non-small cell carcinoma (all other carcinoma) including separate figures for adenocarcinoma; no histological confirmation

**Female breast cancer**

Ductal carcinoma	8500, 8501, 8503, 8504, 8480, 8201, 8211
Lobular carcinoma	8520
Paget disease	8540–3
Other adenocarcinoma	all adenocarcinomas except those already specified
Other & unspecified carcinoma	801–802
No histological confirmation	999, 0, 800

**Cervical cancer** – Squamous cell carcinoma, adenocarcinoma; other & unspecified carcinoma

**Ovarian cancer**

Papillary/serous adenocarcinoma	826, 844–6
Mucinous adenocarcinoma	847–8
Endometrioid adenocarcinoma	838
Clear cell adenocarcinoma	831
Other & unspecified adenocarcinoma	814, 820–, 827–30, 832–37
Other & unspecified epithelial tumours	801–802
Other histology	All other morphology

**Testicular cancer** – Seminoma (906), Non-seminoma (907–10)

**Bladder cancer** – Transitional cell carcinoma (812), Papillary transitional cell carcinoma (813), Squamous cell carcinoma, Other & unspecified carcinoma

**Kidney cancer** – Renal cell carcinoma (831), Other adenocarcinoma (all except 831), Wilms' tumour (896), Other and unspecified carcinoma

**Renal pelvis cancer** – Transitional cell carcinoma (812), Other & unspecified carcinoma

**Brain & central nervous system tumours**

Glioblastoma	9440–2
Astrocytoma	9384, 9400–21, 9430, 9424
Other gliomas	9470–3, 9450–60, 9391–4, 9380–3, 9390–4, 9480
No histological confirmation	as above

**Thyroid cancer** – Follicular adenocarcinoma (833, 834), Papillary adenocarcinoma (826, 805), Medullary adenocarcinoma (851), Other & unspecified carcinoma

**Tumours of unknown primary site**

Adenocarcinoma, squamous and transitional cell carcinoma, Other carcinoma, Unspecified carcinoma

**Non-Hodgkin lymphoma (NHL)**

Diffuse NHL	9593, 9595, 9600–40, 9670–89, 9750
Follicular NHL	9690–9
Other & unspecified type NHL	all other morphology

# Appendix II:

## Data, definitions and methods

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### Data

The Victorian Cancer Registry (VCR) became population based in 1982. Its detailed operations have been described elsewhere<sup>4</sup>. Briefly, notification of cancer in Victoria is a legal requirement of all hospitals and pathology laboratories, and all death certificates are notified to it by an administrative arrangement. The VCR has a policy of recording all primary cancers (i.e. those that are neither an extension, nor a recurrence, nor a metastasis of a preexisting tumour), and all suspected further primaries are rigorously followed up with the hospital notifiers and with relevant clinicians and pathologists. If there is any doubt as to its validity, the notification is not coded as a primary cancer.

The study population included all persons with a first diagnosis of cancer between 1982 and 2004. This cohort was followed until the end of 2005. Follow-up was extended beyond the geographic boundaries of Victoria by matching against the National Death Index to identify deaths for persons who may have migrated elsewhere in Australia.

### Definition of terms used in report

**Cancer incidence** is defined as the occurrence of new cancers in a defined population during a specified time period. Cancer incidence reports on the first primary tumour of a particular site according to the rules of the International Agency for Research on Cancer and the International Association of Cancer Registries. Incidence reflects the number of primary tumours rather than the number of individuals with cancer and a person may appear more than once on the incidence file in the presence of multiple primary tumours. The proportion is small, such that the effect of non-independence between patients has a negligible effect on survival estimates. Further, tumours were examined separately so it is even less likely that a person will appear twice for the same tumour. All usual Victorian residents who presented with one or more primary tumours between 1982 and 2004 were included in this study.

**Cancer mortality** – all persons in the incidence file were matched to death records from the Victorian Registrar of Births, Deaths and Marriages and also to the National Death Index to identify deaths occurring outside Victoria. People still alive on 31 December 2005 were censored at this date. People notified to the Victorian Cancer Registry by death certificate only were excluded from all analyses. People notified by death certificate notification were included in analyses.

**Date of diagnosis** was defined as the date of definitive diagnosis of invasive disease from a pathology report, where available. For cancers that were not histologically confirmed the date of clinical diagnosis or admission to hospital was used.

**Age at diagnosis** – the following age groups were used for the majority of cancer sites: <45, 45–54, 55–64, 65–74, 75+. Where the group size was too small (<100) or where the distribution of cases by age was different from that of most tumours (e.g. in tumours common in young persons such as acute lymphoblastic leukaemia) alternative age breakdowns were chosen.

**Selected years** – survival estimates for the years 1990, 1995, 2000 and 2004 are given. All other estimates relate to all Victorians with a particular cancer in 2004, i.e. prevalent cases in 2004, to provide survival estimates that reflect the most recent patterns.

**Morphology** – for selected tumour sites, subgroups were obtained by grouping cases according to tumour morphology. See Appendix I for a detailed description of groups according to ICDO-3 morphology code. Patients who did not fall into one of the tabulated categories of morphology were not included when estimating survival by tumour morphology i.e. the groups are not exhaustive and some cases have been omitted from the tables.

**Subsite** – for some sites, subsites were created according to the 3rd or 4th digit of the ICD-10 topography code. See Appendix I for details. Cancers which did not fall into one of the tabulated categories of subsite were not included when estimating survival by subsite.

**Geographical regions** – in this report we have included, for the first time, survival estimates for Victoria by two sets of geographical regions as defined below.

**Integrated Cancer Services (ICS) regions** – The Department of Human Services' Cancer Services Framework for Victoria divides the state into eight regions for the provision of cancer services. These Integrated Cancer Services (ICS) regions include three metropolitan regions – Southern, Western & Central and Northern-Eastern Metropolitan Integrated Cancer Services (MICS) regions and five rural regions – Barwon, Grampians, Loddon-Mallee, Hume and Gippsland Rural Integrated Cancer Services (RICS) regions. Estimates of survival are presented for these regions in the tables for the leading incident cancers.

**Metropolitan Melbourne, rest of Victoria** – metropolitan is defined as the three metropolitan ICS

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regions with “rest of Victoria” including the five rural ICS regions. The metropolitan region includes the major urban area of Victoria comprising about three-quarters of the state’s total population.

**Survival time** was calculated from the date of diagnosis to the date of death or end of follow-up on 31 December 2005. People whose death was the same as their date of diagnosis were excluded from analyses. Most of these cases were death certificate only notifications.

## Survival

Relative survival is a measure of net survival that is usually interpreted as the proportion of patients who would have survived to a certain time (usually five years for cancer) if the cancer they had was the only cause of death in the patient population. It is defined as the ratio of observed survivors in a cohort of cancer patients to the proportion of expected survivors in a comparable group of cancer-free individuals.

Population life tables stratified by age, sex and calendar year are generally used to calculate expected survival. Unlike cause-specific survival, which depends on accurate coding of cause of death, survival measures the excess mortality experienced by cancer patients irrespective of whether their deaths are “attributed” to their cancers or not. It does require that the excess mortality is due to the cancer, and not to some other factor (e.g. smoking) that may be related to the onset of cancer and to excess mortality from other causes.

Cancer registries have traditionally used a method called complete survival to calculate survival. The method entails calculating survival for patients diagnosed in a particular calendar period. This was the method used in our 2003 report, which focused on patients diagnosed with cancer from 1990 to 1997 and followed until the end of 1999. The disadvantage of this method is that the estimates of survival are not up-to-date. For example, the survival one year after diagnosis was based upon data from all patients diagnosed between 1990 and 1997. In 1996, Brenner and Gefeller<sup>5</sup> introduced a new method of calculating survival, which they called “period survival”. Period survival is based upon the survival experience of patients in a specified calendar period and is more contemporary than complete survival. For this monograph, we have used period survival.

Period estimates of survival are less precise than cohort estimates. To provide more precise estimates, we used a model-based approach, which gives estimates that are both contemporary and precise<sup>6</sup>.

The primary focus of this monograph is on estimates of patient survival in 2004, which are based upon survival experience in the 5-year period 2000 to 2004. Estimates of 5-year survival are also provided for 2000, 1995 and 1990, which are derived from survival experience in the 5-year periods 1996-2000, 1991-1995 and 1986-1990 respectively.

All statistical analyses were performed using Stata<sup>7</sup>. Period survival was first calculated separately for each calendar year in the specified calendar period using Stata code written by Paul Dickman and Enzo Coviello<sup>8</sup>. For this analysis, the expected numbers of deaths were derived from age-, sex- and calendar period-specific Victorian life tables according to the Ederer II method<sup>9</sup>. Next, the output from these preliminary analyses was used to model survival probabilities for each combination of calendar year and year of follow-up within that period using a Poisson regression model with a user-defined link function<sup>10</sup>. Year of follow-up was included as a categorical variable and calendar year as a numerical variable. Survival estimates for the last calendar year of each period were derived from the regression coefficients by use of the Stata procedure `nlcom`, which uses the delta method to obtain 95% confidence intervals.

## Ad hoc requests for additional analyses

This reports includes survival analyses for the most common cancers in Victoria and some of their major morphological subsets. The authors would be happy to provide additional ad hoc analyses on request to clinicians or researchers requiring survival for less common cancers or additional subgroups by tumour subsite or morphology.

# Appendix III:

## References

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