

## Chapter 8

# Cancer survival in Tianjin, China, 1991–1999

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### Abstract

The Tianjin cancer registry was established in 1978, and registration of cases is done by the active method. The registry contributed data on 51 cancer sites or types registered during 1991–1999 for this survival study. Follow-up has been a mixture of both active and passive methods, with median follow-up ranging from 5–77 months. The proportion with histologically verified diagnosis for various cancers ranged from 21–95% and 97–100% of total registered cases were included for survival analysis. The top-ranking cancers by 5-year age-standardized relative survival (%) were renal pelvis (101%), lip (99%), corpus uteri (91%), penis and non-melanoma skin (90%) and thyroid (89%). The corresponding survival for common cancers were lung (31%), stomach (41%), liver (25%) and breast (82%). The 5-year relative survival by age group reveals an inverse relationship for a few cancers and fluctuated for most cancers. Period survival closely predicted the survival experience of cancer cases diagnosed in that period, with the 5-year relative survival in 1991–1995 by period approach being more or less similar to survival by cohort approach in 1996–1999 for most cancers.

### Tianjin cancer registry

The Tianjin cancer registry was established in 1978 at the Tianjin Cancer Institute and Hospital, Tianjin, and is partly funded by the Tianjin Health Bureau. The registry has been contributing data to the quinquennial IARC publication *Cancer Incidence in Five Continents* since Vol V [1]. Cancer is a notifiable disease, but registration of cases is done by active methods. The principal source of information is the report form filled by all physicians and medical clerks in the registry area for each new case diagnosed as malignant tumour. An active re-checking is done by the registry to review all patient records at every medical unit within the registry area to ensure completeness. The registry covers an area of 12 000 km<sup>2</sup> and caters to an entirely urban population of about 4 million with a sex ratio of 1010 females to 1000 males in 2000. The average annual age-standardized incidence rate is 200 per 100 000 among males and 152 per 100 000 among females with a lifetime cumulative risk of one in 5 of developing cancer in the period 1993–1997. The most common cancers among males are lung, stomach, liver and oesophagus. The rank order among females is lung, breast, stomach and liver [1].

The registry contributed data on survival from 51 cancer sites or types registered during 1991–1999 for the first time in this volume of the IARC publication on *Cancer survival in Africa, Asia, the Caribbean and Central America*. In the present volume, data on survival from 1981–1990 are also utilized to elicit the trend in cancer survival.

### Data quality indices (Table 1)

The proportion of cases having a histologically verified cancer diagnosis in the series is 55%, varying from 21% (liver cancer) to 95% (myeloid leukaemia). The proportion of cases registered based on a death certificate only (DCO) and cases excluded from the study without any follow-up information or due to other reasons is negligible. For cancers of the brain and central nervous system and other endocrine glands, the exclusions comprise benign or uncertain malignant cases. Thus, in the rest of cancers, 97–100% of the total cases registered are included in the estimation of the survival probability.

### Outcome of follow-up (Table 2)

Follow-up has been a mixture of both active and passive methods. These included obtaining cancer mortality information from the death certificates registered in local police station. The mortality data are periodically matched with the incident cancer database. The vital status of the unmatched incident cases is then collected by postal/telephone and house visit enquiries.

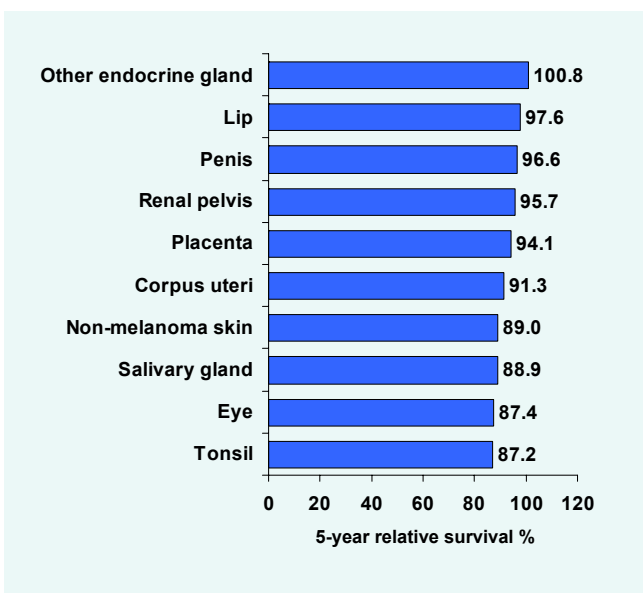
The closing date of follow-up was 31st December 2000. The median follow-up ranged from 5 months for cancer of the liver to 77 months for cancer of the placenta. The completeness of follow-up at 5 years from the incidence date is 100%, as there are no losses to follow-up.

## Survival statistics

### All ages and both sexes together (Table 3)

The top ranking cancers on 5-year relative survival are other endocrine gland (101%), lip (98%), penis (97%), renal pelvis (96%) and placenta (94%). The lowest survival rate is encountered with unspecified leukaemia and uterus (22%) preceded by liver (25%), bone (28%) and pancreas (30%). Salivary gland (89%) and tonsil (87%) among other head and neck cancers and anus (82%) among gastrointestinal cancers, have higher survival than others. Hodgkin lymphoma had a better survival (81%) than non-Hodgkin lymphoma (48%). The survival figures for haematopoietic malignancies are multiple myeloma (46%), lymphoid leukaemia (66%) and myeloid leukaemia (68%).

**Figure 1a. Top ten cancers (ranked by survival), Tianjin, China, 1991–1999**



The 5-year age-standardized relative survival (ASRS) probability for all ages together is observed to be greater than or similar to the corresponding unadjusted one for a majority of cancers. Also, the 5-year ASRS (0–74 years of age) is generally higher than or similar to the corresponding ASRS (all ages) for a majority of cancers.

### Sex

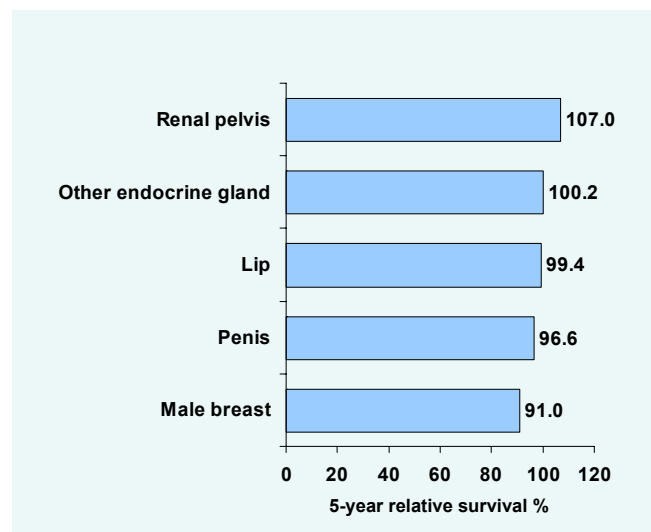
#### Male (Table 4a)

The top ranking cancers on 5-year relative survival are renal pelvis (107%), other endocrine gland (100%), lip (99%), penis (97%) and breast (91%). Survival from prostate and testicular cancers are 72% and 69%,

respectively. A notably higher survival for cancers of the larynx, kidney, renal pelvis, ureter and bladder is seen among males than females.

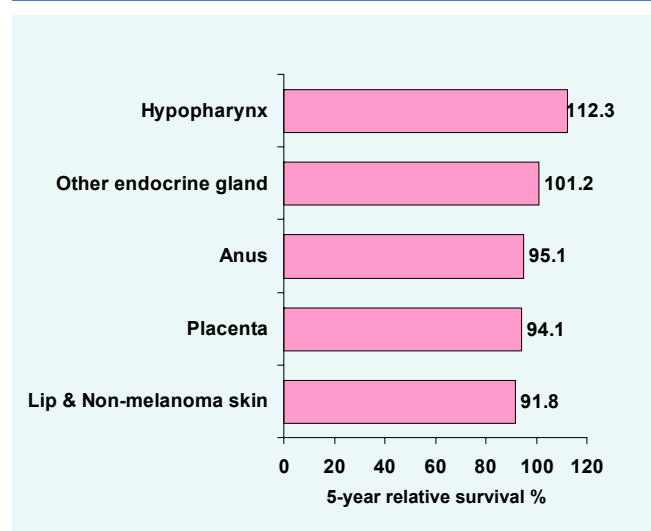
#### Female (Table 4b)

**Figure 1b. Top five cancers (ranked by survival), Male, Tianjin, China, 1991–1999**



The highest 5-year relative survival is observed in cancer of the hypopharynx followed by other endocrine gland, anus, placenta, lip and non-melanoma skin cancers. Survival from cancers of the breast, cervix, corpus uteri and ovary are 85%, 62%, 91% and 64%, respectively. Survival is distinctly higher among females than males in cancers of tongue, hypopharynx, anus, mesothelioma and multiple myeloma.

**Figure 1c. Top five cancers (ranked by survival), Female, Tianjin, China, 1991–1999**



### Age group (Table 4c)

The 5-year relative survival by age group reveals an inverse relationship: a decreasing survival with increasing age at diagnosis for many cancers like nasopharynx, lung, bone, breast, uterus (unspecified), thyroid, adrenal gland and non-Hodgkin lymphoma. In the rest, it is observed to fluctuate.

### Survival trend (Table 5)

The data on survival trend is available for all cancer sites or types spanning 19 years in the two time periods 1981–1990 and 1991–1999. An increasing trend in the 5-year relative survival estimates to the tune of an absolute difference of 10% between 1981–1990 and 1991–1999 is observed in cancers of the tongue, salivary gland, tonsil, hypopharynx, colon, rectum, anus, gallbladder, nose/sinuses, non-melanoma skin, mesothelioma, penis, prostate, ureter, urinary bladder, eye, Hodgkin lymphoma, multiple myeloma and myeloid leukaemia. A decreasing survival is noted for cancers of the uterus (unspecified), testis, vulva, lip, oral cavity and non-Hodgkin lymphoma.

### Trend of survival estimated by period and cohort approaches (Table 6)

The availability of data on registration and follow-up together for both a long and more recent period of calendar time led to the possibility of estimating up-to-date survival and trend by period approach. Survival is also estimated by cohort approach for comparison.

The 5-year relative survival estimates for the calendar period 1991–1995 by period approach seem to be approximately similar to the survival estimates obtained by cohort approach for the period 1996–1999 for most cancers. Thus, period survival closely predicts the survival experience of most cancer cases diagnosed in that period. However, this seems to vary for the earlier calendar periods, indicating some limitation in the ascertainment of follow-up in those periods, especially mortality.

### References

1. Parkin DM, Whelan SL, Ferlay J and Storm H. *Cancer Incidence in Five Continents, Vol I to VIII: IARC Cancerbase No. 7*. IARC Press, Lyon, 2005.

**Table 1. Data quality indices - Proportion of histologically verified and death certificate only cases, number and proportion of included and excluded cases by site: Tianjin, China, 1991–1999 cases followed-up until 2000**

Site	ICD-10	Total registered	%		Excluded cases					Included cases	
			HV	DCO	DCO	Follow-up	Others	Total	%	No.	%
Lip	C00	53	86.8	0.0	0	0	0	0	0.0	53	100.0
Tongue	C01-02	187	78.1	0.0	0	0	0	0	0.0	187	100.0
Oral cavity	C03-06	256	78.1	0.4	1	2	0	3	1.2	253	98.8
Salivary gland	C07-08	141	84.4	0.0	0	0	0	0	0.0	141	100.0
Tonsil	C09	25	84.0	0.0	0	0	0	0	0.0	25	100.0
Nasopharynx	C11	421	69.8	0.0	0	0	0	0	0.0	421	100.0
Hypopharynx	C12-13	47	72.3	0.0	0	0	0	0	0.0	47	100.0
Oesophagus	C15	3 214	47.2	0.0	0	6	0	6	0.2	3 208	99.8
Stomach	C16	7 534	54.1	0.0	2	16	0	18	0.2	7 516	99.8
Small intestine	C17	181	70.7	0.0	0	0	0	0	0.0	181	100.0
Colon	C18	2 664	66.4	0.0	0	6	3	9	0.3	2 655	99.7
Rectum	C19-20	2 508	70.5	0.0	1	6	0	7	0.3	2 501	99.7
Anus	C21	46	82.6	0.0	0	0	0	0	0.0	46	100.0
Liver	C22	6 547	20.8	0.0	1	20	1	22	0.3	6 525	99.7
Gall bladder	C23-24	1 046	47.0	0.0	0	2	2	4	0.4	1 042	99.6
Pancreas	C25	1 994	31.7	0.0	0	4	0	4	0.2	1 990	99.8
Nose/Sinuses	C30-31	170	77.6	0.0	0	0	3	3	1.8	167	98.2
Larynx	C32	1 040	73.2	0.1	1	0	0	1	0.1	1 039	99.9
Lung	C33-34	21 456	38.8	0.0	1	52	0	53	0.2	21 403	99.8
Other thoracic organs	C37-38	245	47.3	0.0	0	1	0	1	0.4	244	99.6
Bone	C40-41	690	46.5	0.0	0	1	3	4	0.6	686	99.4
Melanoma of skin	C43	119	86.6	0.0	0	0	0	0	0.0	119	100.0
Other skin	C44	351	87.2	0.0	0	0	1	1	0.3	350	99.7
Mesothelioma	C45	84	76.2	0.0	0	0	0	0	0.0	84	100.0
Connective tissue	C47+C49	426	89.2	0.0	0	0	1	1	0.2	425	99.8
Breast	C50	5 876	86.1	0.0	2	3	8	13	0.2	5 863	99.8
Vulva	C51	58	91.4	0.0	0	1	0	1	1.7	57	98.3
Cervix	C53	568	74.8	0.0	0	1	0	1	0.2	567	99.8
Corpus uteri	C54	722	94.6	0.0	0	0	0	0	0.0	722	100.0
Uterus unspecified	C55	287	50.2	0.0	0	0	0	0	0.0	287	100.0
Ovary	C56	1 127	77.0	0.0	0	2	1	3	0.3	1 124	99.7
Other female genital org.	C57	52	73.1	0.0	0	0	0	0	0.0	52	100.0
Placenta	C58	62	77.4	0.0	0	0	0	0	0.0	62	100.0
Penis	C60	65	83.1	0.0	0	0	0	0	0.0	65	100.0
Prostate	C61	423	59.6	0.0	0	0	0	0	0.0	423	100.0
Testis	C62	73	84.9	0.0	0	0	0	0	0.0	73	100.0
Kidney	C64	1 096	57.8	0.0	0	2	0	2	0.2	1 094	99.8
Renal pelvis	C65	146	76.7	0.0	0	0	0	0	0.0	146	100.0
Ureter	C66	63	87.3	0.0	0	0	0	0	0.0	63	100.0
Urinary bladder	C67	2 023	68.1	0.0	0	2	1	3	0.1	2 020	99.9
Eye	C69	36	80.6	0.0	0	1	0	1	2.8	35	97.2
Brain & nervous system	C70-72	2 584	51.9	0.1	3	4	633	640	24.8	1 944	75.2
Thyroid	C73	619	83.5	0.0	0	0	1	1	0.2	618	99.8
Adrenal gland	C74	58	70.7	0.0	0	0	5	5	8.6	53	91.4
Other endocrine	C75	413	73.4	0.2	1	0	291	292	70.7	121	29.3
Hodgkin lymphoma	C81	123	89.4	0.0	0	0	0	0	0.0	123	100.0
Non-Hodgkin lymphoma	C82-85+C96	1 484	77.8	0.0	0	2	1	3	0.2	1 481	99.8
Multiple myeloma	C90	217	72.8	0.0	0	0	0	0	0.0	217	100.0

Table 1 (Continued).

Site	ICD-10	Total registered	%		Excluded cases					Included cases	
			HV	DCO	DCO	Follow-up	Others	Total	%	No.	%
Lymphoid leukaemia	C91	309	93.9	0.0	0	0	0	0	0.0	309	100.0
Myeloid leukaemia	C92-94	568	95.2	0.0	0	1	0	1	0.2	567	99.8
Leukaemia unspecified	C95	614	69.5	0.0	0	3	0	3	0.5	611	99.5

*HV: histologically verified; DCO: death certificate only*

**Table 2. Number and proportion of cases by vital status and median follow-up (in months) by site: Tianjin, China, 1991–1999 cases followed-up until 2000**

Site	ICD-10	Cases included	Dead		Alive		Complete FU		Median FU (in months)
			No.	%	No.	%	No.	%	
Lip	C00	53	9	17.0	44	83.0	53	100.0	49.6
Tongue	C01-02	187	80	42.8	107	57.2	187	100.0	34.4
Oral cavity	C03-06	253	111	43.9	142	56.1	253	100.0	32.4
Salivary gland	C07-08	141	28	19.9	113	80.1	141	100.0	50.6
Tonsil	C09	25	6	24.0	19	76.0	25	100.0	45.6
Nasopharynx	C11	421	198	47.0	223	53.0	421	100.0	34.4
Hypopharynx	C12-13	47	17	36.2	30	63.8	47	100.0	31.4
Oesophagus	C15	3 208	2 316	72.2	892	27.8	3 208	100.0	10.1
Stomach	C16	7 516	4 829	64.2	2 687	35.8	7 516	100.0	13.1
Small intestine	C17	181	83	45.9	98	54.1	181	100.0	25.3
Colon	C18	2 655	1 205	45.4	1 450	54.6	2 655	100.0	26.2
Rectum	C19-20	2 501	1 195	47.8	1 306	52.2	2 501	100.0	26.3
Anus	C21	46	15	32.6	31	67.4	46	100.0	28.9
Liver	C22	6 525	5 057	77.5	1 468	22.5	6 525	100.0	5.0
Gall bladder	C23-24	1 042	620	59.5	422	40.5	1 042	100.0	12.1
Pancreas	C25	1 990	1 468	73.8	522	26.2	1 990	100.0	6.9
Nose/Sinuses	C30-31	167	68	40.7	99	59.3	167	100.0	30.4
Larynx	C32	1 039	454	43.7	585	56.3	1 039	100.0	31.4
Lung	C33-34	21 403	15 546	72.6	5 857	27.4	21 403	100.0	9.0
Other thoracic organs	C37-38	244	129	52.9	115	47.1	244	100.0	18.7
Bone	C40-41	686	505	73.6	181	26.4	686	100.0	9.6
Melanoma of skin	C43	119	53	44.5	66	55.5	119	100.0	30.4
Other skin	C44	350	92	26.3	258	73.7	350	100.0	49.6
Mesothelioma	C45	84	42	50.0	42	50.0	84	100.0	20.3
Connective tissue	C47+C49	425	115	27.1	310	72.9	425	100.0	44.6
Breast	C50	5 863	1 106	18.9	4 757	81.1	5 863	100.0	48.6
Vulva	C51	57	20	35.1	37	64.9	57	100.0	33.4
Cervix	C53	567	258	45.5	309	54.5	567	100.0	37.4
Corpus uteri	C54	722	98	13.6	624	86.4	722	100.0	50.6
Uterus unspecified	C55	287	225	78.4	62	21.6	287	100.0	13.1
Ovary	C56	1 124	428	38.1	696	61.9	1 124	100.0	29.3
Other female genital org.	C57	52	19	36.5	33	63.5	52	100.0	44.1
Placenta	C58	62	4	6.5	58	93.5	62	100.0	77.1
Penis	C60	65	16	24.6	49	75.4	65	100.0	46.6
Prostate	C61	423	191	45.2	232	54.8	423	100.0	29.3
Testis	C62	73	23	31.5	50	68.5	73	100.0	38.4
Kidney	C64	1 094	491	44.9	603	55.1	1 094	100.0	26.3
Renal pelvis	C65	146	28	19.2	118	80.8	146	100.0	47.6
Ureter	C66	63	19	30.2	44	69.8	63	100.0	27.3
Urinary bladder	C67	2 020	794	39.3	1 226	60.7	2 020	100.0	33.9
Eye	C69	35	7	20.0	28	80.0	35	100.0	56.7
Brain & nervous system	C70-72	1 944	1 149	59.1	795	40.9	1 944	100.0	14.1
Thyroid	C73	618	124	20.1	494	79.9	618	100.0	45.6
Adrenal gland	C74	53	16	30.2	37	69.8	53	100.0	52.6
Other endocrine	C75	121	4	3.3	117	96.7	121	100.0	74.0
Hodgkin lymphoma	C81	123	25	20.3	98	79.7	123	100.0	55.7
Non-Hodgkin lymphoma	C82-85+C96	1 481	817	55.2	664	44.8	1 481	100.0	17.2

Table 2 (Continued).

Site	ICD-10	Cases included	Dead		Alive		Complete FU		Median FU (in months)
			No.	%	No.	%	No.	%	
Multiple myeloma	C90	217	119	54.8	98	45.2	217	100.0	17.2
Lymphoid leukaemia	C91	309	116	37.5	193	62.5	309	100.0	45.6
Myeloid leukaemia	C92-94	567	207	36.5	360	63.5	567	100.0	40.5
Leukaemia unspecified	C95	611	487	79.7	124	20.3	611	100.0	7.0

*FU: follow-up*

**Table 3. Comparison of 1-, 3- and 5-year absolute and relative survival and 5-year age-standardized relative survival by site: Tianjin, China, 1991–1999 cases followed-up until 2000**

Site	ICD-10	Cases included	% Absolute survival			% Relative survival			% ASRS at 5-years	
			1-year	3-year	5-year	1-year	3-year	5-year	all ages	0-74 years
Lip	C00	53	92.5	86.4	80.3	96.0	97.2	97.6	99.3	99.3
Tongue	C01-02	187	71.1	59.2	59.2	72.9	63.9	67.8	68.3	68.2
Oral cavity	C03-06	253	71.5	59.8	55.6	73.7	65.4	64.6	68.4	69.2
Salivary gland	C07-08	141	88.7	79.7	78.7	90.7	85.4	88.9	87.2	88.3
Tonsil	C09	25	88.0	79.0	72.7	90.4	87.1	87.2	75.6	68.3
Nasopharynx	C11	421	75.3	60.9	50.5	76.7	64.3	55.3	54.1	57.6
Hypopharynx	C12-13	47	74.5	65.4	65.4	77.2	72.9	78.6	80.9	82.3
Oesophagus	C15	3 208	46.2	28.7	26.9	48.3	32.6	33.4	36.7	40.3
Stomach	C16	7 516	52.3	36.8	34.4	54.3	40.9	41.3	41.1	44.2
Small intestine	C17	181	71.3	55.7	50.4	72.9	59.7	57.4	53.9	57.8
Colon	C18	2 655	69.5	55.6	52.5	71.6	60.9	61.4	61.3	61.9
Rectum	C19-20	2 501	73.2	55.4	48.1	75.4	60.5	56.0	53.0	58.1
Anus	C21	46	80.4	66.2	66.2	84.0	75.1	81.9	81.0	77.8
Liver	C22	6 525	32.5	22.6	21.3	33.5	24.8	25.1	25.4	25.8
Gall bladder	C23-24	1 042	49.9	40.3	39.1	51.8	45.0	47.3	47.5	50.3
Pancreas	C25	1 990	36.4	26.0	25.2	37.6	28.6	29.8	30.3	31.0
Nose/Sinuses	C30-31	167	77.2	62.9	58.5	78.9	67.4	66.6	72.6	61.6
Larynx	C32	1 039	76.1	58.5	54.0	78.8	64.9	64.6	65.1	69.7
Lung	C33-34	21 403	43.6	27.6	25.7	45.1	30.7	30.9	31.3	32.3
Other thoracic organs	C37-38	244	59.4	48.5	46.2	60.9	51.9	51.8	50.5	52.1
Bone	C40-41	686	45.3	27.6	25.0	46.5	29.5	27.8	25.7	29.8
Melanoma of skin	C43	119	77.3	59.8	56.0	79.6	65.0	63.9	57.9	62.8
Other skin	C44	350	82.6	76.3	72.8	85.7	85.5	89.0	89.7	86.7
Mesothelioma	C45	84	58.3	49.8	49.8	60.1	54.4	58.5	60.6	58.1
Connective tissue	C47+C49	425	83.3	73.3	71.9	85.0	77.9	79.8	81.0	78.7
Breast	C50	5 863	91.8	84.3	79.8	92.9	87.2	84.8	82.3	85.6
Vulva	C51	57	84.2	66.7	61.2	86.5	72.6	71.3	71.6	74.3
Cervix	C53	567	71.8	58.5	53.8	73.8	63.7	62.4	68.5	70.5
Corpus uteri	C54	722	92.2	87.3	85.5	93.3	90.6	91.3	91.0	91.3
Uterus unspecified	C55	287	55.7	27.0	18.9	57.4	29.5	22.0	25.0	29.1
Ovary	C56	1 124	77.2	62.7	59.7	78.2	65.1	63.6	62.1	64.4
Other female genital org.	C57	52	80.8	66.1	60.9	81.9	68.6	64.3	49.9	67.5
Placenta	C58	62	96.8	93.3	93.3	97.0	93.8	94.1	60.1	60.0
Penis	C60	65	81.5	75.1	75.1	85.7	87.1	96.6	89.6	79.0
Prostate	C61	423	74.5	59.2	52.5	79.1	71.2	72.0	71.4	68.4
Testis	C62	73	78.1	68.8	66.8	78.8	70.0	68.6	74.9	76.4
Kidney	C64	1 094	69.6	57.8	52.6	71.7	62.9	60.6	59.0	65.7
Renal pelvis	C65	146	89.7	81.0	78.8	92.7	90.4	95.7	101.2	93.9
Ureter	C66	63	82.5	72.0	63.1	84.8	78.4	74.4	65.3	77.9
Urinary bladder	C67	2 020	76.6	63.9	59.6	80.2	73.0	74.6	73.4	81.1
Eye	C69	35	88.6	79.1	79.1	90.5	83.8	87.4	84.5	100.3
Brain & nervous system	C70-72	1 944	54.8	42.5	39.9	55.8	44.6	43.3	48.1	49.5
Thyroid	C73	618	85.3	80.8	79.4	86.7	84.3	85.4	88.6	89.1
Adrenal gland	C74	53	77.4	69.7	69.7	78.2	71.8	73.5	69.2	69.2
Other endocrine	C75	121	96.7	96.7	96.7	97.4	98.9	100.8	76.4	105.2
Hodgkin lymphoma	C81	123	91.1	83.7	77.8	92.0	86.0	81.1	81.0	81.9
Non-Hodgkin lymphoma	C82-85+C96	1 481	60.1	46.5	42.8	61.6	49.8	48.0	51.1	53.2



Table 3 (Continued).

Site	ICD-10	Cases included	% Absolute survival			% Relative survival			% ASRS at 5-years	
			1-year	3-year	5-year	1-year	3-year	5-year	all ages	0-74 years
Multiple myeloma	C90	217	60.4	44.6	40.6	61.8	47.8	45.7	46.2	46.1
Lymphoid leukaemia	C91	309	76.7	64.2	61.6	77.7	66.7	66.0	68.8	64.9
Myeloid leukaemia	C92-94	567	75.5	66.5	63.1	76.5	69.2	67.6	68.2	68.0
Leukaemia unspecified	C95	611	42.2	22.7	19.4	43.2	24.3	21.8	21.9	22.0

ASRS: age-standardized relative survival

**Table 4a. Site-wise number of cases, 5-year absolute and relative survival by sex: Tianjin, China, 1991–1999 cases followed-up until 2000**

Site	ICD-10	Cases included	Male			Female		
			% 5-year survival			% 5-year survival		
			No.	Abs	Rel	No.	Abs	Rel
Lip	C00	53	41	79.9	99.4	12	83.3	91.8
Tongue	C01-02	187	97	54.0	62.4	90	64.9	73.5
Oral cavity	C03-06	253	139	54.6	65.9	114	56.9	63.2
Salivary gland	C07-08	141	75	79.3	90.9	66	77.5	86.2
Tonsil	C09	25	12	63.9	84.6	13	83.1	89.5
Nasopharynx	C11	421	299	47.9	53.3	122	56.1	59.8
Hypopharynx	C12-13	47	41	60.4	73.7	6	100.0	112.3
Oesophagus	C15	3 208	2 198	27.5	35.0	1 010	25.5	30.0
Stomach	C16	7 516	5 286	34.7	42.9	2 230	33.6	37.8
Small intestine	C17	181	96	49.8	58.0	85	51.1	56.8
Colon	C18	2 655	1 399	53.9	64.7	1 256	51.0	57.8
Rectum	C19-20	2 501	1 304	49.6	59.3	1 197	46.6	52.5
Anus	C21	46	21	51.3	65.6	25	78.9	95.1
Liver	C22	6 525	4 606	22.7	27.0	1 919	18.0	20.8
Gall bladder	C23-24	1 042	525	38.3	48.3	517	40.0	46.3
Pancreas	C25	1 990	1 121	26.8	32.6	869	23.1	26.3
Nose/Sinuses	C30-31	167	108	57.5	66.8	59	60.7	66.4
Larynx	C32	1 039	682	55.6	68.4	357	51.1	57.6
Lung	C33-34	21 403	12 575	27.5	33.8	8 828	23.2	26.7
Other thoracic organs	C37-38	244	149	45.7	52.0	95	47.2	51.8
Bone	C40-41	686	360	25.3	28.8	326	24.6	26.7
Melanoma of skin	C43	119	68	57.4	67.6	51	54.0	59.1
Other skin	C44	350	200	68.7	86.9	150	78.2	91.8
Mesothelioma	C45	84	51	45.0	54.6	33	57.4	64.5
Connective tissue	C47+C49	425	252	70.0	79.7	173	74.6	80.0
Breast	C50	5 863	44	77.6	91.0	5 819	79.8	84.7
Vulva	C51	57				57	61.2	71.3
Cervix	C53	567				567	53.8	62.4
Corpus uteri	C54	722				722	85.5	91.3
Uterus unspecified	C55	287				287	18.9	22.0
Ovary	C56	1 124				1 124	59.7	63.6
Other female genital org.	C57	52				52	60.9	64.3
Placenta	C58	62				62	93.3	94.1
Penis	C60	65	65	75.1	96.6			
Prostate	C61	423	423	52.5	72.0			
Testis	C62	73	73	66.8	68.6			
Kidney	C64	1 094	732	54.4	63.9	362	49.2	54.2
Renal pelvis	C65	146	93	85.2	107.0	53	67.5	76.4
Ureter	C66	63	36	71.7	84.6	27	43.1	51.0
Urinary bladder	C67	2 020	1 552	61.4	78.0	468	53.5	64.0
Eye	C69	35	19	77.2	89.6	16	81.0	84.7
Brain & nervous system	C70-72	1 944	1 005	40.0	43.5	939	39.8	43.1
Thyroid	C73	618	172	72.7	81.3	446	82.0	86.9
Adrenal gland	C74	53	30	66.4	70.5	23	73.9	77.1
Other endocrine	C75	121	58	94.8	100.2	63	98.4	101.2
Hodgkin lymphoma	C81	123	78	77.1	80.9	45	79.2	81.6

Table 4a (Continued).

Site	ICD-10	Cases included	Male			Female		
			% 5-year survival			% 5-year survival		
			No.	Abs	Rel	No.	Abs	Rel
Non-Hodgkin lymphoma	C82-85+C96	1 481	835	44.2	50.4	646	41.0	44.9
Multiple myeloma	C90	217	143	31.9	36.2	74	57.6	63.9
Lymphoid leukaemia	C91	309	185	63.9	69.4	124	58.1	60.9
Myeloid leukaemia	C92-94	567	339	62.6	68.3	228	63.7	66.6
Leukaemia unspecified	C95	611	350	19.3	22.2	261	19.6	21.3

*Abs: absolute survival; Rel: relative survival*

Table 4b. Site-wise number of cases and relative survival by age group: Tianjin, China, 1991–1999 cases followed-up until 2000

Site	ICD-10	Cases included	Number of cases by age group					Relative survival by age group				
			< 45	45-54	55-64	65-74	> 75	% 5-year survival				
								< 45	45-54	55-64	65-74	> 75
Lip	C00	53	2	6	12	24	9	100.8	104.3	98.9	89.0	113.3
Tongue	C01-02	187	20	30	52	61	24	71.0	67.9	71.1	62.4	73.6
Oral cavity	C03-06	253	34	28	59	90	42	76.8	80.3	67.8	53.0	65.4
Salivary gland	C07-08	141	39	19	32	30	21	95.6	82.7	82.3	97.2	79.2
Tonsil	C09	25	1	4	10	8	2	0.0	102.6	97.5	45.6	206.8
Nasopharynx	C11	421	96	89	117	93	26	61.1	60.2	58.7	43.8	42.1
Hypopharynx	C12-13	47	3	4	11	23	6	101.3	77.2	79.8	77.3	75.3
Oesophagus	C15	3 208	60	180	642	1 324	1 002	42.9	47.6	42.1	31.7	27.0
Stomach	C16	7 516	596	725	1 705	2 835	1 655	46.9	47.2	42.4	42.1	35.0
Small intestine	C17	181	22	33	47	65	14	59.4	51.8	52.2	67.4	46.8
Colon	C18	2 655	282	298	628	939	508	62.7	65.6	60.1	61.6	62.9
Rectum	C19-20	2 501	287	305	627	830	452	55.4	57.3	58.8	59.6	45.3
Anus	C21	46	4	6	3	20	13	75.6	86.4		82.8	85.4
Liver	C22	6 525	574	861	1 754	2 198	1 138	26.6	27.2	24.7	25.0	24.8
Gall bladder	C23-24	1 042	41	73	222	436	270	51.4	53.5	49.1	49.0	42.3
Pancreas	C25	1 990	131	196	517	759	387	38.7	30.6	30.6	28.1	30.7
Nose/Sinuses	C30-31	167	42	21	44	43	17	75.9	47.4	55.7	64.8	106.0
Larynx	C32	1 039	40	77	318	402	202	72.0	74.0	68.1	67.5	48.5
Lung	C33-34	21 403	764	1 640	5 680	9 162	4 157	36.9	36.1	30.7	30.5	29.8
Other thoracic organs	C37-38	244	62	29	59	60	34	60.0	52.3	50.6	47.0	49.2
Bone	C40-41	686	173	66	137	190	120	49.2	37.7	22.1	15.8	14.2
Melanoma of skin	C43	119	25	12	31	31	20	58.7	43.1	73.8	84.1	39.2
Other skin	C44	350	42	39	69	116	84	88.6	92.8	81.7	86.6	101.5
Mesothelioma	C45	84	16	8	17	27	16	62.9	77.4	44.8	53.2	69.6
Connective tissue	C47+C49	425	155	58	82	78	52	80.4	72.8	70.9	89.2	92.6
Breast	C50	5 863	1 731	1 594	1 295	901	342	88.3	85.1	84.2	84.1	68.1
Vulva	C51	57	4	7	19	12	15	76.0	65.8	71.3	84.2	61.8
Cervix	C53	567	41	42	111	235	138	79.1	72.5	62.1	62.4	54.4
Corpus uteri	C54	722	116	186	243	150	27	91.7	92.8	90.6	90.8	89.6
Uterus unspecified	C55	287	23	34	59	90	81	49.3	32.0	26.4	15.8	13.9
Ovary	C56	1 124	316	256	245	229	78	77.4	62.7	55.9	56.4	51.2
Other female genital org.	C57	52	12	11	11	16	2	82.7	89.4	74.9	31.1	0.0
Placenta	C58	62	54	6	2	0	0	96.6	102.1	0.0		
Penis	C60	65	10	5	8	21	21	81.1	62.3	68.4	103.5	133.2
Prostate	C61	423	8	4	57	183	171	38.1	39.5	61.7	77.6	74.5
Testis	C62	73	52	5	10	4	2	82.7	61.9	29.2		0.0
Kidney	C64	1 094	115	169	292	342	176	71.0	73.1	61.4	61.1	38.2
Renal pelvis	C65	146	6	15	37	65	23	101.3	89.6	96.9	87.2	126.2
Ureter	C66	63	4	5	22	25	7	101.0		65.1	97.0	40.2
Urinary bladder	C67	2 020	113	149	386	773	599	90.8	81.3	84.6	75.2	62.6
Eye	C69	35	16	2	3	10	4	80.2	102.2	106.5	110.4	38.9
Brain & nervous system	C70-72	1 944	596	272	408	480	188	58.4	48.8	39.8	28.2	32.0
Thyroid	C73	618	212	119	113	112	62	98.0	93.6	83.5	67.5	59.9
Adrenal gland	C74	53	25	9	7	12	0	80.9	80.5	61.8	60.3	
Other endocrine	C75	121	67	25	17	11	1	99.5	98.8	108.3	111.7	0.0
Hodgkin lymphoma	C81	123	68	18	18	13	6	82.9	67.2	90.2	100.7	
Non-Hodgkin lymphoma	C82-85+C96	1 481	322	202	344	401	212	57.3	55.8	50.1	43.0	31.8

Table 4b (Continued).

Site	ICD-10	Cases included	Number of cases by age group					Relative survival by age group				
								% 5-year survival				
			< 45	45-54	55-64	65-74	> 75	< 45	45-54	55-64	65-74	> 75
Multiple myeloma	C90	217	31	32	61	73	20	37.4	48.9	49.3	46.1	52.5
Lymphoid leukaemia	C91	309	168	33	44	46	18	62.8	62.8	66.5	74.0	91.1
Myeloid leukaemia	C92-94	567	267	88	90	93	29	70.8	65.2	60.8	68.4	72.8
Leukaemia unspecified	C95	611	233	62	101	126	89	22.4	20.4	24.6	19.4	21.9

**Table 5. Comparison of 5-year absolute and relative survival of cases diagnosed between 1981–1990 and 1991–1999, Tianjin, China**

Site	ICD-10	% 5-year absolute survival		% 5-year relative survival	
		1981–1990	1991–1999	1981–1990	1991–1999
Lip	C00	84.8	80.3	103.3	97.6
Tongue	C01-02	46.7	59.2	53.9	67.8
Oral cavity	C03-06	61.1	55.6	68.9	64.6
Salivary gland	C07-08	67.5	78.7	72.3	88.9
Tonsil	C09	37.5	72.7	40.4	87.2
Nasopharynx	C11	50.8	50.5	55.1	55.3
Hypopharynx	C12-13	49.3	65.4	56.4	78.6
Oesophagus	C15	23.1	26.9	27.9	33.4
Stomach	C16	28.5	34.4	33.4	41.3
Small intestine	C17	50.0	50.4	55.2	57.4
Colon	C18	43.8	52.5	49.4	61.4
Rectum	C19-20	40.4	48.1	45.8	56.0
Anus	C21	42.9	66.2	49.2	81.9
Liver	C22	15.1	21.3	17.4	25.1
Gall bladder	C23-24	31.7	39.1	36.6	47.3
Pancreas	C25	20.3	25.2	23.4	29.8
Nose/Sinuses	C30-31	47.6	58.5	52.2	66.6
Larynx	C32	53.1	54.0	60.9	64.6
Lung	C33-34	24.5	25.7	28.2	30.9
Other thoracic organs	C37-38	42.9	46.2	46.7	51.8
Bone	C40-41	24.8	25.0	27.6	27.8
Melanoma of skin	C43	54.1	56.0	62.5	63.9
Other skin	C44	57.6	72.8	69.1	89.0
Mesothelioma	C45	29.6	49.8	32.9	58.5
Connective tissue	C47+C49	67.6	71.9	73.8	79.8
Breast	C50	75.4	79.8	80.1	84.8
Vulva	C51	67.7	61.2	77.6	71.3
Cervix	C53	55.3	53.8	62.0	62.4
Corpus uteri	C54	77.5	85.5	82.8	91.3
Uterus unspecified	C55	36.6	18.9	41.8	22.0
Ovary	C56	52.4	59.7	55.7	63.6
Other female genital org.	C57	56.8	60.9	60.2	64.3
Placenta	C58	85.0	93.3	86.0	94.1
Penis	C60	61.1	75.1	76.7	96.6
Prostate	C61	41.0	52.5	56.0	72.0
Testis	C62	73.1	66.8	75.9	68.6
Kidney	C64	48.6	52.6	55.5	60.6
Renal pelvis	C65	80.0	78.8	90.5	95.7
Ureter	C66	54.5	63.1	59.3	74.4
Urinary bladder	C67	53.8	59.6	63.9	74.6
Eye	C69	65.1	79.1	71.0	87.4
Brain & nervous system	C70-72	38.8	39.9	40.9	43.3
Thyroid	C73	78.2	79.4	82.1	85.4
Adrenal gland	C74	60.0	69.7	64.5	73.5
Other endocrine	C75	89.2	96.7	92.1	100.8
Hodgkin lymphoma	C81	59.8	77.8	61.4	81.1
Non-Hodgkin lymphoma	C82-85+C96	44.5	42.8	49.2	48.0

Table 5 (Continued).

Site	ICD-10	% 5-year absolute survival		% 5-year relative survival	
		1981–1990	1991–1999	1981–1990	1991–1999
Multiple myeloma	C90	19.2	40.6	22.2	45.7
Lymphoid leukaemia	C91	58.2	61.6	61.6	66.0
Myeloid leukaemia	C92-94	44.5	63.1	46.9	67.6
Leukaemia unspecified	C95	13.1	19.4	14.4	21.8

**Table 6. Up-to-date 5-year relative survival estimates using cohort and period approaches by site and calendar period: Tianjin, China, 1981–1999 cases followed-up until 2000**

Site	ICD-10	Period approach			Cohort approach		
		1986–90	1991–95	1986–99	1986–90	1991–95	1996–99
Tongue	C01-02	52.1	74.6	69.7	46.9	59.3	78.2
Oral cavity	C03-06	72.6	62.2	68.4	58.3	76.2	61.6
Salivary gland	C07-08	82.0	82.2	89.4	60.0	80.8	87.9
Nasopharynx	C11	57.5	57.3	59.2	44.6	64.1	54.0
Oesophagus	C15	29.9	35.2	34.9	18.7	37.1	33.0
Stomach	C16	34.9	42.4	42.1	23.4	42.5	39.7
Small intestine	C17	59.9	68.3	59.5	39.0	67.2	66.1
Colon	C18	47.8	58.5	63.9	38.1	57.3	54.8
Rectum	C19-20	46.8	53.8	58.8	31.4	57.0	47.8
Liver	C22	16.8	25.2	26.4	10.2	23.7	23.7
Gall bladder	C23-24	37.4	42.2	52.6	27.0	42.3	38.7
Pancreas	C25	21.6	28.8	31.7	15.0	29.5	27.0
Larynx	C32	59.6	63.8	67.1	53.3	67.1	60.5
Lung	C33	28.6	33.6	31.0	17.9	35.5	30.9
Other thoracic organs	C37-38	50.4	48.5	52.5	36.2	54.9	48.9
Bone	C40-41	23.9	28.9	30.8	23.5	31.2	30.4
Melanoma of skin	C43	62.1	75.2	58.3	51.9	68.8	67.5
Other skin	C44	64.9	87.4	91.9	65.6	73.2	90.9
Breast	C50	79.9	85.2	85.4	72.7	84.9	83.3
Cervix	C53	63.4	64.4	67.1	57.2	69.3	63.1
Corpus uteri	C54	85.5	93.3	91.8	73.1	91.0	91.3
Ovary	C56	30.6	62.8	66.6	40.7	56.8	60.3
Prostate	C61	46.5	66.5	78.5	44.6	63.5	63.9
Testis	C62	86.9	67.5	73.6	64.8	85.4	60.3
Kidney	C64	41.1	60.0	61.1	64.5	54.8	61.5
Urinary bladder	C67	62.4	74.7	74.9	56.4	69.7	73.9
Brain & nervous system	C70-72	34.5	46.2	42.2	37.8	43.5	43.9
Thyroid	C73	80.9	85.6	84.3	79.5	84.0	86.0
Non-Hodgkin lymphoma	C82-85+C96	48.7	49.9	49.8	42.1	54.3	45.6
Multiple myeloma	C90	22.0	26.0	51.1	17.3	25.5	29.3
Lymphoid leukaemia	C91	70.1	77.6	59.1	39.1	77.4	72.7
Myeloid leukaemia	C92-94	53.3	77.2	60.9	25.3	63.4	74.1
Leukaemia unspecified	C95	16.3	18.4	22.2	11.3	17.6	22.3