

Cancer Survival in Singapore 1968-2002

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* Previously called the National Disease Registries Office, National Registry of Diseases Office acquired its current name when the National Registry of Diseases Act came into place in December 2007

Previous Publications

1. K Shanmugaratnam, HP Lee, NE Day: Cancer Incidence in Singapore 1968-1977. IARC Scientific Publications No. 47, 1983.
2. HP Lee, NE Day, K Shanmugaratnam: Trends in Cancer Incidence in Singapore 1968-1982. IARC Scientific Publications No. 91, 1988.
3. HP Lee, KS Chia, K Shanmugaratnam: Cancer Incidence in Singapore 1983-1987. Singapore Cancer Registry, Report No. 3, 1992.
4. KS Chia, HP Lee, A Seow, K Shanmugaratnam: Trends in Cancer Incidence in Singapore 1968-1992. Singapore Cancer Registry, Report No. 4, 1996.
5. KS Chia, A Seow, HP Lee, K Shanmugaratnam: Cancer Incidence in Singapore 1993-1997. Singapore Cancer Registry, Report No. 5, 2000.
6. A Seow, W P Koh, KS Chia, L M Shi, HP Lee, K Shanmugaratnam: Trends in Cancer Incidence in Singapore 1968-2002. Singapore Cancer Registry, Report No. 6, 2004.

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FOREWORD

Cancer is a key public health issue. It was estimated that cancer accounted for over 7 million deaths in 2000 and that there were more than 10 million new cancer cases worldwide in that year alone. In Singapore, cancer is the leading principal cause of death, accounting for more than a quarter of all deaths. There are more than 6000 new cases diagnosed every year. With the ageing of our population and lifestyle changes in the population, the burden of this disease is expected to rise over the next decades.

There has been significant improvement in cancer care over the last 40 years. Technological advances have brought about the development of better diagnostic techniques and treatment modalities. We have novel chemotherapeutic agents today that act against tumour targets at the molecular level. There are also improvements in the prevention of cancer through the development of better screening tools.

Alongside these technological advances, we have strengthened the local healthcare infrastructure over the years to implement the cancer control activities. The National Cancer Centre is a one-stop tertiary referral centre for cancer treatment while the Health Promotion Board is leading our efforts to intensify cancer prevention in our population. With the continued progress in cancer research, we can expect additional innovations and advances in the years ahead.

It is important that we review the progress that we have made in cancer control at this juncture and use the information to plan for future cancer control programmes. The Singapore Cancer Registry is an excellent resource to obtain data to chart our progress in cancer control at the national level. The registry has been collecting data since 1968 and the quality of the data is considered to be high by international standards.

This monograph is timely and will serve as a useful reference for both clinicians involved in direct patient care as well as public health physicians who can use the information in this document to guide cancer control programme design and implementation.

Professor K. Satku
Director of Medical Services
Ministry of Health, Singapore

PREFACE

This monograph grew out of a close collaboration between the Singapore Cancer Registry, Ministry of Health and the Centre for Molecular Epidemiology, National University of Singapore. In view of the rapid changes in cancer control activities over the past few decades, we wanted to document the trends in cancer survival in Singapore.

Population-based survival analysis is a useful tool used to evaluate the progress in cancer control programmes and to make comparisons between such programmes in different countries. There are several survival statistic indicators such as observed survival, cause-specific survival and relative survival. Observed survival refers to survival up to point of death from all causes while cause-specific survival takes into account only mortality due to cancer only. Relative survival measures survival in cancer patients relative to the expected survival of a comparable group in the general population.

In this monograph, we have presented our data mainly in terms of relative survival. One key advantage of this measurement is that it appraises total mortality and hence it is not dependent on the accurate reporting of cause of death in death certification. Relative survival will be useful for policy makers and health professionals involved in cancer control because it assesses the survival gap between cancer patients and the comparable general population. We have also included data on observed survival as this information will be relevant for clinicians and patients. In addition, we have incorporated short commentaries on the trends in survival of the most frequent cancers in Singapore. The survival trends are presented together with incidence and mortality trends for a more complete perspective of the survival trends.

I would like to thank all members of the team who had contributed towards this monograph and I hope that readers will find this document useful.

Professor Chia Kee Seng
Director
Centre for Molecular Epidemiology
National University of Singapore

ACKNOWLEDGEMENTS

We wish to express our grateful thanks to the staff of the National Registry of Diseases Office, Health Promotion Board, Mr. Tan Lee Ann, Mr. William Ho, Ms Sandra Lim and Dr Jin Ai Zhen for their generous support in the production of the monograph.

We would also like to thank the following doctors who have provided valuable inputs to this monograph

1. A/Prof Christopher Cheng
2. Dr Fong Kam Weng
3. A/Prof Arunachalam Ilancheran
4. Prof Adrian Leong
5. A/Prof Ivy Sng
6. Dr Benita Tan
7. Dr Tan Chee Kiat

LIST OF APPENDICES

APPENDIX A

Relative Survival and Observed Survival[†] by Stage, Period, Site and Age Group

Males Residents 1973-2002

Females Residents 1973-2002

APPENDIX B

Computation of the Expected Survival Rate, Confidence Interval, and Age Standardised Estimate

[†] Observed survival reported only for the last 5-year calendar period of 1998-2002

INTRODUCTION

Survival statistics have long been recognised as important for monitoring and quantifying the effectiveness of cancer control activities at the population level, alongside the information on incidence and mortality. It is important to recognise that cancer survival figures must be interpreted in the presence of incidence and mortality data in order to have a more complete picture of the cancer burden at the population level.¹ For these reasons, the Singapore Cancer Registry (SCR) has compiled this monograph on survival statistics. Incidence statistics can be found in previous monographs of SCR.²

Cancer registration in Singapore - The Singapore Cancer Registry

SCR started comprehensive population-based cancer registration in January 1968. The Registry was founded primarily to obtain information on cancer incidence and trends in Singapore. In April 2001, the Registry came under the auspices of the National Disease Registries Office and it resides currently at the Health Promotion Board.

The SCR receives notifications from multiple sources: (a) medical practitioners, (b) pathology records, (c) hospital records, and (d) death certificates. Cancer notification is voluntary[‡]. All doctors in Singapore are provided with notification forms with prepaid postage. The Registry ensures that notifications are as complete as possible by checking all pathology reports from public and private laboratories, and death certificates issued in Singapore as well as discharge records of all public hospitals. Cancer cases picked up from these sources are checked against registered cases and reminders are sent to doctors in charge of cases that have not been notified to the Registry. Cancer cases not notified by doctors (approximately 10%) are registered by the Registry staff based on information derived from the

[‡] The Ministry of Health Singapore has enacted the National Registry of Diseases Act in Dec 2007 to provide legislative coverage for national disease registries. The Ministry has adopted a phase approach in this legislation starting with the cancer registry

sources mentioned above. Cancer registration is generally comprehensive since all cases diagnosed histologically and all cases with mention of cancer in hospital discharge forms and death certificates are included. There is no personal contact with cases or patient follow-up by the Registry.

The cancer notification forms and a register of cases are maintained on a current chronological basis. All relevant information is coded and the Registry maintains a computerised file of all cases. Duplication of cases is avoided by checking all new cases against the master index using the unique National Registration Identification Number (NRIC). Personal identifiers such as name and NRIC are encrypted.

Certification of death is virtually complete in Singapore. In 2000, 97.6% of all deaths were certified by qualified medical practitioners or the Coroner and 2.4% by Inspecting Officers. The latter would certify a case as cancer only on the basis of a previous hospital diagnosis.

METHODOLOGY

PATIENT SELECTION

The study population was made up of a total of 142,252 single primary invasive cancer cases. This excluded 5,518 cases that were notified at the time of death (Death Certificates Only, DCO). They were diagnosed in Singapore within the period from 1 January 1968 to 31 December 2002. The patients were passively followed up to 31 December 2005. Vital status was matched with the death register. Patients who were not in the death register could either be still alive or lost to follow-up. The 1997 Electoral Register[§] was used to confirm the vital status of the unmatched subjects diagnosed prior to 1997. 6,697 (4.7%) of all invasive cases, who were not in the death register or 1997 Electoral Register, were excluded. A total of 19,598 (13.8%) of the patients (who were not in the death register but in the 1997 Electoral Register) were censored at 31 December 1997. Another 22,327 (15.7%) patients, who were diagnosed from 1998 to 2002, were not found in the death register. The vital status of these subjects could not be ascertained. To avoid biasing the results toward a higher survival, median survival of the patients recently diagnosed and have died was assigned to the patients in the regional and metastatic stage. They are matched according to gender, stage, primary site and period of diagnosis.

STATISTICAL METHODS

Relative survival is commonly used to describe the survival experience of the patients in a population-based study.³ When a large number of patients are involved in a population-based study, it becomes very difficult to follow them up over time. The cause of death may also be unreliable. When such a situation occurs, cause-specific survival which relies heavily on an accurate cause of

[§] Subsequent electoral registers were not available for matching due to changes in the Parliamentary Elections Act

death becomes less useful. In order to circumvent the inaccuracy of death certificates, relative survival is often used and has grown in popularity as a method to estimate net survival (or excess mortality) when registry data is analysed.⁴ It has been widely used by many registries, such as EUROCARE,^{5,6} SEER⁷ and those in the developing countries⁸ to report on cancer survival.

Relative survival is defined as the ratio of observed survival of the patients with the expected survival of a comparable group in the general population, matched with respect to factors believed to be associated with survival at baseline (usually gender, age and calendar year of diagnosis). The only assumption made in relative survival is that the group from the general population used for comparison with the patients is free of the disease of interest. Independent competing risks is assumed.⁹

Relative Survival Ratio can be expressed in the following form:

$$\text{RSR}_i = \frac{S_i}{S_i^*}$$

where

RSR_i is the relative survival in the i^{th} sub-interval (e.g. i^{th} year)

S_i is the observed survival in the i^{th} sub-interval obtained from the patients

S_i^* is the expected survival in the i^{th} sub-interval obtained from the general population used to compare with the patient population

In this study, the expected survival was estimated from the Singapore general population which included deaths from all causes.¹⁰ The Ederer II method was used to estimate expected survival, which assumes that the matched individuals are at risk until the corresponding patient dies or is censored. Details of the computation are shown in Appendix B. Other methods used to estimate expected survival include Hakulinen and Ederer I.¹¹ The more popular Hakulinen's method was not used because it required the potential follow-up time of the patients, which remained unascertained in this study. Cumulative survival ratios were

computed by taking the product of interval-specific ratios where the follow-up time was set to be one year. Greenwood's formula³ was used to obtain the standard errors for the corresponding survival ratios.

The Period approach was used to calculate the estimates^{12,13,14} so as to highlight the temporal change in patient survival in a timelier fashion. In contrast to the conventional Cohort method, which describes the survival experience for a certain cohort of patients diagnosed within a time period, the Period method describes the survival experience of the patients during a certain time frame. This is done by restricting the analysis to some recent time period through left truncation of all observations at the beginning of that period in addition to right censoring at its end. Figure 1 illustrates how both Period and Cohort methods capture 5-year survival information.

FIGURE 1: DIFFERENCES BETWEEN PERIOD AND COHORT APPROACHES

Period											Cohort											
Year of Diagnosis	Calendar Period										Year of Diagnosis	Calendar Period										
	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002		1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	
1993	0-1	1-2	2-3	3-4	4-5	5					1993	0-1	1-2	2-3	3-4	4-5	5					
1994		0-1	1-2	2-3	3-4	4-5	5				1994		0-1	1-2	2-3	3-4	4-5	5				
1995			0-1	1-2	2-3	3-4	4-5	5			1995			0-1	1-2	2-3	3-4	4-5	5			
1996				0-1	1-2	2-3	3-4	4-5	5		1996				0-1	1-2	2-3	3-4	4-5	5		
1997					0-1	1-2	2-3	3-4	4-5	5	1997					0-1	1-2	2-3	3-4	4-5	5	
1998						0-1	1-2	2-3	3-4	4-5	1998											
1999							0-1	1-2	2-3	3-4	1999											
2000								0-1	1-2	2-3	2000											
2001									0-1	1-2	2001											
2002										0-1	2002											

*Each cell denotes the year of follow-up. For example, 0-1 means the first year of follow-up

STATA Packages (STRS) developed by Paul Dickman were used to obtain the relative survival estimates.¹⁵

In order to compare patient survival over time and with other countries, we performed direct standardisation on the age-specific survival estimates to adjust

for the different age structures (Appendix B). The standard population used is the World Standard Cancer Population.⁸ The age groups used for standardisation are: 0-34, 35-49, 50-64, 65-74 and 75+ for all cancers except cancers of the blood. For lymphomas and leukemia, the age groups 0-14, 15-44, 45-59, 60-69 and 70+ were used. Cohort estimates were used for comparison purposes to maintain consistency with the method adopted by other populations such as Eurocare 3, with the exception of the SEER registries where the estimates were calculated using the modified Period approach.¹⁶

CANCER SURVIVAL IN SINGAPORE: AN OVERVIEW

The interpretation of cancer survival estimates has to be done within the context of cancer incidence and mortality figures. A total of 163,331 cases of cancer were diagnosed among all Singapore residents during the period 1968-2002. Of these, 90,014 have died. Table 1 shows the trends in incidence and cancer specific mortality rates by gender in 5-year calendar periods.

TABLE 1: TRENDS IN CANCER INCIDENCE AND MORTALITY BY GENDER, 1968-2002*

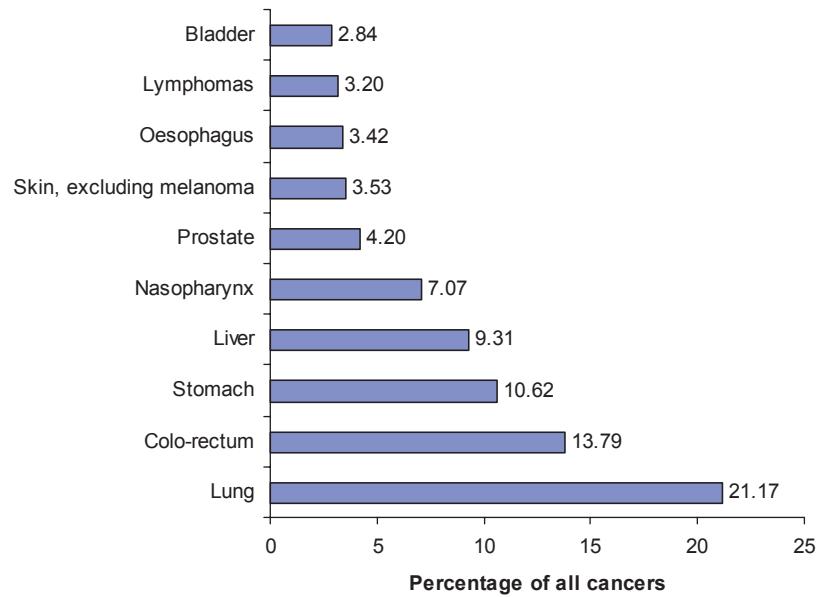
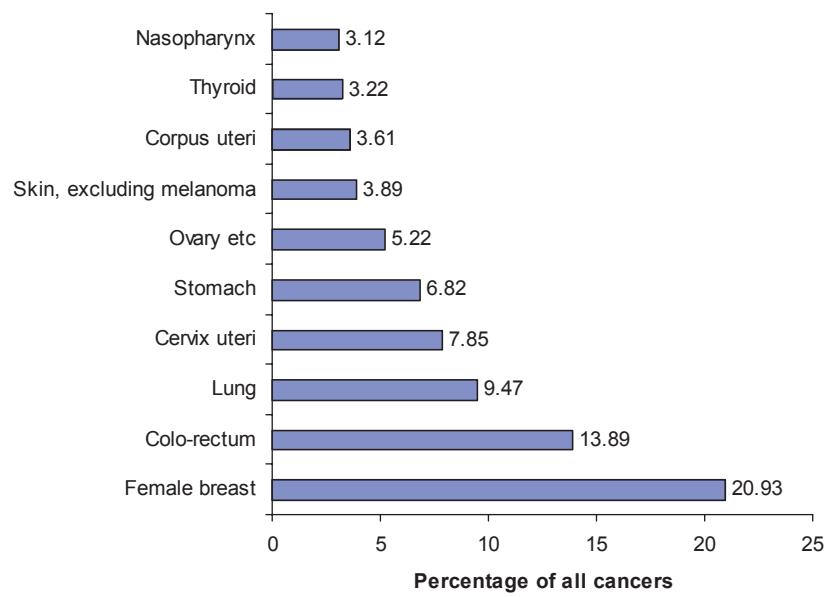
Period	Gender	Incidence			Mortality		
		Number	CR	ASR	Number	CR	ASR
1968-1972	Male	6983	135.4	227.1	3675	71.2	122.8
	Female	5082	103.3	153.9	2193	44.6	68.1
1973-1977	Male	8563	158.1	246.3	5337	98.6	155.4
	Female	6188	118.9	161.1	3226	62.0	86.5
1978-1982	Male	10135	175.0	250.2	6545	113.0	164.9
	Female	7992	142.5	175.6	4280	76.3	96.5
1983-1987	Male	11678	187.1	243.1	7433	119.1	157.4
	Female	10046	165.5	183.3	5101	84.1	94.9
1988-1992	Male	13607	199.2	236.5	9036	132.3	159.9
	Female	12749	191.2	191.8	6367	95.5	96.6
1993-1997	Male	16175	218.0	236.0	9601	129.4	142.4
	Female	15686	213.7	195.9	7056	96.1	88.4
1998-2002	Male	18809	230.5	230.5	11540	141.4	143.6
	Female	19638	240.3	201.7	8624	105.5	88.8

CR: Crude rate (per 100,000 per year).

ASR: Age standardised rate (per 100,000 per year).

* Source: Trends in Cancer Incidence in Singapore, 1968-2002

A breakdown of the ten most frequent cancers in males and females for the period 1968-2002 is given in Figures 2 and 3 below.

FIGURE 2: TEN MOST FREQUENT CANCERS IN MALES, 1968-2002**FIGURE 3: TEN MOST FREQUENT CANCERS IN FEMALES, 1968-2002**

Trends in overall cancer survival estimates will be affected by the stage distribution. For the period 1968-2002, 28.2% of the cancers in males were classified as localised, 24.4% regional, 16.1% metastatic and 31.3% of an unknown stage. Among the females, 31.5% were localised, 25.6% regional, 12.9% metastatic and 30.0% of an unknown stage. Table 2 shows the trends in stage distribution.

TABLE 2: TRENDS IN STAGE DISTRIBUTION BY GENDER, 1968-2002

Period	Sex	Number of cases (%)			
		Localised	Regional	Metastatic	Unknown
1968-1972	Male	2064 (35.0)	1976 (33.5)	1096 (18.6)	757 (12.9)
	Female	1332 (31.8)	1562 (37.3)	763 (18.2)	528 (12.6)
1973-1977	Male	2301 (31.7)	2241 (30.9)	1288 (17.7)	1434 (19.7)
	Female	1486 (28.8)	1838 (35.7)	875 (17.0)	956 (18.6)
1978-1982	Male	2461 (28.9)	2344 (27.5)	1395 (16.4)	2317 (27.2)
	Female	2049 (30.8)	2135 (32.1)	968 (14.5)	1508 (22.6)
1983-1987	Male	2451 (25.3)	2258 (23.3)	1478 (15.3)	2494 (36.1)
	Female	2417 (29.2)	2226 (26.9)	1127 (13.6)	2498 (30.2)
1988-1992	Male	2702 (23.5)	2474 (21.5)	1638 (14.2)	4707 (40.9)
	Female	3041 (28.1)	2583 (23.8)	1187 (11.0)	4026 (37.2)
1993-1997	Male	4118 (28.3)	3419 (23.5)	2373 (16.3)	4647 (31.9)
	Female	4551 (32.2)	3235 (22.9)	1716 (12.2)	4625 (32.7)
1998-2002	Male	5051 (28.8)	3567 (20.3)	2806 (16.0)	6123 (34.9)
	Female	6396 (34.9)	3692 (20.1)	2097 (11.4)	6155 (33.6)

Overall Trends

There was an overall improvement in the relative survival for both the males and females from 1973 to 2002. For the males, the 5-year age standardised relative survival ratio (ASRS) improved from 11.6% in 1973-1977 to 36.3% in 1998-2002. The 10-year ASRS improved from 9.9% in 1978-1982 to 30.5% in 1998-2002. Similarly for the females, the 5-year ASRS increased from 25.7% to 51.0% and the 10-year ASRS increased from 20.1% to 44.2% during the period of analysis. These trends are represented in Figures 4 and 5 below.

FIGURE 4: TRENDS IN 5-YEAR ASRS OF ALL CANCERS BY GENDER

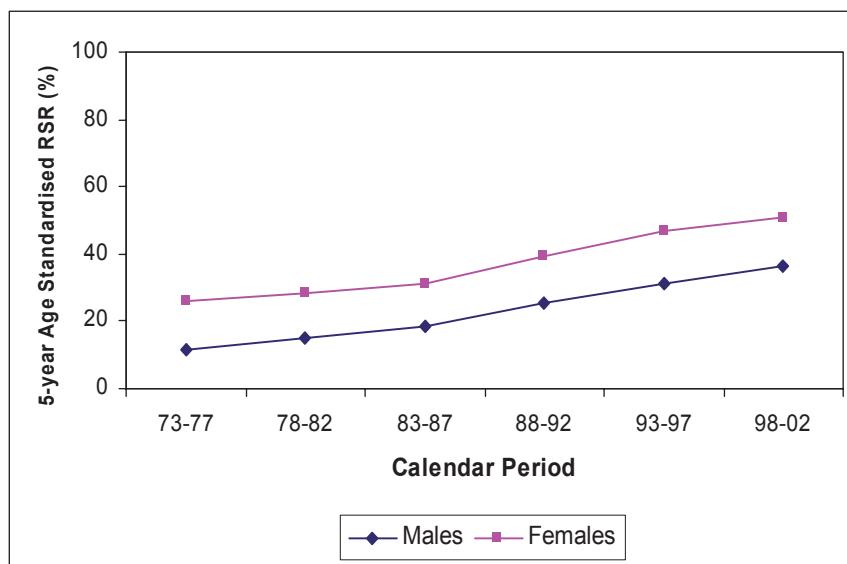
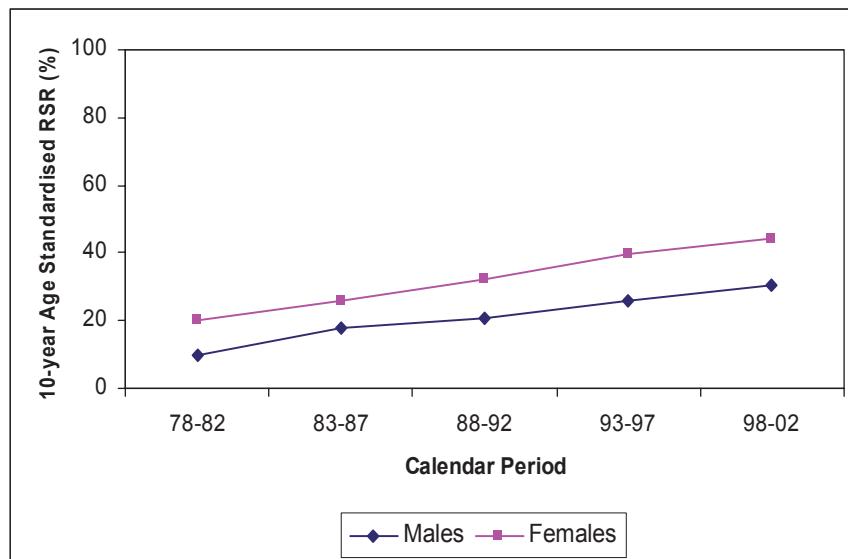
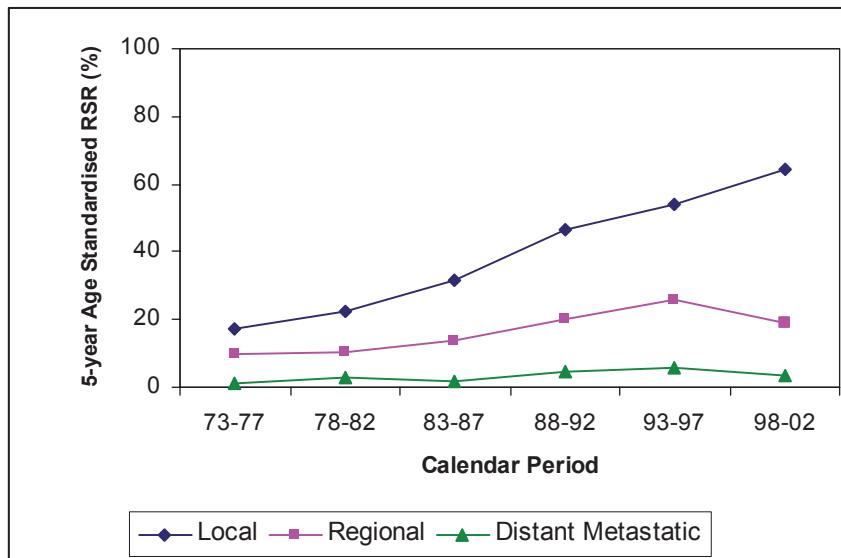
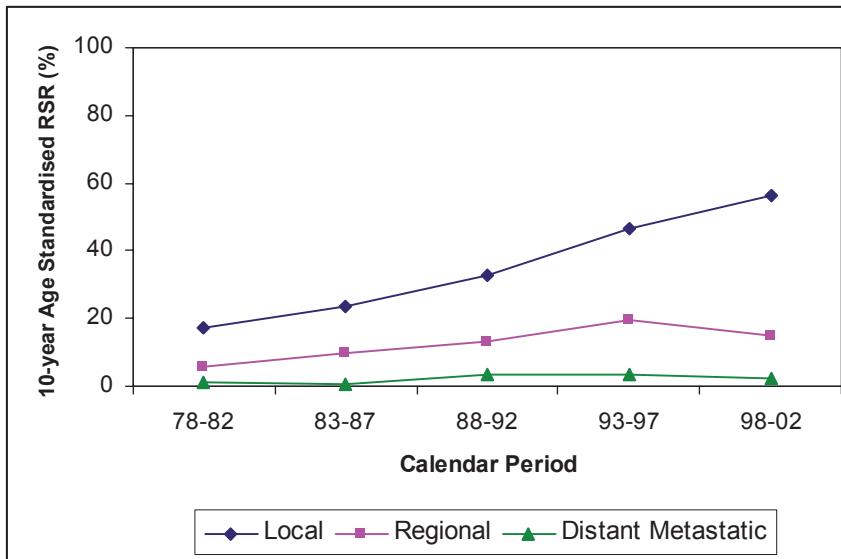


FIGURE 5: TRENDS IN 10-YEAR ASRS OF ALL CANCERS BY GENDER

Overall Trends by Stage

Stage-specific analyses showed that there was a general increase in the survival pattern of the cancers. A marked improvement was shown in the patients who were diagnosed at the local stage. In contrast, there was little progress in the survival for those diagnosed at the metastatic stage.

Comparing the periods 1973-1977 and 1998-2002, the 5-year ASRS for males increased from 17.3% to 64.6% for locally-staged tumours, 9.6% to 19.0% for regionally-staged tumours, and 1.2% to 3.2% for metastatic tumours. The 10-year ASRS for males increased from 17.3% to 56.5% for local stage, 5.7% to 15.1% for regional stage, and 1.2% to 2.3% for metastatic tumours from 1978-1982 to 1998-2002. The 5-year and 10-year ASRS for males by stage are shown in Figures 6 and 7 respectively.

FIGURE 6: TRENDS IN 5-YEAR ASRS IN MALES BY STAGE**FIGURE 7: TRENDS IN 10-YEAR ASRS IN MALES BY STAGE**

For the females, the 5-year ASRS increased from 39.7% to 75.0% for local stage, 20.1% to 33.2% for regional stage, and 4.8% to 6.7% for metastatic stage.

The 10-year ASRS rose from 33.4% to 68.3% for local stage, 15.1% to 26.3% for regional stage, and 1.8% to 4.6% for metastatic stage. The 5-year and 10-year ASRS of females by stage are shown in Figures 8 and 9 respectively.

FIGURE 8: TRENDS IN 5-YEAR ASRS IN FEMALES BY STAGE

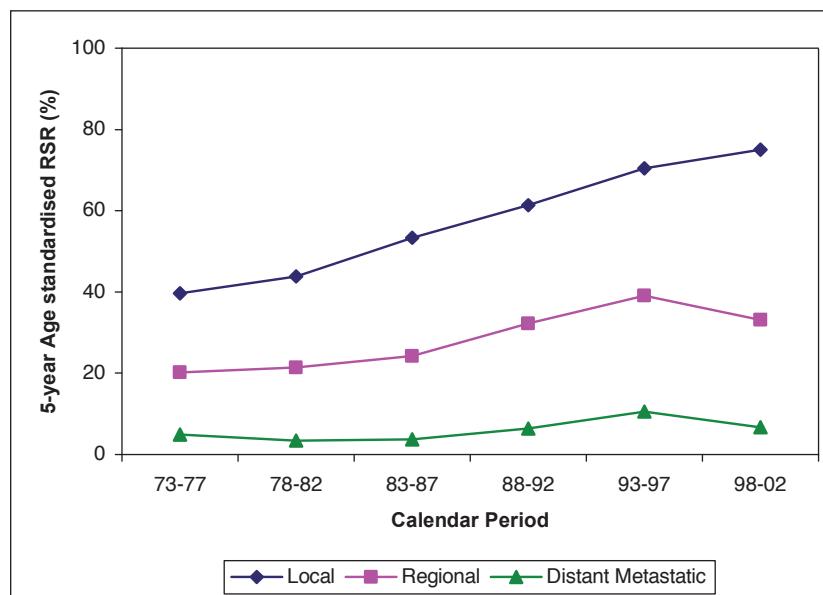
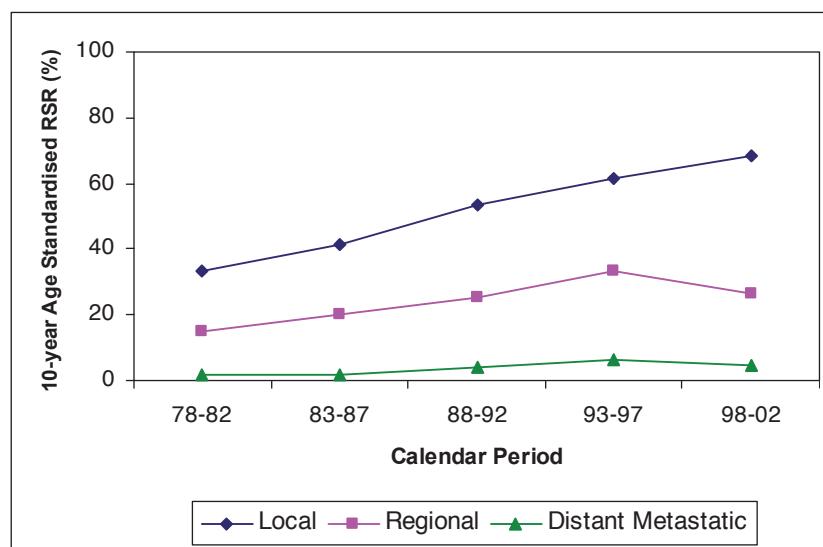


FIGURE 9: TRENDS IN 10-YEAR ASRS IN FEMALES BY STAGE



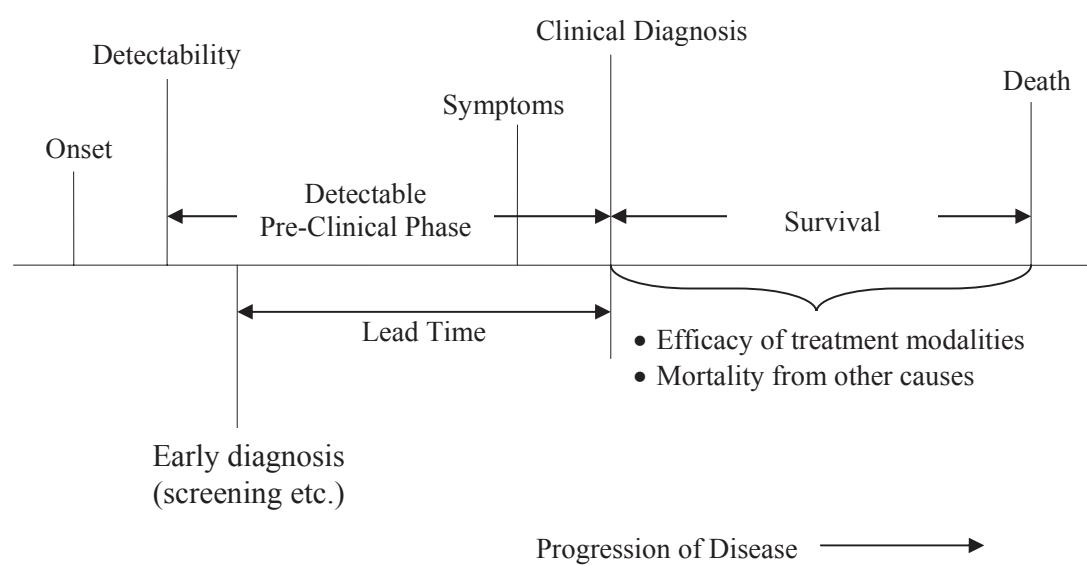
Limitations

There are several factors which could have influenced the survival estimates and trends observed. An increasing survival trend might not necessarily imply advancement in treatment modalities. Among the more important factors are (i) early detection of the cancer resulting in lead-time bias or (ii) a difference in the tools used to classify cancer stage resulting in a stage migration phenomenon.^{3,5}

Lead-time Bias

Since survival time is the duration between the dates of diagnosis and death, an earlier detection of a cancer will “prolong” a patient’s survival time. Therefore, survival time can still increase even if there is no postponement of death. This is known as a lead-time bias when the cancer is detected even before the symptoms of the disease kicks in. This is generally introduced by screening programmes and improved diagnostic tools, and greater general public awareness. A schematic diagram for lead-time bias is shown below in Figure 10.

FIGURE 10: SCHEMATIC REPRESENTATION OF LEAD TIME BIAS



Stage Migration

The availability and accessibility of diagnostic instruments may bring about a stage migration phenomenon. This phenomenon occurs when there is a reclassification in cancer staging which is normally the result of advancement in technology. For example, a patient might have been clinically diagnosed with cancer at a regional stage in the 1970s. Over the years with the progress in the development of diagnostic tools, the same patient in the 1970s may have been diagnosed to have metastatic disease today. Thus, this artifact will only make the survival rates appear to be more optimistic at each cancer stage¹⁷ but it will not have an implication on the survival rates obtained from a non-stage-specific analysis.

In view of the limitations, an analysis looking at relative survival, incidence and mortality trends is encouraged to evaluate therapeutic progress more precisely.¹

COMMENTARIES ON SELECTED SITES

This section contains commentaries on common cancer sites for males and females. Time trends of the 5-year age standardised relative survival ratio (ASRS) were plotted together with those of age standardised incidence and cancer-specific mortality rates for these cancers.

Data for international comparisons are taken from:

- Surveillance Epidemiology and End Results (SEER) cancer statistics review, 1975-2003⁷
- EUROCARE-3, 1990-1994⁶
- Osaka Cancer Registry, 1993-1996¹⁸
- Cancer Survival in Developing Countries, International Agency for Research on Cancer (IARC) Scientific Publications, No. 145⁸

Nasopharynx (ICD-9 147)

The 5-year ASRS of nasopharyngeal cancer (NPC) improved in both males and females over the study period. The 5-year ASRS in males were 17.7% in 1973-77 and 45.7% in 1998-2002. The corresponding figures in females were 24.0% and 58.9%. The uptrend in females was observed consistently across the entire study period while the increase in survival in males occurred mainly between the third and fifth calendar periods. On an international scale, the 1- and 5-year relative survival ratios for cancer of the nasopharynx in Singapore were higher than that for both genders in Europe.

There were steady declines in the incidence and mortality of NPC. The incidence of NPC slid from 15.4 per 100,000 in 1973-77 to 10.8 per 100,000 in 1998-2002 in males. The incidence in females, which was approximately one third of what was observed in males, fell from 6.3 per 100,000 in 1973-77 to 3.7 per 100,000 in 1998-2002. Similarly, the mortality also declined over the study period as the mortality of NPC shrank 38% and 53% in males and females respectively between 1973 and 2002.

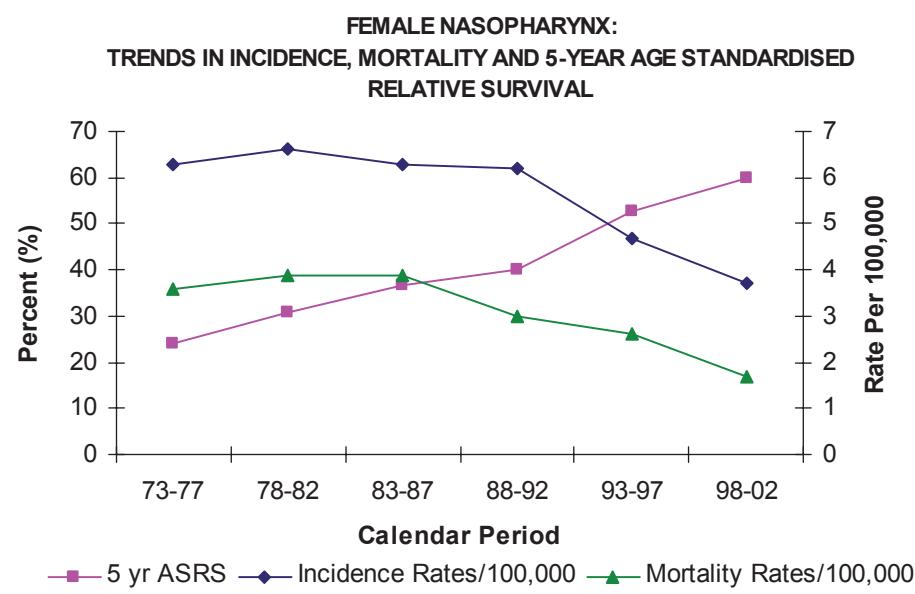
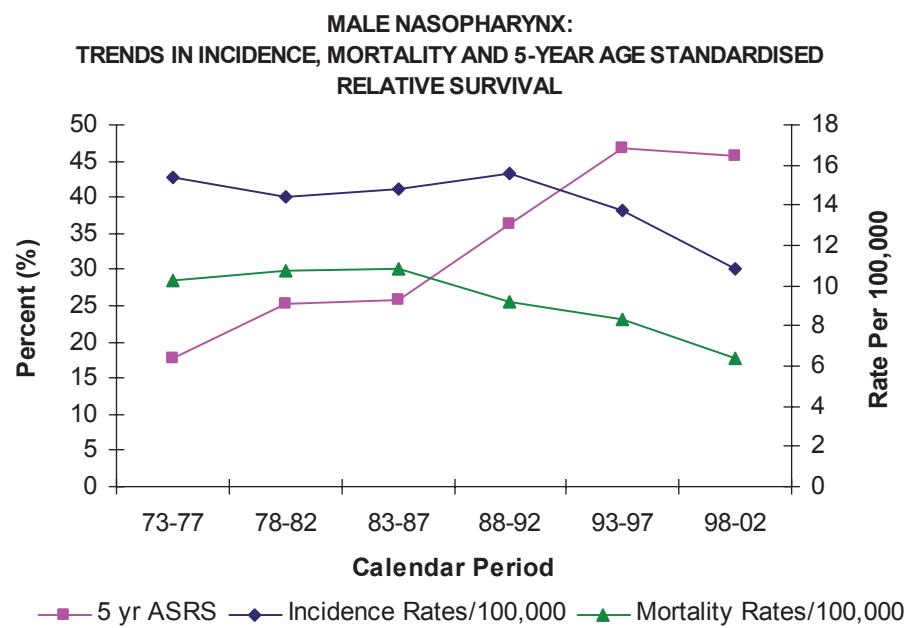
The major risk factors for NPC are the consumption of Cantonese-style salted fish and other preserved foods, Epstein-Barr virus infection and smoking.¹⁹ The drop in incidence could be mostly attributed to changes in dietary habits and lifestyles that accompanied improvements in socio-economic conditions in Singapore over the last few decades.²⁰ The population had reduced its consumption of preserved foods, possibly due to emergence of alternative foods, improved refrigeration of foods in households and eating places and a gradual Westernisation of overall dietary patterns.

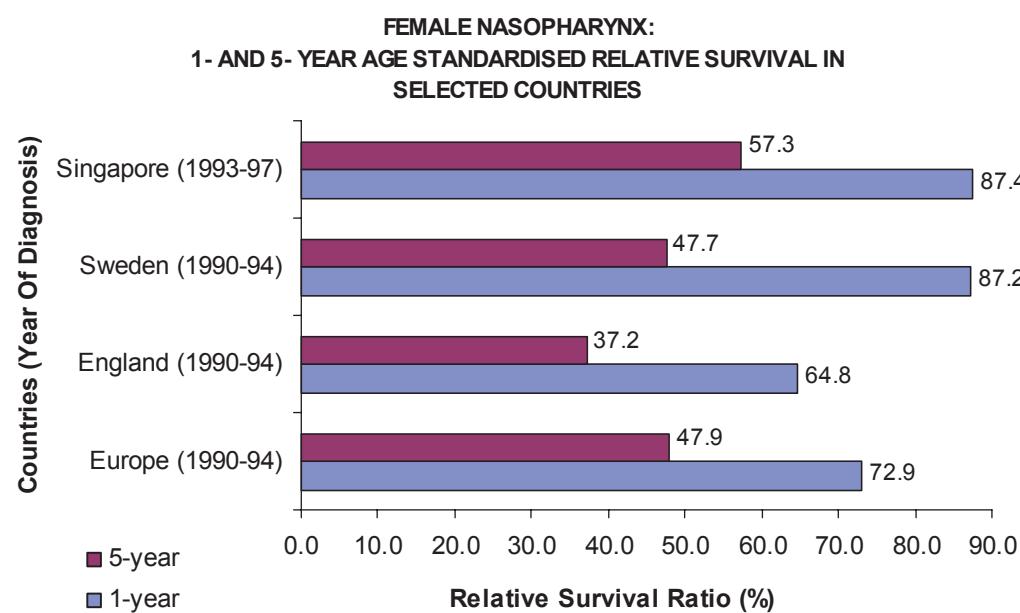
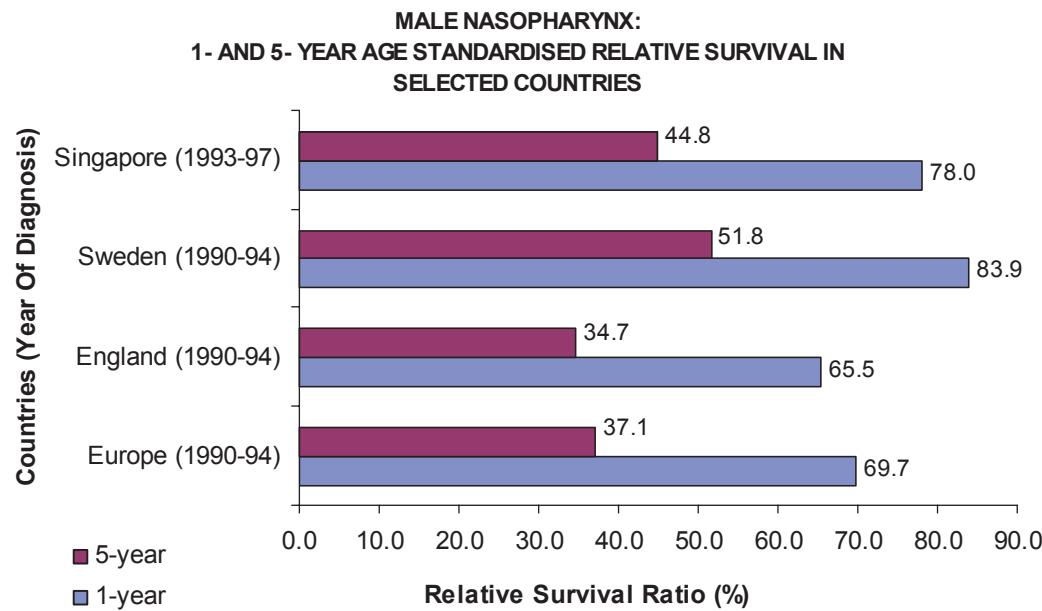
The improvement in overall NPC survival with the corresponding decline in mortality and incidence is likely to be due to improved treatment, in particular, more specific radiotherapy with less long term adverse effects. There is no

effective NPC screening procedures and a substantial proportion of NPC cases in Singapore are still diagnosed at an advanced stage.²¹

NPC is highly responsive to radiation therapy and treatment using external beam therapy and/or brachytherapy which evolved greatly during the 20th century.²² Radiotherapy techniques have changed very significantly contributing to loco-regional cure and reduction of toxicities (particularly late) associated with radiotherapy. Radiotherapy is now the initial treatment of choice of stage I/II disease.

Another key therapeutic development is the addition of chemotherapy to treatment protocols, either as concurrent or neoadjuvant therapy. The use of chemotherapy for stage III/IV is now firmly established.²³ The combination of chemotherapy and radiation therapy protocols has been shown to reduce the risk of distant metastases and increases disease-free survival rates.^{24,25,26} In addition to these medical advances, there were also rapid developments of the healthcare system and infrastructure in Singapore over the study period²⁷ so that facilities and expertise have become more readily available to provide better medical care for patients with NPC. For example, computed tomography scans of the nasopharynx have become available routinely in the staging of NPC in Singapore since 1987.²⁸





Age standardised observed survival and relative survival of nasopharyngeal cancer by calendar period and gender

Calendar Period	ASOS (%)					Males				ASRS (%)			
	1yr	3yr	5yr	10yr	-	1yr	3yr	5yr	10yr	1yr	3yr	5yr	10yr
1973-1977	53.1	27.5	16.7	-		54.1	29.7	17.7	-				
1978-1982	65.3	32.4	23.1	10.2		66.6	33.9	25.3					
1983-1987	65.7	34.1	22.5	13.4		67.1	35.8	24.7					
1988-1992	68.9	43.0	33.0	18.4		70.2	45.3	36.3					
1993-1997	76.1	52.0	41.8	25.9		77.8	54.5	45.8					
1998-2002	78.9	54.1	42.3	27.6		80.4	56.9	45.7					
Calendar Period	ASOS (%)					Females				ASRS (%)			
	1yr	3yr	5yr	10yr	-	1yr	3yr	5yr	10yr	1yr	3yr	5yr	10yr
1973-1977	70.2	43.4	22.6	-		71.8	47.9	24.0	-				
1978-1982	72.1	40.1	28.2	17.9		73.2	41.4	29.7					
1983-1987	74.3	51.3	33.0	15.9		75.4	54.4	35.6					
1988-1992	80.8	57.0	38.4	25.1		82.2	59.6	40.2					
1993-1997	83.7	63.7	49.1	36.6		84.8	65.8	51.6					
1998-2002	86.7	66.4	56.2	40.1		87.7	68.1	58.9					

ASOS: Age standardised observed survival

ASRS: Age standardised relative survival

-: the estimates were not computed due to insufficient sample

Stomach (ICD-9 151)

The survival of stomach cancer showed good improvement. The 5-year ASRS more than doubled in both males and females over the study period. The 5-year ASRS in 1998-2002 were 25.4% in males and 23.6% in females. This compared favourably with the 5-year ASRS of less than 10% in both genders in 1973-77. On an international scale, the 5-year relative survival in Singapore was lower than that in Osaka, Japan but comparable to that in the SEER registries.

The incidence of stomach cancer declined steadily in both males and females. In males, the incidence dropped from 36.5 per 100,000 in 1973-77 to 18.0 per 100,000 in 1998-2002. Similarly, in females, the incidence decreased from 16.6 per 100,000 in 1973-77 to 9.9 per 100,000 in 1998-2002. These downward trends are similar to what have been documented in other populations as the incidence of stomach cancer has declined sharply over the later half of this century in many countries around the world.²⁹ While the exact causes of the decline are not well understood, possible reasons may include a reduction in risk factors such as improvements in diet and food storage and a decline in the prevalence of Helicobacter pylori infection.³⁰

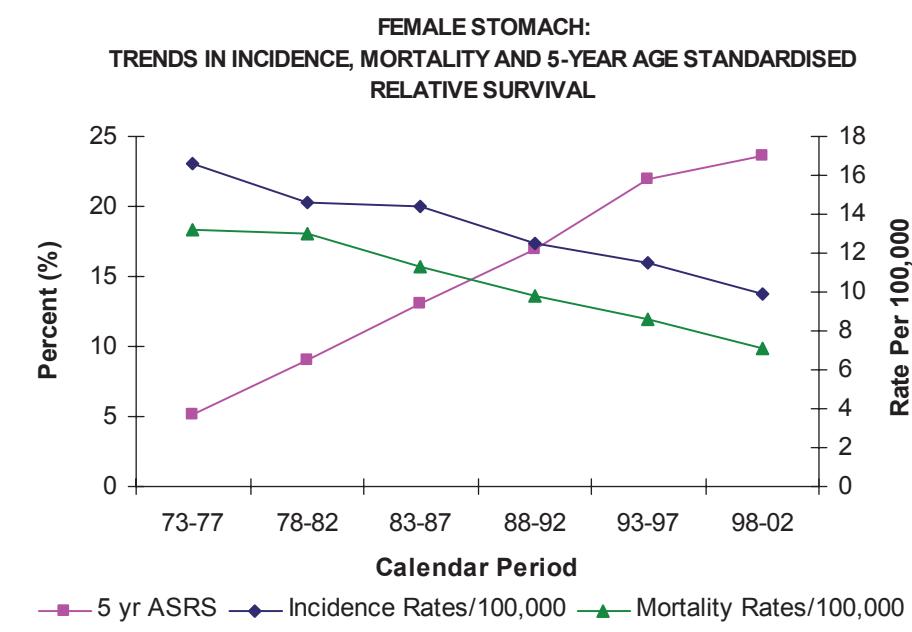
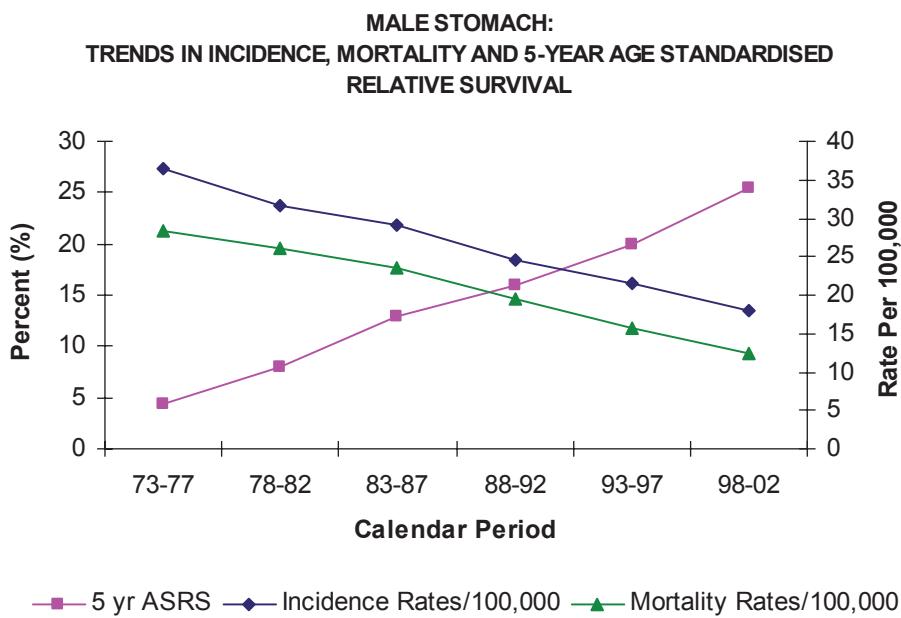
Following the trend seen in the incidence, the mortality of stomach cancer also diminished. Comparing the mortality between the first and sixth calendar periods, the mortality was approximately halved. The trends of stomach cancer incidence and mortality followed each other closely throughout the study period in both genders, a pattern that was seen in other cancers such as liver and lung cancer. These cancers are characterised by poor prognosis of the average patient as most patients are diagnosed only when the tumours have reached advanced stages and treatment options become limited.

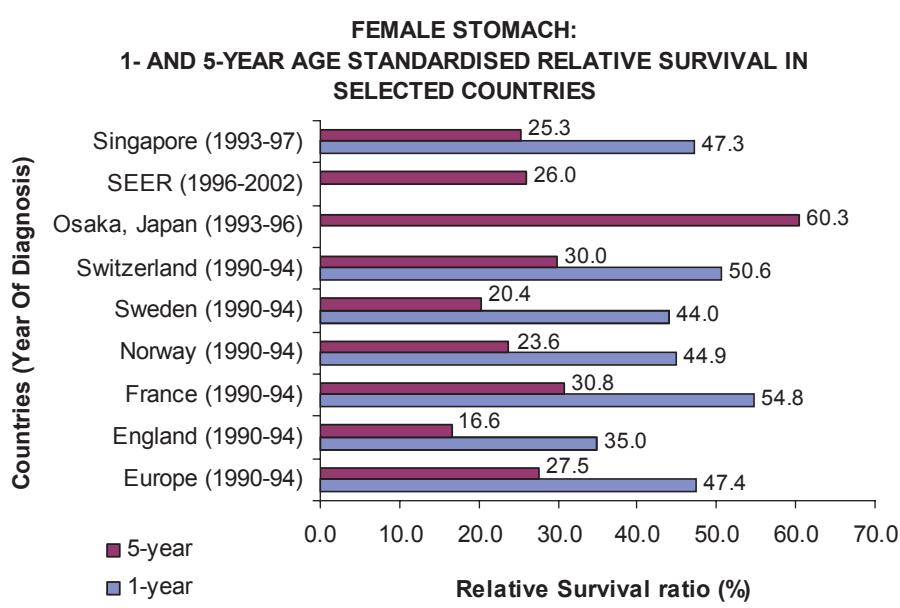
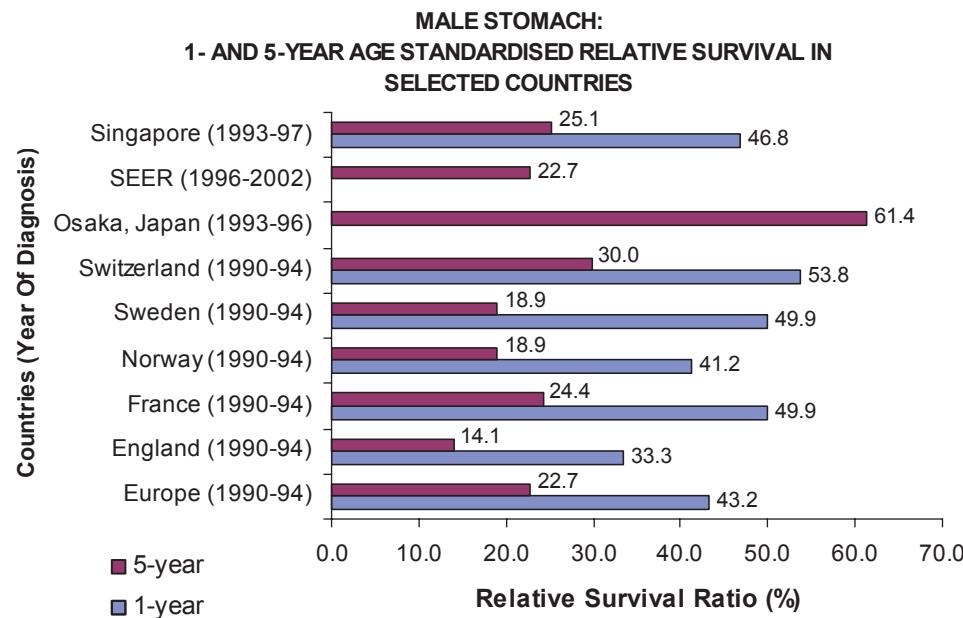
In terms of treatment, complete surgical removal of the tumour remains the only effective treatment modality and the most important treatment-related

prognostic factor. Gastrectomy with preservation of the spleen and pancreas is the standard procedure in most cases.³¹ It is now well-established that extended lymph node dissection and node sampling (15 nodes or more) greatly improve the accuracy of staging and prediction of prognosis.³² However, given the lack of significant advances in the treatment of stomach cancer, the declining mortality should be viewed primarily as a consequence of the decline in incidence rather than improvement in treatment effectiveness.

One possible explanation for the improvement in survival could be the overall improvement in healthcare infrastructure that affords better care to stomach cancer patients. Patients would have received better peri-operative care and supportive management. However, this alone might not be able to account for evident increase in survival.

In the absence of significant progress in treatment methods, earlier diagnosis of some of the stomach cancer cases could be another possible reason to explain for the upward trend in survival. Prognosis of stomach cancer patients is clearly related to stage. Japan has one of the best 5-year survival of stomach cancer as indicated by the larger proportion of early stage, curable cancers that are diagnosed through its intensive stomach cancer screening programme.³³ There is basis to believe that there may be factors that contribute to earlier diagnosis in Singapore. While there is no national screening programme for gastric cancer, medical facilities for endoscopic investigations have become more widespread as the overall healthcare infrastructure in Singapore developed rapidly over the past decades. Physicians might have referred patients with early symptoms of stomach cancer for endoscopy at these facilities even for patients with the non-specific early symptoms such as dyspepsia.³⁴ The increased diagnostic intensity could have led to detection of gastric cancer in earlier stages of the disease and increased the proportion of early gastric cancers over the study period, thereby leading to an increase in the survival.





Age standardised observed survival and relative survival of stomach cancer by calendar period and gender

Calendar Period	ASOS (%)					Males					ASRS (%)				
	1yr	3yr	5yr	10yr	-	1yr	3yr	5yr	10yr	1yr	3yr	5yr	10yr	-	
1973-1977	17.0	5.6	3.8	-		17.5	6.0	4.4							
1978-1982	25.0	10.1	7.2	4.3		25.6	10.8	8.0							
1983-1987	31.4	14.9	11.3	5.7		32.4	16.3	13.1							
1988-1992	32.9	18.0	13.0	8.1		34.1	20.0	15.8							
1993-1997	40.8	22.1	17.3	11.8		42.0	24.0	19.9							
1998-2002	46.3	26.5	22.4	17.1		47.6	28.6	25.4							
Calendar Period	ASOS (%)					Females					ASRS (%)				
	1yr	3yr	5yr	10yr	-	1yr	3yr	5yr	10yr	1yr	3yr	5yr	10yr	-	
1973-1977	20.7	8.4	4.7	-		21.2	9.1	5.1							
1978-1982	26.5	12.0	7.9	4.3		27.2	13.1	9.0							
1983-1987	30.7	16.1	12.2	7.9		31.2	16.9	13.1							
1988-1992	37.5	19.7	15.2	12.0		38.3	21.0	16.9							
1993-1997	43.2	25.8	19.9	13.2		44.1	27.4	22.3							
1998-2002	45.5	27.1	21.6	15.9		46.4	28.7	23.6							

ASOS: Age standardised observed survival

ASRS: Age standardised relative survival

- : the estimates were not computed due to insufficient sample

Colon (ICD-9 153)

The survival of colon cancer patients made good progress. The 5-year ASRS more than doubled in both genders over the study period. In males, the 5-year ASRS climbed from 19.5% in 1973-77 to 46.9% in 1998-2002. The corresponding 5-year ASRS for females in 1973-77 and 1998-2002 were 25.5% and 45.9% respectively. Internationally, the relative survival for colon cancer in Singapore was comparable to that in Europe but was lower than that in the SEER registries for both genders.

The incidence of colon cancer increased over the study period in both genders. The incidence increased from 12.9 per 100,000 in 1973-77 to 22.8 per 100,000 in 1998-2002 in males. In females, the incidence increased from 11.9 per 100,000 in 1973-77 to 19.0 in 1998-2002. The mortality of colon cancer also increased. The mortality in males increased from 7.1 per 100,000 in 1973-77 to 13.1 per 100,000 in 1998-2002. Similarly, the mortality in females grew from 6.0 per 100,000 in 1973-77 to 10.6 per 100,000 in 1998-2002.

The rise in the incidence of colon cancer was largely due to an increase in its risk factors. Increasing affluence had brought about substantial dietary change in Singapore with the more affluent households purchasing more red meat/offal.³⁵ Between 1961 and 1983, meat and offal supply to Singapore increased 135%.³⁶ The National Nutrition Survey conducted in 1998 revealed that consumption of vegetables and wholegrain intakes by Singaporean adults were proportionately lower compared to meat intake³⁷ and high meat/ vegetable consumption ratio has been shown to predispose towards development of colorectal cancer in Singaporean Chinese.³⁸ In terms of physical activity, the National Health Survey 1992 showed that only 14% of Singaporeans engaged in regular exercise while 64% of Singaporeans did not participate in any form of exercise in the past month.³⁹

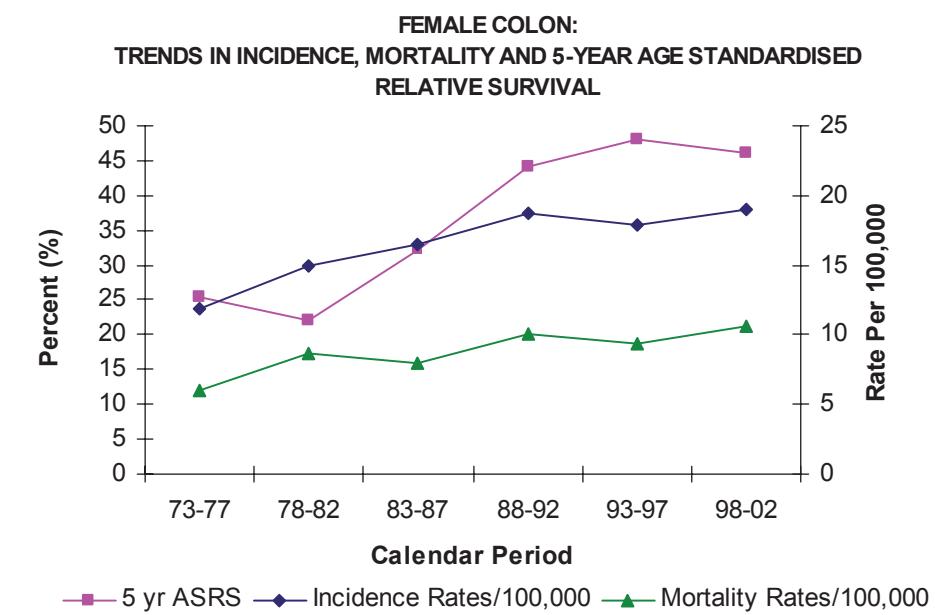
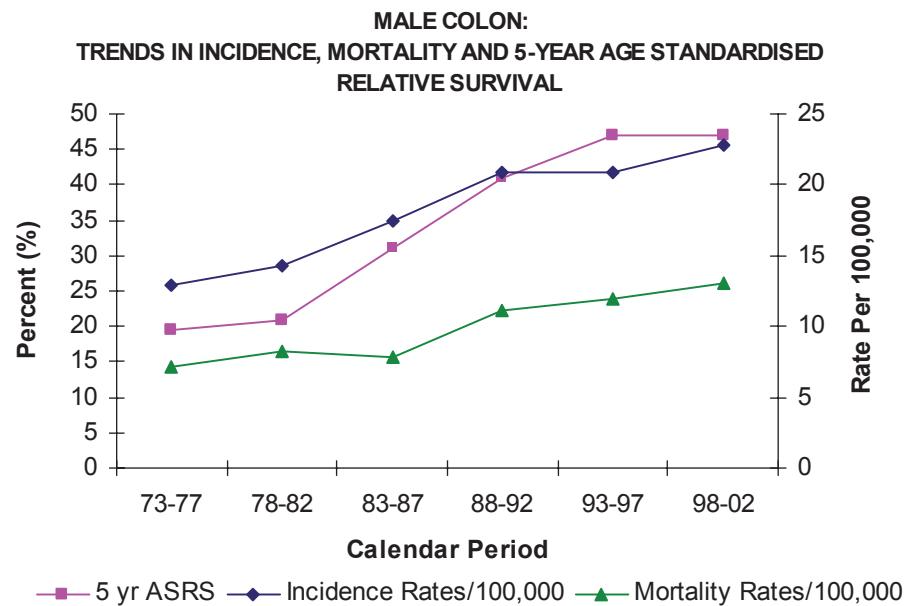
Strategies for screening of colorectal cancer have been devised and implemented in different populations. The natural history of the development of colorectal neoplasia has been characterised and the majority of colorectal cancers evolve from precursor adenomas. Epidemiological evidence estimated that the transformation of adenomatous polyps to cancer takes approximately 10 years⁴⁰ and detection and removal of adenomas has been shown to prevent incident cancers.⁴¹ There are several screening tools that can be used for screening of colorectal cancer, including colonoscopy, sigmoidoscopy, barium enema and fecal occult blood testing. While there was no population-based national screening programme for colon cancer in Singapore during the study period, these screening modalities were accessible through opportunistic screening in Singapore.

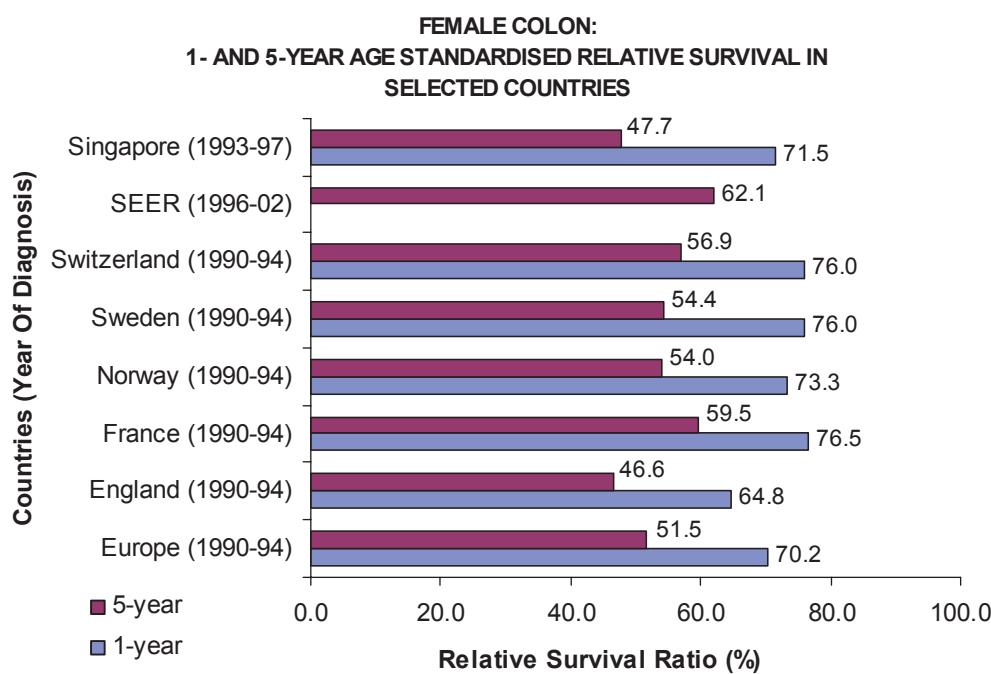
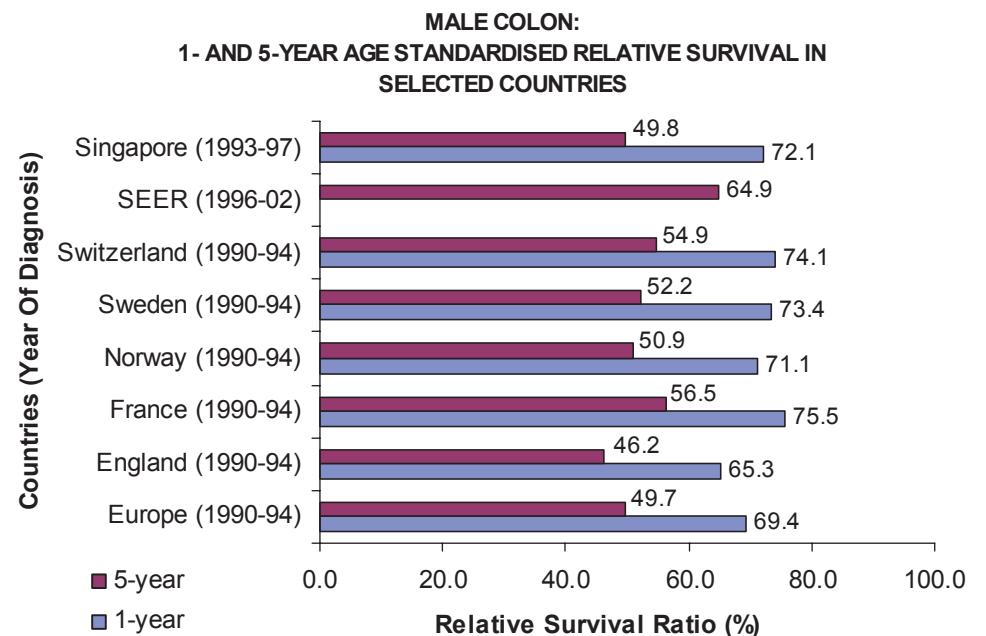
However, we believe that the effect of screening on incidence and survival of colon cancer in this study is likely to be modest. Routine endoscopic polypectomies began in the late 1980s⁴² when survival was already on an upward trend. There is no national colorectal carcinoma screening programme in Singapore to detect early lesions. In addition, the level of awareness of colorectal cancer in Singapore had been reported to be poor. In one local study involving two thousand adults living in Singapore, less than 3% named colorectal cancer as a fatal disease. Most were unable to name a single symptom of colorectal cancer and were unaware of screening as an important tool against the development of colorectal cancer.⁴³ In the 2004 National Health Survey⁴⁴, only 17.3% and 11.2% of Singaporeans aged 50 to 69 years reported having had a fecal occult blood test and colonoscopy/sigmoidoscopy at least once respectively.

Improvement in the treatment of colon cancer patients can help to explain the improvement in survival during the study period. A key therapeutic advance is the development of adjuvant chemotherapy. The first definitive data of the effectiveness of adjuvant chemotherapy emerged from trials conducted by the

North Central Cancer Treatment Group (NCCTG) in the 1980s which showed improved disease-free status and overall survival for chemotherapy in comparison with observation.⁴⁵ Over the past 2 decades, adjuvant chemotherapy has evolved from experimental status to become the standard of care.⁴⁶ There were also marked improvements in overall healthcare infrastructure and treatment facilities in Singapore. Surgery remains the definitive treatment for localised colon cancer⁴⁷ and it is believed that there has been greater availability to surgical care in Singapore over the past decades and the proportion of colorectal cancer patients receiving surgery may have increased significantly.⁴⁸

The improvement in survival took place against a backdrop of a rise in mortality that ran in parallel to the rise in incidence. The mortality to incidence ratio fluctuated within a fairly narrow range of 45% to 58% in males and 48% to 58% in females. Due to the insidious nature of the disease in most patients and the lack of widespread screening for colon cancer in the population during the study period, it is possible that a significant proportion of colon cancers were diagnosed only in the advanced stages. There had also been fewer advances made in the treatment of metastatic disease as compared to localised colon cancer. This observation is corroborated by an earlier report that noted that survival for localised and regional colorectal cancers improved between 1968–1992 but not metastatic cancer.⁴⁸





Age standardised observed survival and relative survival of colon cancer by calendar period and gender

Calendar Period	ASOS (%)					Males				
	1yr	3yr	5yr	10yr		1yr	3yr	5yr	10yr	
1973-1977	35.5	21.8	16.4	-		37.1	24.7	19.5	-	
1978-1982	39.3	24.7	17.9	11.6	40.4	26.8	20.8	15.8		
1983-1987	55.6	34.3	24.7	20.2	58.2	39.4	31.1	54.9		
1988-1992	62.5	42.1	32.3	22.4	65.5	48.6	41.2	38.1		
1993-1997	66.4	46.5	37.5	25.9	69.2	52.8	47.2	42.5		
1998-2002	68.0	50.1	38.2	27.1	70.4	56.1	46.9	42.0		
Calendar Period	ASOS (%)					Females				
	1yr	3yr	5yr	10yr		1yr	3yr	5yr	10yr	
1973-1977	38.4	25.5	21.1	-		39.7	28.5	25.5	-	
1978-1982	43.5	26.3	19.4	15.1	44.7	28.7	22.3	21.4		
1983-1987	54.3	33.8	27.2	21.0	55.9	37.0	31.8	30.8		
1988-1992	65.4	48.2	37.2	25.9	67.5	53.1	44.0	36.5		
1993-1997	68.2	51.3	41.5	31.4	70.2	56.0	48.2	43.8		
1998-2002	70.3	50.1	39.9	28.7	72.0	54.2	45.9	37.7		

ASOS: Age standardised observed survival

ASRS: Age standardised relative survival

-: the estimates were not computed due to insufficient sample

Rectum (ICD-9 154)

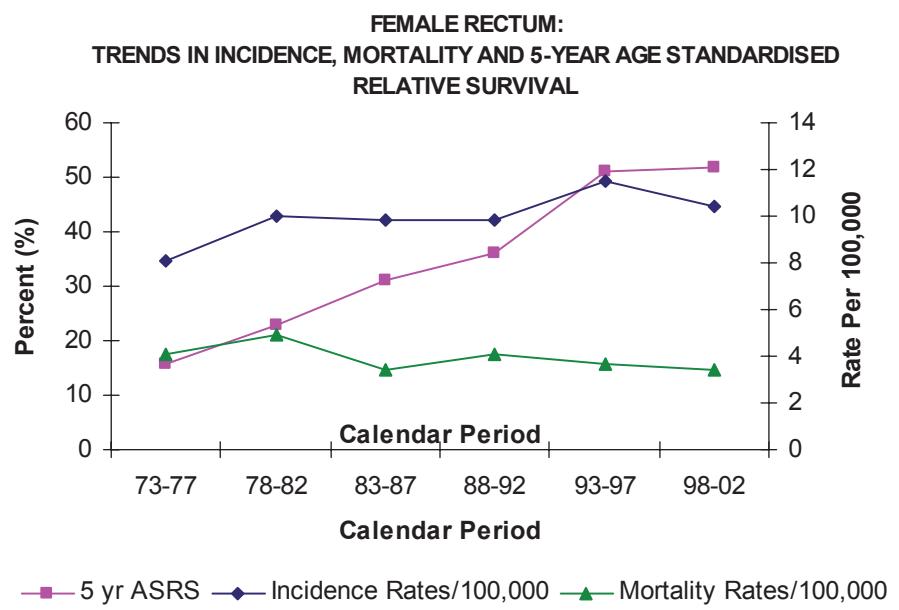
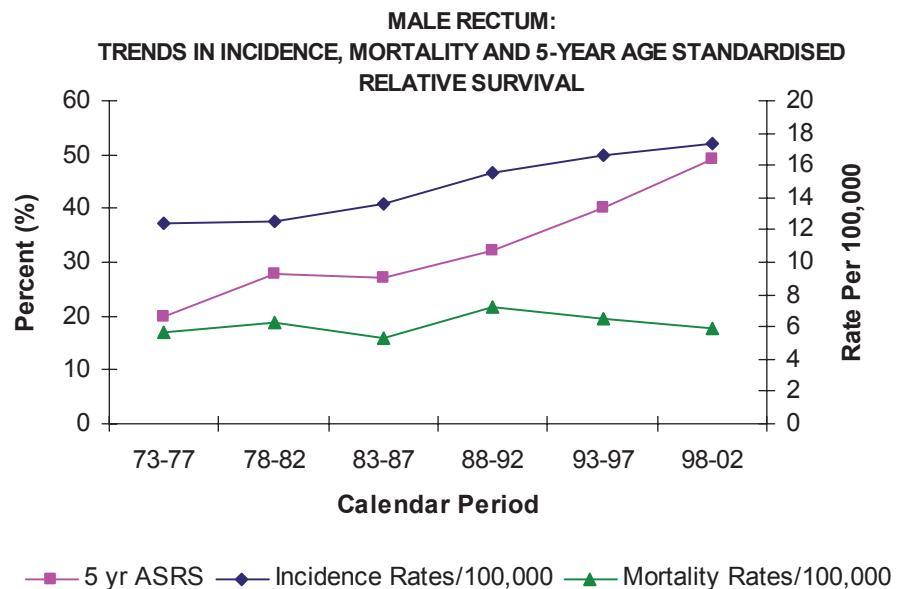
Similar to colon cancer, the survival of rectal cancer showed clear improvement over the study period. Females demonstrated a greater degree of improvement of survival than males. In males, the 5-year ASRS increased from 20.0% in 1973-77 to 49.3% in 1998-2002 and in females, the 5-year ASRS climbed from 15.6% in 1973-77 to 51.9% in 1998-2002. Internationally, the 5-year relative survival of rectal cancer was worse than that in the SEER registries but similar to that in Europe.

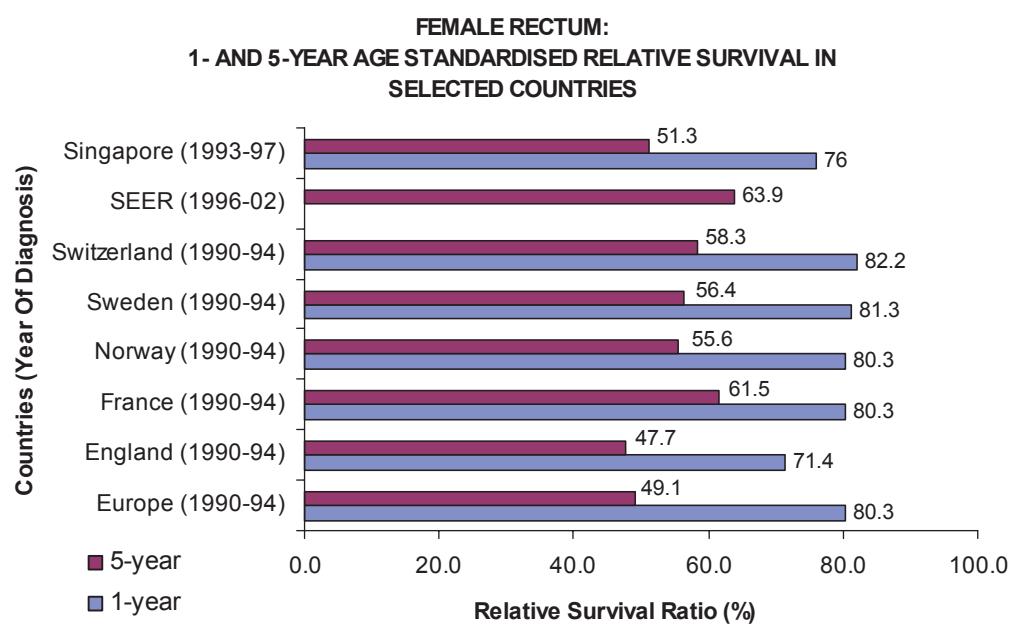
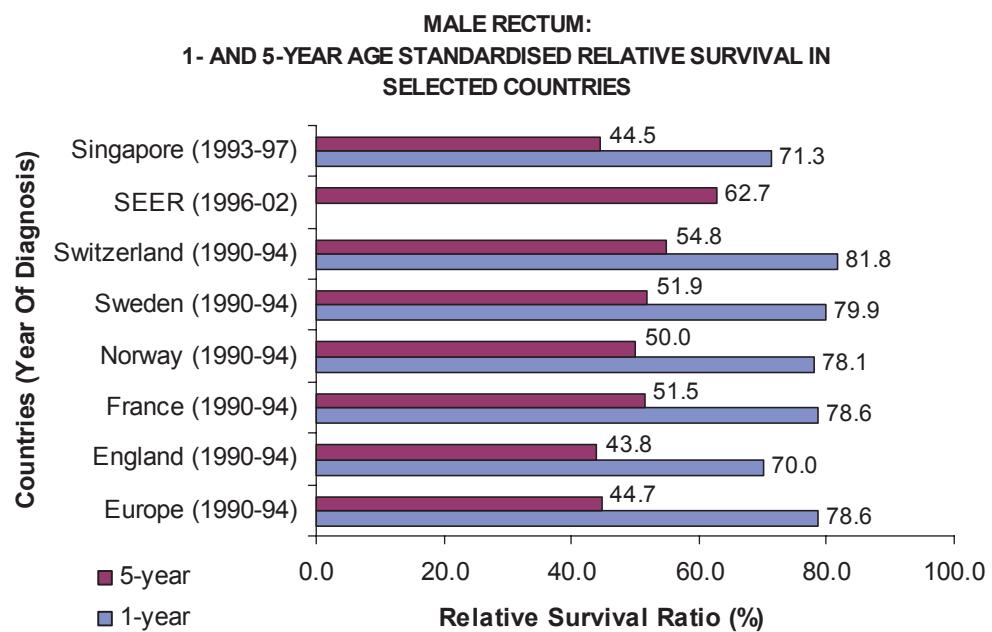
There were gender differences in the change of incidence of rectal cancer. The incidence in males increased steadily over the study period, from 12.4 per 100,000 in 1973-77 to 17.3 per 100,000 in 1998-2002 while the incidence in females, notwithstanding minor fluctuations, maintained at a level of 10 per 100,000 throughout the study period. The mortality of rectal cancer for both genders remained fairly stable throughout the period of interest.

Even though colorectal cancer screening modalities were present in Singapore during the study period, we do not think that screening had a significant impact on the incidence, mortality and survival trends of rectal cancer. The reasons for this were discussed in the earlier section on colon cancer.

There have been improvements in the treatment of rectal cancer over the past decades, in particular, in local control of the tumour. Preoperative radiotherapy is effective in improving local control of rectal cancer. In 1990, citing evidence from randomised clinical trials, a panel of experts at the National Institutes of Health Consensus Development Conference concluded that adjuvant therapy combining chemotherapy and radiation therapy improves local control and survival for Stage II and III rectal cancer patients.⁴⁹ Another therapeutic advance during the study period was the emergence of total mesorectal excision in local control of rectal cancer. This surgical technique was shown to reduce local recurrence following

surgery to less than 10%.⁵⁰ In addition, the improvement of survival of colorectal patients in Singapore was attributed to the improvement in medical infrastructure to support the treatment needs of cancer patients.⁴⁸





Age standardised observed survival and relative survival of rectal cancer by calendar period and gender

Calendar Period	ASOS (%)					Males				ASRS (%)			
	1yr	3yr	5yr	10yr	-	1yr	3yr	5yr	10yr	1yr	3yr	5yr	10yr
1973-1977	41.7	21.0	13.5	-		44.0	25.7	20.0	-				
1978-1982	56.7	28.8	20.8	13.2		59.4	33.8	28.2	35.0				
1983-1987	59.3	32.8	20.1	10.1		62.2	38.1	26.9	21.0				
1988-1992	67.0	37.2	25.9	17.5		70.3	42.6	31.9	33.7				
1993-1997	66.0	43.3	31.7	20.9		69.1	49.7	40.4	36.8				
1998-2002	73.7	50.8	40.0	25.8		76.5	56.9	49.3	40.2				
Calendar Period	ASOS (%)					Females				ASRS (%)			
	1yr	3yr	5yr	10yr	-	1yr	3yr	5yr	10yr	1yr	3yr	5yr	10yr
1973-1977	42.0	17.4	12.8	-		43.7	19.7	15.6	-				
1978-1982	55.8	29.0	18.9	11.6		57.9	32.3	22.7	20.4				
1983-1987	62.1	35.4	26.1	15.0		64.3	39.1	31.0	19.3				
1988-1992	67.7	42.1	30.0	19.6		69.7	46.2	35.5	27.9				
1993-1997	73.0	54.3	44.0	28.7		75.1	59.5	51.4	39.6				
1998-2002	75.0	55.2	45.3	31.5		77.0	59.7	51.9	42.4				

ASOS: Age standardised observed survival

ASRS: Age standardised relative survival

-: the estimates were not computed due to insufficient sample

Liver (ICD-9 155)

There is marked international variation in the incidence of primary liver cancers with the majority of cases arising in developing countries in Sub-Saharan Africa and Southeast Asia.⁵¹ The incidence of hepatocellular carcinoma in Singapore is higher than that in most Western countries but it is lower than the levels seen in other Asian regions such as Hong Kong and Osaka.⁵¹ Hepatocellular carcinoma is the most common histologic subtype of liver cancer.² In the period 1998-2002, it accounted for 84.7% of all primary liver cancers diagnosed. Thus changes in the trends of the incidence, mortality and survival of primary liver cancer reflect mainly those of hepatocellular carcinoma.

Between 1973 and 2002, the incidence of liver cancer in Singapore declined steadily. The incidence in males dropped from 27.4 per 100,000 in 1973-77 to 18.5 per 100,000 in 1998-2002 while the incidence in females decreased from 6.9 per 100,000 in 1973-77 to 4.6 per 100,000 in 1998-2002. The time trends of mortality followed that of incidence very closely in both genders and this reflects the poor prognosis of liver cancer where patients typically succumb to the disease in months after diagnosis.

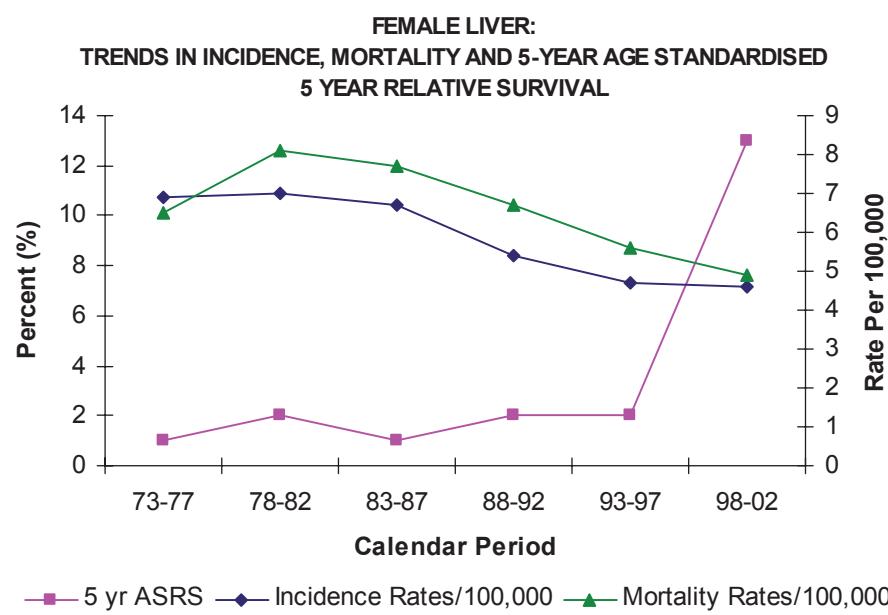
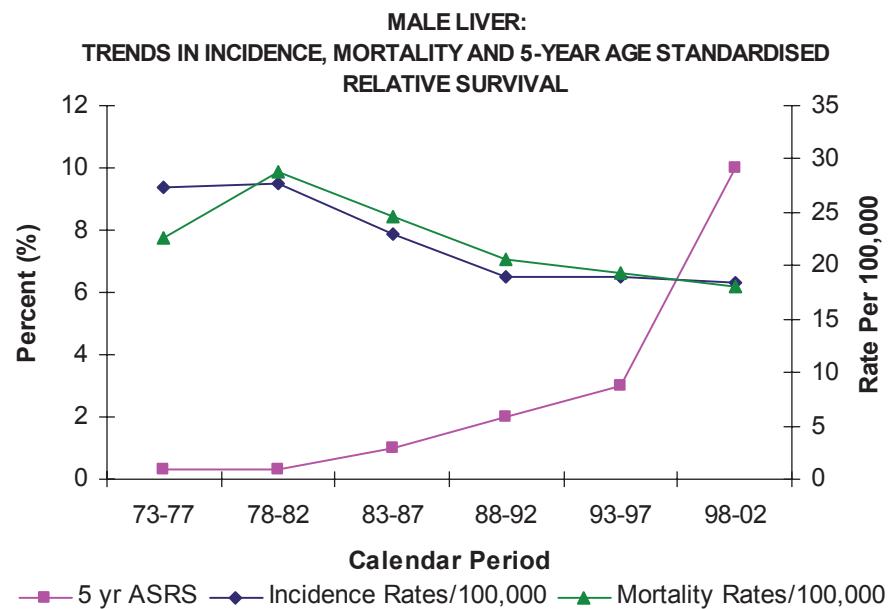
The reasons for the decline in incidence of hepatocellular carcinoma are not clear. It was suggested that the falling incidence of hepatocellular carcinoma seen in developing countries could have been a result of a reduction in the prevalence in risk factors (e.g. cofactors of HBV) of hepatocellular carcinoma.⁵¹ Chronic hepatitis B infection is an important risk factor for hepatocellular carcinoma in Singapore.^{52,53} In order to prevent and control hepatitis B in Singapore, hepatitis B vaccination was introduced as integral part of National Childhood Immunisation Programme in 1987.⁵⁴ While we expect the incidence of hepatocellular carcinoma to fall with increasing immunity against hepatitis B infection within the population, the benefits of the immunisation programme towards reduction of the incidence of hepatocellular carcinoma would

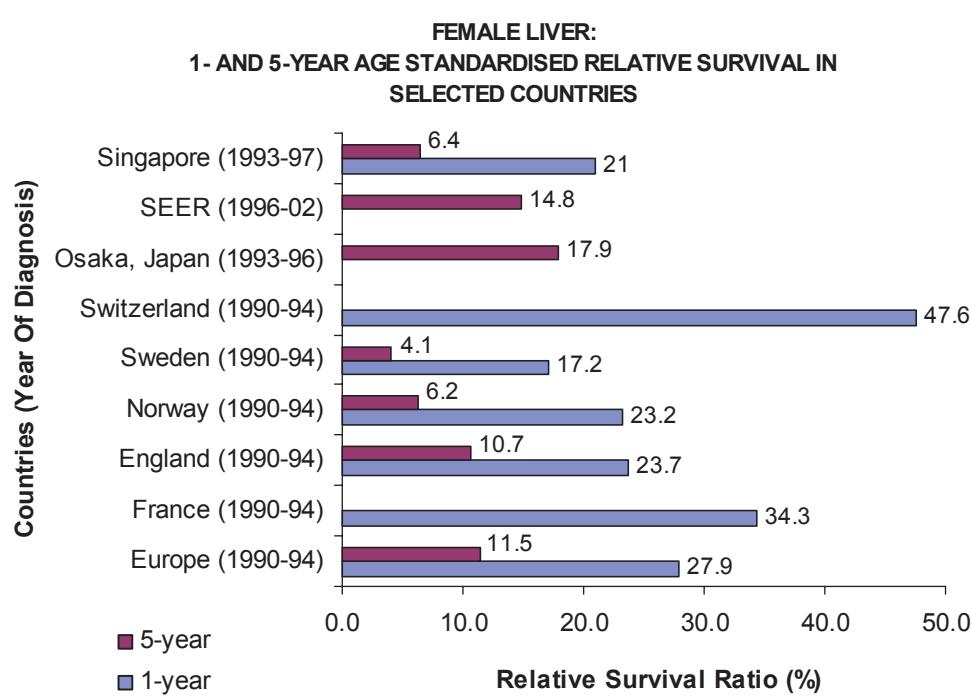
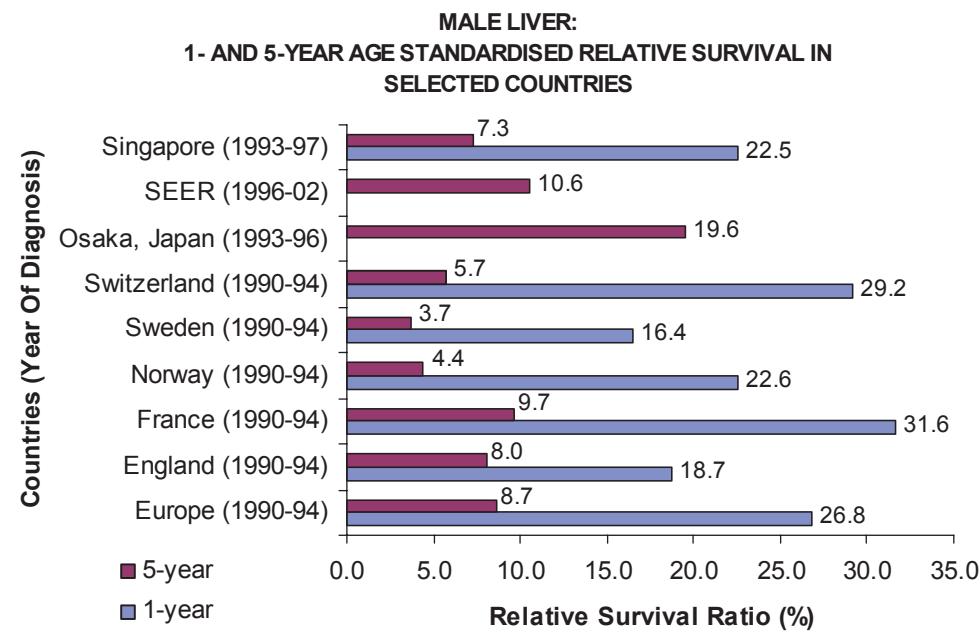
not be felt during the study period. This is because the development of hepatocellular carcinoma usually occurs several decades after the initial virus infection.

It was also proposed that the initial high incidence seen in Singapore was a result of misclassification of metastatic cancers in the liver in the early days of cancer registration.⁵⁵ However, we think that this will not create significant bias in the interpretation of the survival of liver cancer as the prognoses of patients with primary liver cancer and patients with metastatic cancers are uniformly poor.

Despite a rise in survival in the most recent calendar period in both genders, the 5-year ASRS of liver cancer remained less than 15%. The 5-year relative survival for liver cancers in Singapore was lower than that in Europe and the SEER registries.

The poor survival of liver cancer might be largely attributed to the fact that most liver cancers were diagnosed only when the disease had become advanced and the lack of effective treatment for late disease. There was little progress in the treatment of liver cancer during the study period that would significantly improve survival. Liver resection and liver transplantation, which are now viewed the definitive treatment for hepatocellular carcinoma⁵⁶, are the only two curative treatments available.⁵⁷ However, the majority of liver cancers are already unresectable at presentation and do not qualify for liver transplantation.





Age standardised observed survival and relative survival of liver cancer by calendar period and gender

Calendar Period	ASOS (%)					Males			
	1yr	3yr	5yr	10yr		1yr	3yr	5yr	10yr
1973-1977	0.9	0.4	0.2	-	0.9	0.4	0.3	-	-
1978-1982	2.0	0.7	0.3	0.2	2.1	0.7	0.3	0.3	0.3
1983-1987	4.0	1.6	1.1	0.3	4.0	1.7	1.2	0.4	0.4
1988-1992	10.0	2.4	1.4	0.6	10.2	2.5	1.5	0.8	0.8
1993-1997	13.1	4.5	2.9	1.5	13.3	4.8	3.1	1.8	1.8
1998-2002	25.1	13.4	9.5	5.6	25.5	14.0	10.3	6.3	6.3
Calendar Period	ASOS (%)					Females			
	1yr	3yr	5yr	10yr		1yr	3yr	5yr	10yr
1973-1977	4.3	1.6	0.9	-	4.4	1.7	1.0	-	-
1978-1982	10.2	5.3	1.8	0.5	10.3	5.4	1.9	0.6	0.6
1983-1987	7.4	1.5	1.4	0.3	7.4	1.6	1.5	0.4	0.4
1988-1992	10.3	1.7	1.7	2.0	10.4	1.8	1.9	2.2	2.2
1993-1997	13.7	4.1	1.9	1.0	13.9	4.2	2.1	1.3	1.3
1998-2002	30.6	14.9	12.2	1.4	30.8	15.3	12.6	1.8	1.8

ASOS: Age standardised observed survival

ASRS: Age standardised relative survival

-: the estimates were not computed due to insufficient sample

Lung (ICD-9 162)

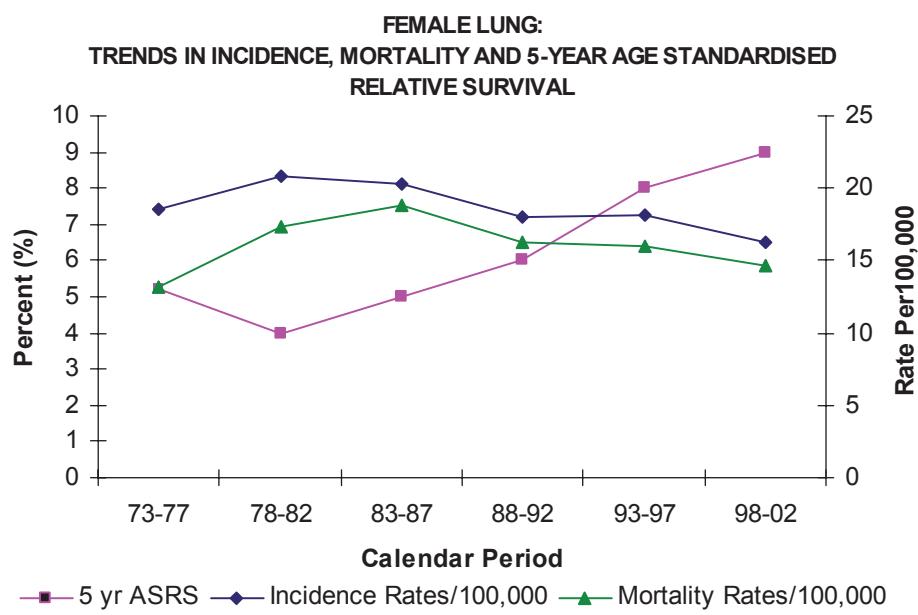
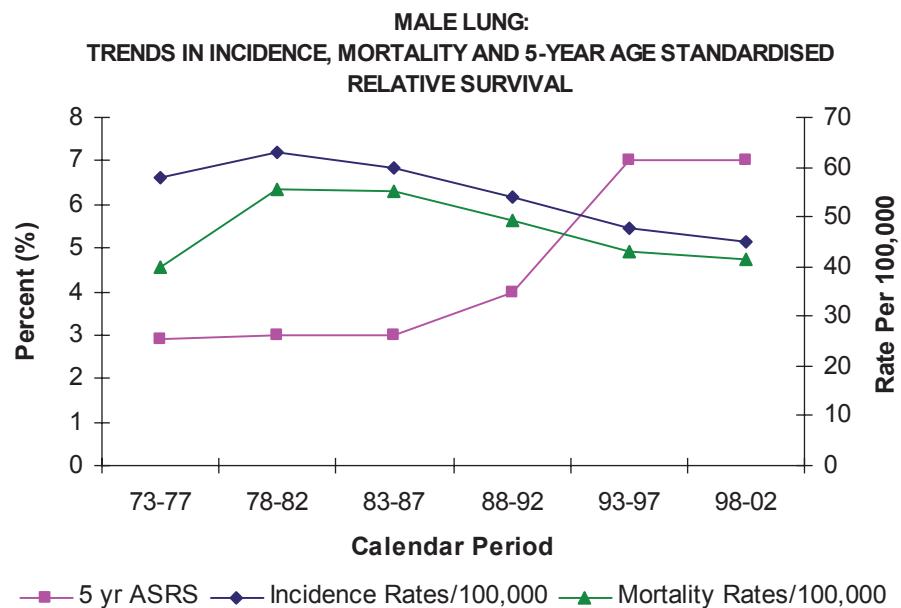
Lung cancer is an important public health issue. It is one of the most frequent cancers in our population. The incidence of lung cancer is ranked highest among all cancers in males and third highest in females in 1998-2002.² Thus, it is worthy to note that during the study period, the incidence of lung cancer declined from 58.0 per 100,000 in 1973-77 to 45.0 per 100,000 in 1998-2002 among males, and from 18.5 per 100,000 in 1973-77 to 16.3 per 100,000 in 1998-2002 among females.

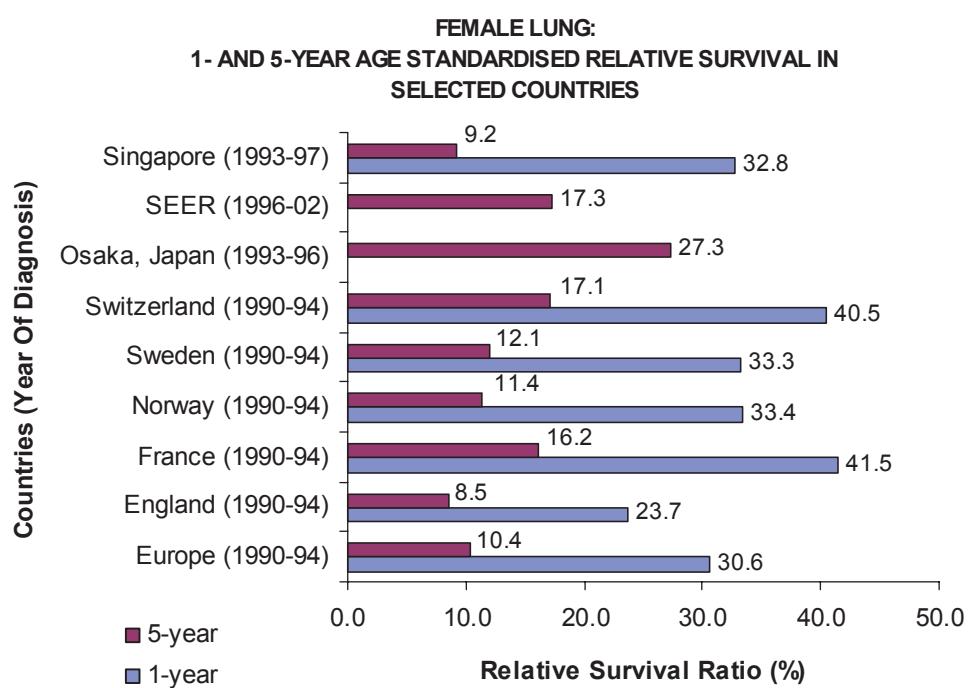
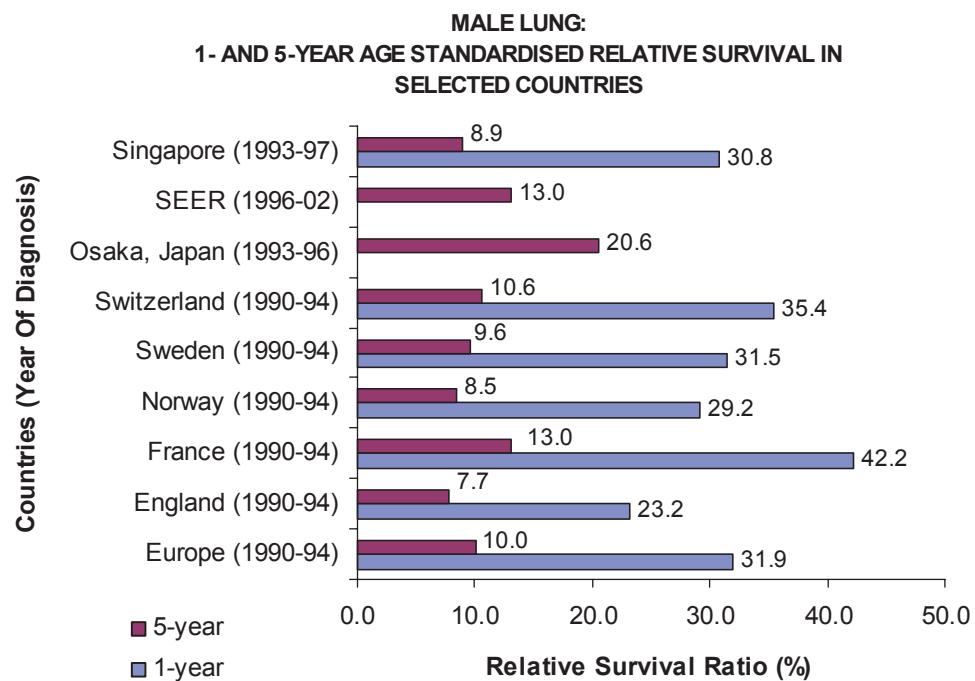
The mortality of lung cancer in each period was very close to that of the incidence across the entire period, suggesting that case fatality was very high for this condition. While there had been some upward trend seen in the survival, this modest improvement in survival of lung cancer patients over the last three decade should not distract us from the overall poor survival of this condition. The 5-year ASRS stood at less than 10% in the most recent period in this study, i.e. 1998-2002, making this disease to be the one with the poorest survival in our analysis. Internationally, the relative survival for lung cancers in Singapore was lower than that in the SEER registries, France and Osaka, Japan.

The interpretation of lung cancer incidence, mortality and survival is made more straightforward by the absence of an accepted proven screening modality. Screening may lead to lead time bias and overdiagnosis that can affect interpretation of incidence, mortality and survival trends. As there is no method devised to screen for lung cancer with the aim of picking up lung cancer at an earlier stage, lung cancer is usually diagnosed at an advanced stage when a patient presents to the physician with respiratory or systemic symptoms. While there could have been some increase in intensity of diagnosis through improved access to medical care, there is no proven screening tool in asymptomatic persons. Hence, the change in incidence pattern could not be related to a change in diagnostic intensity.

The downward trend of incidence is likely to reflect a reduction in overall population risk for lung cancer. Smoking is the single most important risk factor for the development of lung cancer. Between 1984 and 1998, the prevalence of smoking in males fell by 27%.⁵⁸ However, unlike males, cigarette smoking is not responsible for the majority of lung cancer in Chinese women⁵⁹ who make up most of the female lung cancer cases locally.

There was no significant breakthroughs in lung cancer treatment to improve survival considerably during the study period even though recent advances in molecular targeted therapy have been shown to improve survival of non-small cell lung cancer in Asians.^{60,61} Only surgically resectable lung cancers are considered to be curable and all other modes of treatment should be considered to be palliative in intent. Disease control measures should focus on primary prevention of this disease.





Age standardised observed survival and relative survival of lung cancer by calendar period and gender

Calendar Period	ASOS (%)					Males				ASRS (%)			
	1yr	3yr	5yr	10yr	-	1yr	3yr	5yr	10yr	1yr	3yr	5yr	10yr
1973-1977	11.5	3.1	2.4	-		11.9	3.4	2.9	-				
1978-1982	13.8	4.3	2.7	1.9		14.2	4.6	3.1					2.4
1983-1987	16.3	4.3	3.0	1.9		16.8	4.6	3.3					2.3
1988-1992	17.2	5.6	3.7	2.4		17.7	6.0	4.2					3.7
1993-1997	26.0	8.7	5.7	3.4		26.8	9.4	6.6					4.9
1998-2002	27.0	9.2	6.5	3.8		27.7	9.9	7.4					5.2

Calendar Period	ASOS (%)					Females				ASRS (%)			
	1yr	3yr	5yr	10yr	-	1yr	3yr	5yr	10yr	1yr	3yr	5yr	10yr
1973-1977	14.8	5.8	4.7	-		15.2	6.3	5.2	-				
1978-1982	15.2	5.6	3.8	1.8		15.6	6.0	4.2					2.1
1983-1987	17.1	6.2	4.3	2.7		17.5	6.5	4.8					3.1
1988-1992	21.5	6.9	5.4	3.0		21.8	7.2	5.8					3.5
1993-1997	29.7	10.2	7.2	4.0		30.2	10.7	7.8					4.6
1998-2002	32.1	12.6	8.7	6.0		32.6	13.1	9.4					7.2

ASOS: Age standardised observed survival

ASRS: Age standardised relative survival

-: the estimates were not computed due to insufficient sample

Female Breast (ICD-9 174)

The survival of female breast cancer increased steadily over the study period. The 5-year ASRS were 46.1% and 76.1% in 1973-77 and 1998-2002 respectively. Relative survival for breast cancer in Singapore was lower than that in Europe, the SEER registries and Osaka, Japan but higher than that in certain parts of Asia.

Breast cancer is the most frequent cancer among females in Singapore. The incidence of breast cancer increased steadily over the study period. The incidence of breast cancer jumped from 22.0 per 100,000 in 1973-77 to 54.9 per 100,000 in 1998-2002. The increase in incidence was likely due to a genuine increase in breast cancer risk in the population as Singapore experienced changes in risk factors of breast cancer that accompanied improvement in socioeconomic conditions through its progression from a developing country to an industrialised country.^{62,63,64} Breast cancer risk is dependent on reproductive factors such as age at first birth, parity and age at menarche. The total fertility rate declined over the study period and more Singaporean women delayed childbirth until a later age. These trends could have translated into higher risk of breast cancer in Singaporean females over time. In addition, the increase in breast cancer risk might also be partly attributed to increasing obesity within the population^{65,66}, possibly a result of a more Westernised lifestyle and changing dietary patterns among Singaporean females.

While randomised trials of breast self-examination have failed to show benefit⁶⁷, mammographic screening has been shown to decrease breast cancer mortality in Western populations^{68,69} and national breast cancer screening programmes have been launched in several countries. In Singapore, over the study period, breast cancer screening was carried out mainly on an opportunistic basis when women attending antenatal and postnatal examinations were taught how to examine their breasts for lumps. The Well Woman Clinics which began in 1987

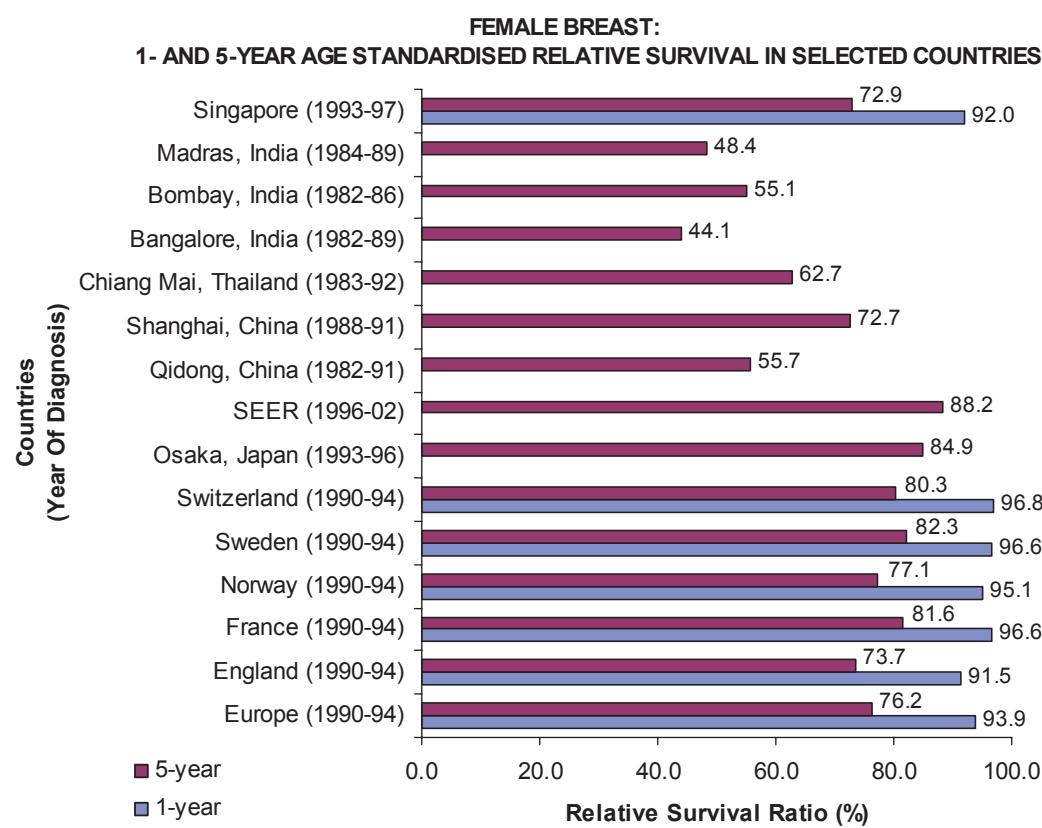
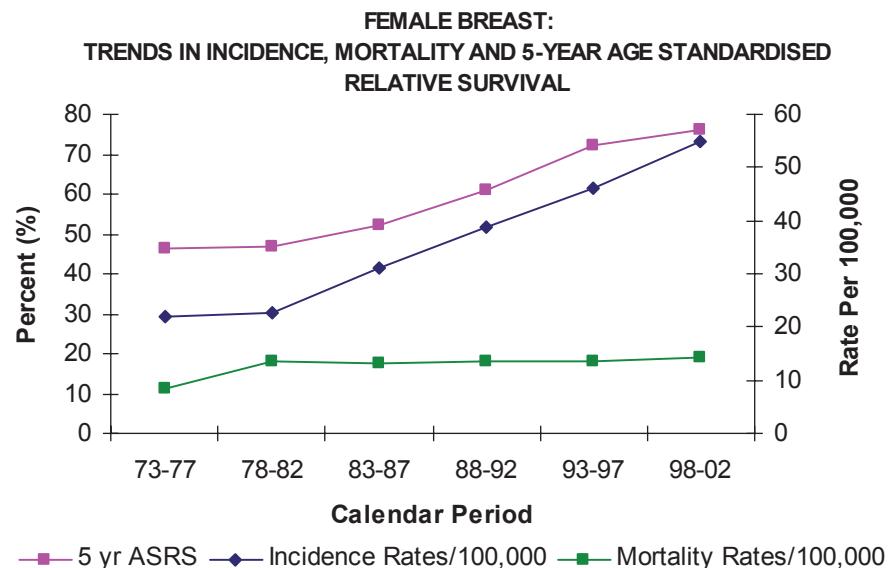
offered a more structured approach, with a package that included a clinical breast examination, instruction in breast self-examination and cervical cytology. It was not until 1989 when women above the age of 40 attending these clinics were encouraged to go for a mammogram.⁷⁰ It is important to note that the uptrend in incidence and survival of breast cancer preceded these developments in the late 1980s. More recently, Singapore also started the first population-based mammographic breast screening programme in Asia (BreastScreen Singapore) in 2002.⁷¹

While the study of breast cancer trends might be influenced by the local screening practices, the overall impact of breast cancer screening on the trends of breast cancer in Singapore was likely to be small because the utilisation of breast cancer screening during the study period was limited. The National Health Survey 1998 reported that only 37.9% of Singaporean women aged 18 to 69 years were aware of mammography.⁶⁶ Even as recent as 2001, only 52% of the women in the 50-64 years age group were aware of mammography screening and 33% had ever attended screening.⁷²

Besides screening, another way which intensified detection of early stage cancer was through increased awareness. As Singapore progressed economically over the past few decades, the overall education level of the population increased. It is possible that the more recent generations of Singaporean women have greater awareness of breast cancer and the symptoms associated with the condition. Hence they would have presented to their physicians earlier and be diagnosed at an earlier stage of disease which inherently carried a better prognosis and survival. However, we do not have local data to draw strong conclusions on this point.

The difference between the incidence and mortality patterns was striking as the incidence doubled over the study period while mortality remained fairly stable within a range of 13.1 to 14.1 per 100,000 since the 1980s. The divergence

of incidence and mortality, together with the rise in survival, suggests that there was progress in the effectiveness in the treatment of breast cancer. The treatment modalities for breast cancer expanded over the last few decades to include adjuvant systemic therapy in the form of chemotherapy and endocrine manipulation. As adjuvant chemotherapy has been shown to improve survival, it is being recommended to the majority of women with localised breast cancer regardless of nodal, menopausal, or hormone receptor status.⁷³ Tamoxifen treatment has been shown to substantially improve the 10-year survival of women with ER-positive tumours.⁷⁴



Age standardised observed survival and relative survival of female breast cancer by calendar period

Calendar Period	Females						ASRS (%)
	1yr	3yr	5yr	10yr	1yr	3yr	
1973-1977	78.9	52.3	41.4	-	80.9	56.0	46.1
1978-1982	80.7	53.3	41.4	28.4	82.7	57.6	47.0
1983-1987	82.4	61.3	47.4	32.2	84.0	65.3	52.1
1988-1992	87.6	68.5	56.1	39.8	89.1	72.1	61.0
1993-1997	89.5	75.5	66.1	50.0	91.0	79.2	72.2
1998-2002	93.5	80.6	70.5	54.8	94.9	84.2	76.1
							64.2

ASOS: Age standardised observed survival

ASRS: Age standardised relative survival

-: the estimates were not computed due to insufficient sample

Cervix (ICD-9 180)

Survival of cervical cancer patients made good progress over the past three decades. Though the relative survival for cervical cancer in Singapore was lower than that in the SEER registries, it was comparable to that in Europe. The 5-year ASRS increased over the study period, from 45.2% in 1973-77 to 64.7% in 1998-2002.

Conversely, both the incidence and mortality of cervical cancer declined steadily over the study period. The incidence of cervical cancer dropped from 17.5 per 100,000 in 1973-77 to 10.6 per 100,000 in 1998-2002. The mortality of cervical cancer decreased from 7.0 per 100,000 in 1973-77 to 4.5 per 100,000 in 1998-2002.

Worldwide, cervical cytological screening greatly influenced the trends of cervical cancer. Even though the efficacy of the test has never been subjected to randomised controlled trials, it is generally agreed based on observational data that cervical cancer screening is the main reason for declines in cervical cancer incidence and mortality seen in many countries.^{75,76} For conventional cervical cytology, studies indicate substantial effects in reducing the cervical cancer incidence and mortality rates. There is also evidence that the screening impact is greater in the organised screening programmes than in opportunistic screening.⁷⁷

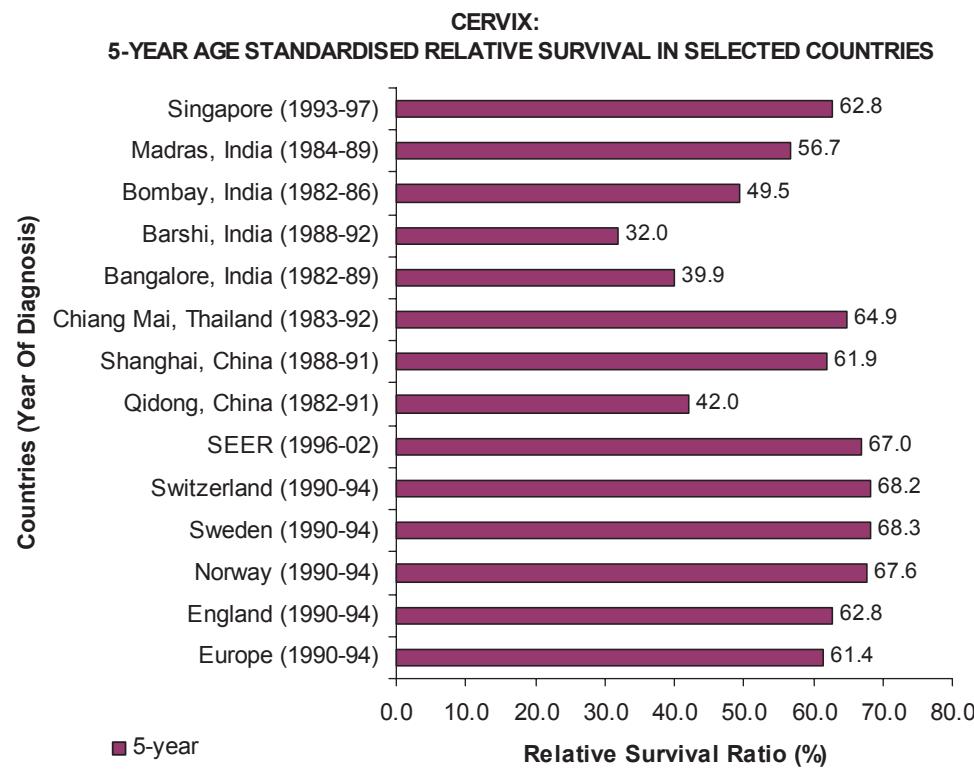
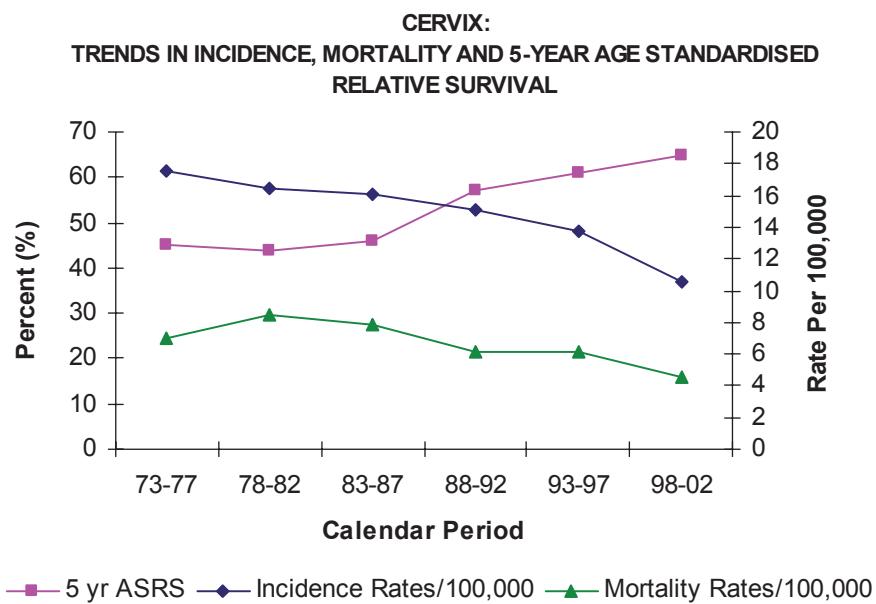
The Papanicolaou smear (“Pap smear”) was first introduced into Singapore in 1964 and since then it has been widely available.⁷⁸ Pap smear was made available mainly through opportunistic screening over the study period. Studies conducted in the early 1990s showed that most women in the 21-65 age group were aware of the Pap smear⁷⁸ and 54.4% of the married women ever had a Pap smear.⁷⁹ In the 1998 National Health Survey⁶⁶, 81.9% of women aged 25 to 69 years in Singapore felt that it was important to have Pap smears. The

survey also revealed that 64.2% of women had undergone Pap smear. In 2004, the national cervical cancer screening programme was launched in Singapore. Termed “CervicalScreen Singapore”, it aims to encourage women aged 25 - 69 who ever had sex to go for Pap smears once every 3 years.

The uptake of the Pap smear was greatly facilitated by the development of healthcare infrastructure in Singapore that accompanied socioeconomic progress over the past few decades. The delivery of primary care services grew to include a widely distributed network of private outpatient clinics and more than a dozen subsidised public polyclinics which were able to provide services at an affordable cost. The development of these facilities would have increased the accessibility of Pap smear to women in the general population who are at risk.

Conceptually, Pap smear screening detects preinvasive disease of cervical cancer and as there is effective treatment for the preinvasive disease^{80,81}, the incidence of cervical cancer should reduce as a consequence of screening. Thus we would expect the incidence of cervical intraepithelial neoplasia to rise while that of cervical cancer to fall with the initiation of screening activities. This was shown in data from other cancer registries.^{82,83}

The use of Pap smears may also aid detection of cervical cancers at an earlier stage in the natural history of the disease while the patient is still asymptomatic. This will improve survival of cervical cancer as the stage of disease is an important prognostic indicator of cervical cancer. The improvement in survival could also be possibly accounted for by new treatment advances in the treatment of cervical cancer. The combination of chemotherapy and radiation was shown to be a more effective way for locoregional control in locally advanced cancer as pelvic irradiation alone was unable to control locally advanced cervical cancer in 35–90% of the cases.⁸⁴ Clinical trials demonstrated superiority of combined platinum-based chemoradiation compared with radiation alone for locally advanced and high-risk early-stage cervical cancers.^{84,85,86}



Age standardised observed survival and relative survival of cervical cancer by calendar period

Calendar Period	Females						ASRS (%)
	1yr	3yr	5yr	10yr	1yr	3yr	
1973-1977	74.0	49.9	41.8	-	75.2	52.2	45.2
1978-1982	74.8	49.7	41.4	32.1	75.9	51.5	44.0
1983-1987	80.3	53.6	43.8	37.2	81.3	55.4	46.2
1988-1992	83.5	61.7	54.5	43.0	84.4	63.6	57.4
1993-1997	83.5	65.7	58.4	48.8	84.4	67.7	61.4
1998-2002	85.6	69.0	61.8	54.7	86.4	70.8	64.7
							61.0

ASOS: Age standardised observed survival

ASRS: Age standardised relative survival

-: the estimates were not computed due to insufficient sample

Corpus Uteri (ICD-9 182)

Uterine cancer is the seventh most common cancer in Singaporean women in 1998-2002.² The highest age specific incidence is observed in postmenopausal women. The overwhelming majority of uterine cancers originates from the endometrium and among the histologic subtypes, endometroid carcinoma dominates.

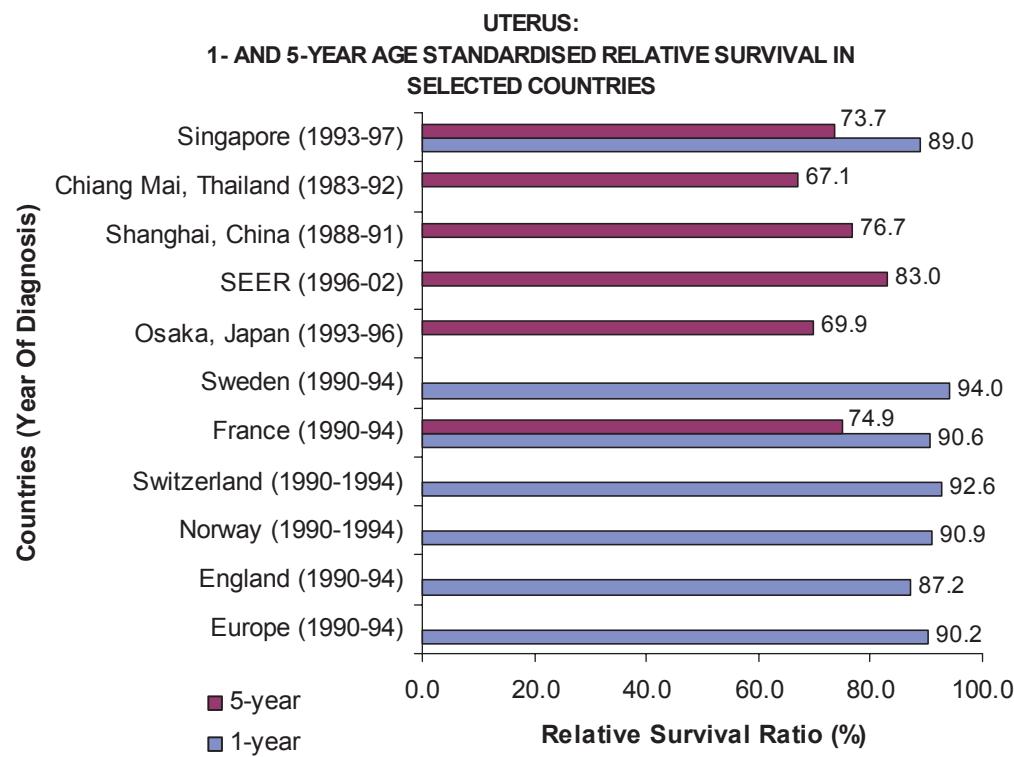
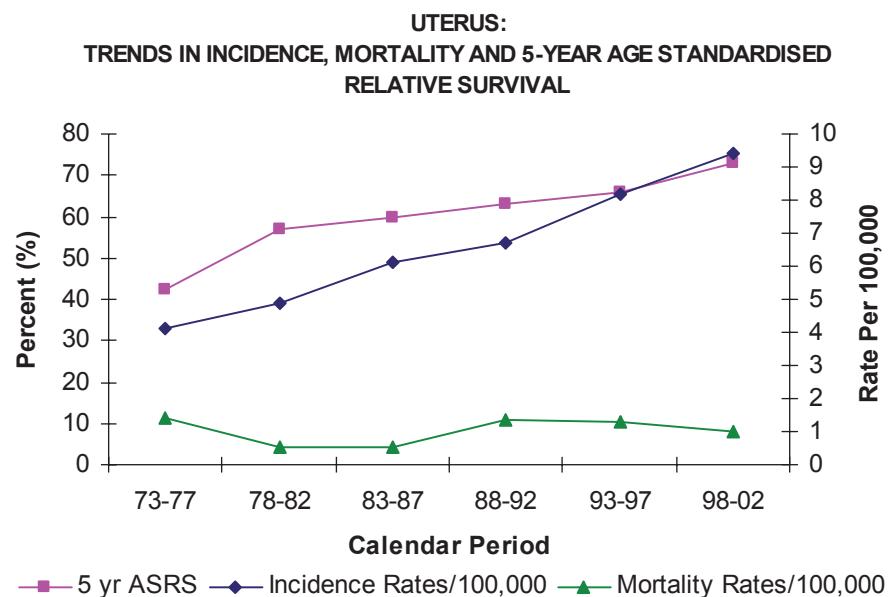
Uterine cancer had one of the highest 5-year ASRS among the various cancers at the start of the study period and it had shown good improvement in survival over the past two decades. Between 1973 and 2002, the 5-year ASRS increased by 30.5%, from 42.4% in 1973-77 to 72.9% in 1998-2002. The relative survival for cancer of the uterus in Singapore was lower than that in the SEER registries but higher than that in Osaka, Japan and Chiang Mai, Thailand.

The improvement in survival took place against a background of an increasing incidence and a stable and low mortality rate of this cancer during the study period. The incidence of uterine cancer increased steadily over the last three decades, from 4.1 per 100,000 in 1973-77 to 9.4 per 100,000 in 1998-2002. The mortality of this disease remained at around 1.0 per 100,000 throughout the study period.

Most patients with uterine cancer are diagnosed with the condition after they present with symptoms of the disease e.g. postmenopausal per vaginal bleeding or spotting.⁸⁷ There is no test that has been developed for the screening for uterine cancer in asymptomatic persons. There is also no precursor of the disease that can be identified in the general population for intervention from a preventive perspective. Therefore, screening cannot explain the increasing trend seen in the incidence of uterine cancer. Other forms of bias are probably not sufficient to explain the steady rise and doubling of the incidence of uterine

cancer. The rising incidence of uterine cancer likely reflects a true increase in the risk for the disease within the population over the study period.

Endometrial cancer is the most common form of uterine cancer. The high survival seen in uterine cancer is related to the fact that most of endometrial cancers are localised within the uterus at the time of diagnosis. For these localised tumours, the chances of survival are excellent for the patient. In addition, there has been progress in the treatment of uterine cancer that may explain the increasing survival. For many years, the standard treatment was simple total hysterectomy and bilateral salpingo-oopherectomy. Surgical staging was introduced in 1980s in recognition of the need to identify node involvement. In the last 15 years, there has been an increased interest in the use of chemotherapy, particularly when there is gross residual or distal disease.⁸⁸ There has also been a more judicious and better use of radiotherapeutic modalities for this cancer resulting in lower morbidity. The overall effect of these advances is to reduce mortality of patients with uterine cancer and improve survival of this disease.



Age standardised observed survival and relative survival of uterine cancer by calendar period

Calendar Period	Females					
	ASOS (%)			ASRS (%)		
	1yr	3yr	5yr	10yr	1yr	3yr
1973-1977	66.9	39.9	36.7	-	69.1	43.3
1978-1982	73.9	55.6	51.7	37.0	75.4	58.3
1983-1987	78.7	62.2	54.9	44.0	80.4	66.0
1988-1992	76.7	63.4	58.3	49.6	78.0	66.2
1993-1997	87.1	71.5	61.8	55.2	88.5	74.8
1998-2002	85.3	74.8	68.4	57.2	86.5	77.6
					72.9	64.7

ASOS: Age standardised observed survival

ASRS: Age standardised relative survival

-: the estimates were not computed due to insufficient sample

Ovary (ICD-9 183)

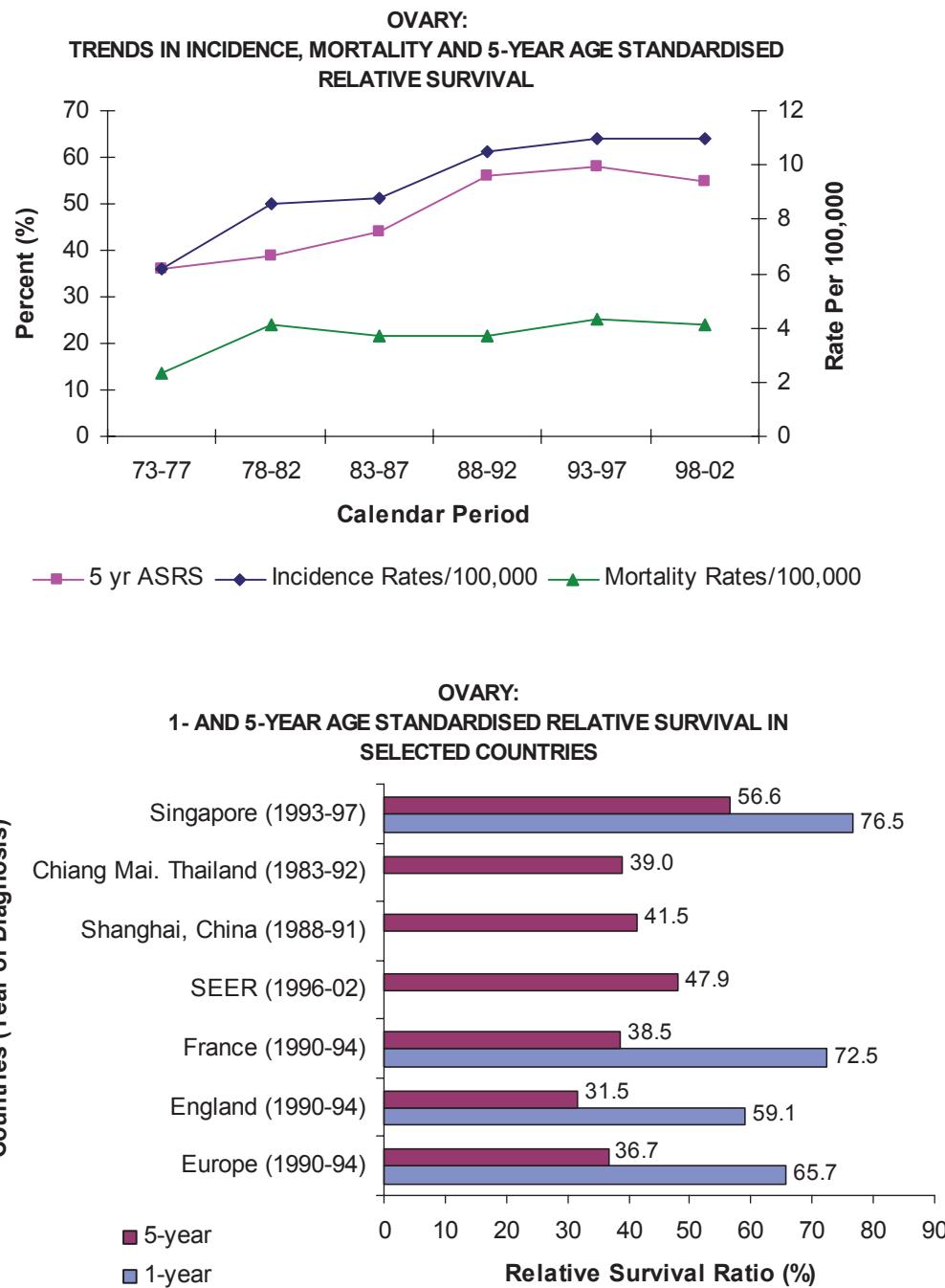
Ovarian cancer has been dubbed “the silent killer” in women.⁸⁹ This disease has minimal or no symptom until it reaches an advanced stage and by then, the treatment options become limited and are less efficacious. Unfortunately, the majority of patients present at a late stage when disease is already locally advanced or metastatic. The stage of disease is highly prognostic in ovarian cancer. When ovarian cancer is diagnosed at the localised stage, the 5-year relative survival is 95%. However, this figure drops to less than 30% when the disease is diagnosed at an advanced stage.⁹⁰

Ovarian cancer is the fourth most frequent cancer among females in Singapore. It accounted for 5.4% of all female cancers diagnosed in 1998-2002.² The incidence of ovarian cancer had increased from 6.2 per 100,000 in 1973-77 to 11.1 per 100,000 in 1998-2002, though the rate of increase in incidence appeared to be slower in the last two calendar periods of the study. The mortality of this disease remained at around 4.0 per 100,000 throughout the study period. In terms of survival, the 5-year ASRS increased from 36.1% in 1973-77 to 55.5% in 1988-92 and stabilised at that level for the next two calendar periods. Internationally, the relative survival for ovarian cancer in Singapore was higher than that in Europe and certain parts of Asia.

During the past few decades, several advances in the management of ovarian cancer have emerged and these have contributed to the improvement in survival. The practices of abdominal radiotherapy or single agent chemotherapy are now replaced by procedures such as cytoreductive surgery and multiagent chemotherapy. Cytoreductive surgery is important as survival of patients with advanced ovarian cancer progressively increased when the maximum residual disease decreased.⁹¹ Accurate surgical staging and optimal tumour cytoreduction followed by platinum-based chemotherapy is the

standard of care in the management of ovarian cancer and results in improved patient survival.⁸⁹

There is no proven screening tool of ovarian cancer to detect ovarian cancer in asymptomatic individuals. CA-125 is a tumour marker that is used to detect recurrence of ovarian cancer after treatment and it has been offered as part of a panel of tumour markers in health screening packages locally. We do not have data on the number of ovarian cancers that have been diagnosed through elevated CA-125 tumour marker levels in health screening but elevated levels of CA-125 tend to be associated with advanced ovarian cancer rather than early ovarian cancer. Over 90% of advanced ovarian cancers will have an elevated CA-125 and 50% of stage 1 ovarian cancers will have a normal CA-125.⁹² Thus, earlier diagnosis of ovarian cancer from CA-125 screening is likely to be slight and will not have caused significant impact on the survival estimates in our study.



Age standardised observed survival and relative survival of ovarian cancer by calendar period

Calendar Period	ASOS (%)					Females ASRS (%)			
	1yr	3yr	5yr	10yr	-	1yr	3yr	5yr	10yr
1973-1977	58.6	38.8	34.1	-	59.4	39.9	36.1	-	-
1978-1982	60.4	39.7	35.7	26.6	61.5	41.5	38.5	29.0	29.0
1983-1987	63.8	44.6	41.1	34.0	64.7	46.2	43.6	36.9	36.9
1988-1992	73.4	57.8	52.0	40.7	74.3	59.8	55.5	44.6	44.6
1993-1997	74.8	60.7	54.7	44.5	75.6	62.7	57.8	49.9	49.9
1998-2002	80.7	61.2	52.7	45.7	81.5	62.7	54.8	50.1	50.1

ASOS: Age standardised observed survival

ASRS: Age standardised relative survival

-: the estimates were not computed due to insufficient sample

Prostate (ICD-9 185)

Undoubtedly, prostate specific antigen (PSA) screening has greatly influenced the trends of prostate cancer. The U.S. Food and Drug administration approved the PSA test for the purpose of monitoring disease status in prostate cancer in 1986 and the use of PSA test for screening increased thereafter. This happened despite the concerns about the PSA tests increasing the number of prostate cancer diagnoses and potentially harmful treatments without clear evidence of improved outcomes.

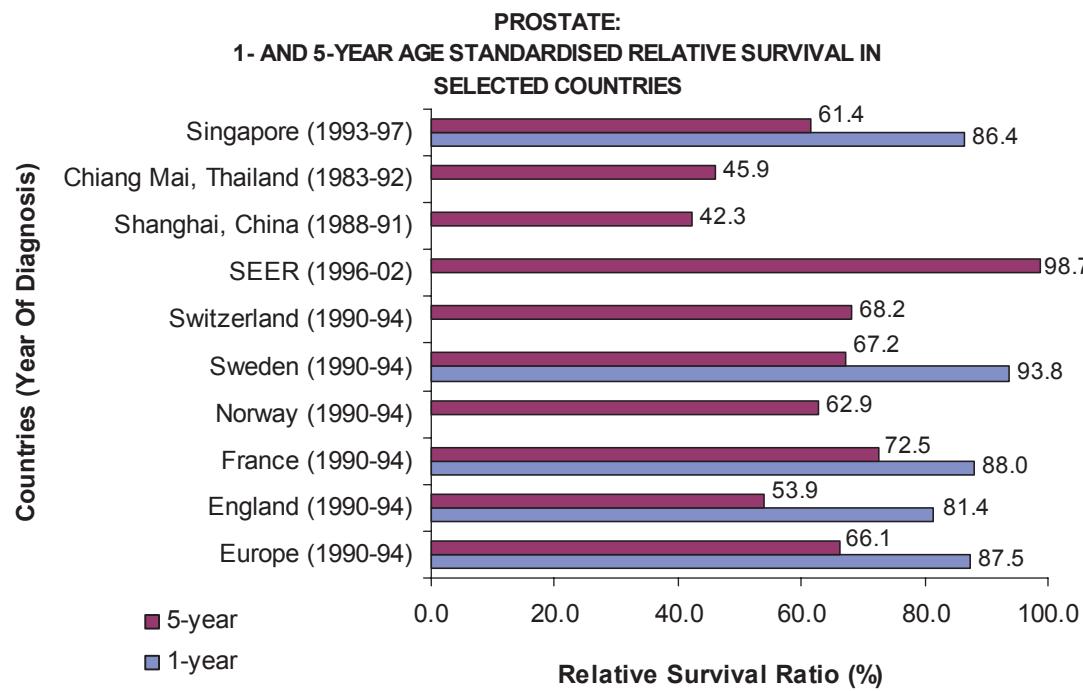
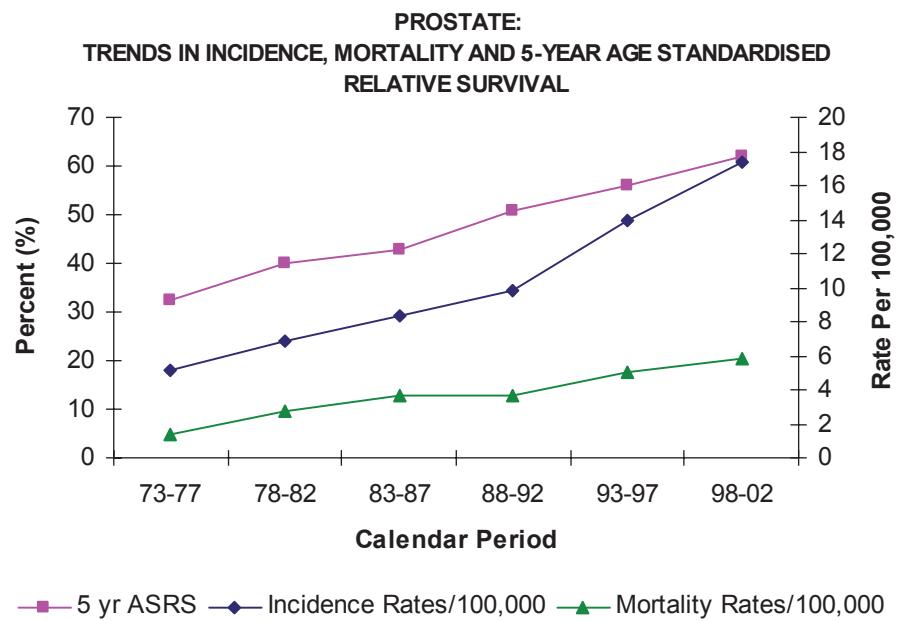
Prostate cancer is now the fifth most frequent cancer among Singapore males² and the incidence had more than doubled during the study period. The incidence increased from 5.2 per 100,000 in 1973-77 to 9.8 per 100,000 in 1988-92 before accelerating to reach 17.4 per 100,000 in 1998-2002. The mortality of prostate cancer increased from 1.4 per 100,000 in 1973-77 to 5.8 per 100,000 in 1998-2002. There appears to be improvement in survival of prostate cancer across the period of interest. The 5-year ASRS rose from 32.5% in 1973-77 to 62.1% in 1998-2002. Internationally, the relative survival for prostate cancer in Singapore was lower than that in the SEER registries but higher than that in England and certain parts of Asia.

It has been suggested that the increase in incidence may reflect a true increase in the prevalence in risk factors. Many Asian countries, with globalisation and gradual Westernisation, may be losing their protective cultural factors and acquiring high-risk ones.⁹³ However, the increased diagnostic intensity through screening should have contributed considerably to this uptrend. We observed that PSA test was often bundled together with other investigations in health screening packages in asymptomatic individuals. While we do not have data on the utilisation rates of PSA tests in Singapore, the accelerated increase in incidence in the last two calendar periods in the study could have represented more widespread use of PSA tests in screening.

The interpretation of survival trends of prostate cancer is complicated by bias created by the screening of prostate cancer. Screening is able to detect cancer at an earlier stage in the natural history of the cancer among asymptomatic persons. As these early stage cancers takes a longer time to progress and cause death than the more advanced tumours, there will appear to be an improvement in survival by the sheer dilution of the more advanced cancers in the pool of prostate cancer cases. This will take place even if effective therapy that is able to prolong survival for the early stage cancers do not exist.

To the extent that survival rates help to assess therapeutic progress in prostate cancer, we must be mindful that no treatment with a curative intent existed for prostate cancer until the late 1980s when radical prostatectomy started.¹ Prior to that, the key treatment option was that of hormonal manipulation which offered palliation with no cure. Therefore, no survival trend could be attributed to improved cure before 1990 because no such treatment was in use.¹

Prostate cancer is a slow progressive disease and "latent" (microscopic) prostate cancer is more common than overt clinical prostate cancer.⁹⁴ Latent cancer had been detected in 12% of men who died of other causes.⁹⁴ PSA screening and detection of these in non-fatal cancers, which otherwise will remain clinically silent throughout the lifetimes of the patients, will raise the survival of prostate cancer.



Age standardised observed survival and relative survival of prostate cancer by calendar period

Calendar Period	ASOS (%)					Males		
	1yr	3yr	5yr	10yr	1yr	3yr	5yr	10yr
1973-1977	64.7	40.3	19.6	-	71.1	54.7	32.5	-
1978-1982	71.3	40.1	25.9	9.0	76.7	50.9	40.0	16.5
1983-1987	65.4	37.6	25.6	9.4	71.1	49.5	42.5	30.1
1988-1992	74.1	48.8	31.8	10.2	80.5	63.2	50.7	31.6
1993-1997	80.2	53.6	37.6	16.3	86.1	67.5	56.2	41.6
1998-2002	85.2	60.8	45.1	22.6	90.4	73.1	62.1	45.2

ASOS: Age standardised observed survival

ASRS: Age standardised relative survival

-: the estimates were not computed due to insufficient sample

Bladder (ICD-9 188)

Bladder cancer is the ninth most frequent cancer among males in Singapore in 1998-2002. It is less frequent among females. The male-to-female ratio was 3.4:1 during 1998-2002.² Among the various histological subtypes, transitional cell carcinoma accounted for more than 90% of the bladder cancers diagnosed between 1998 and 2002. The differentiation between invasive and in-situ bladders cancers is not always straightforward nor standardised^{95,96}, and this may have led to difficulties in interpretation and comparison of bladder cancer trends. Some cancer registries e.g. the SEER program in USA has combined in-situ and invasive cancers for the reporting of incidence and survival of bladder cancer.⁹⁵ On the other hand, the Singapore Cancer Registry has continued to include only Ta to T4 tumours.

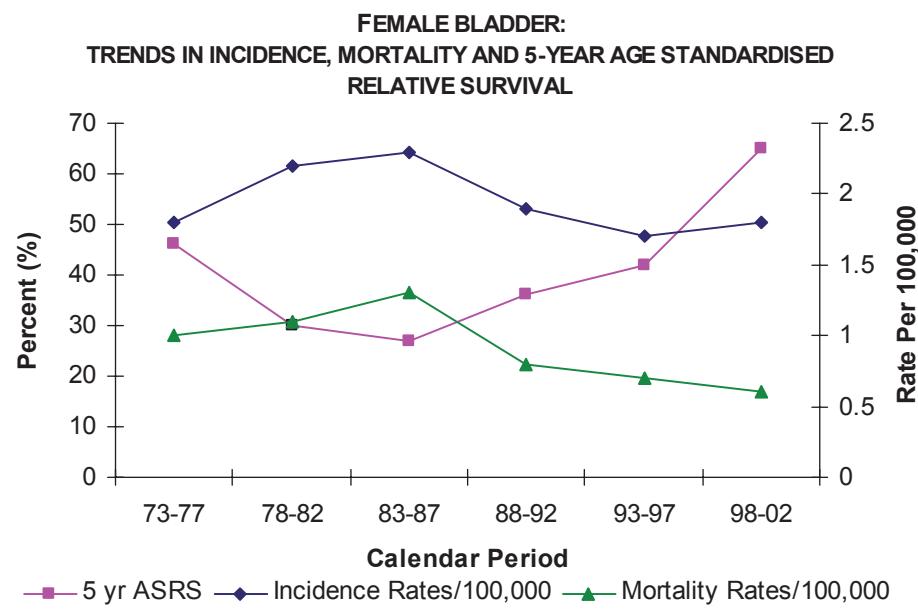
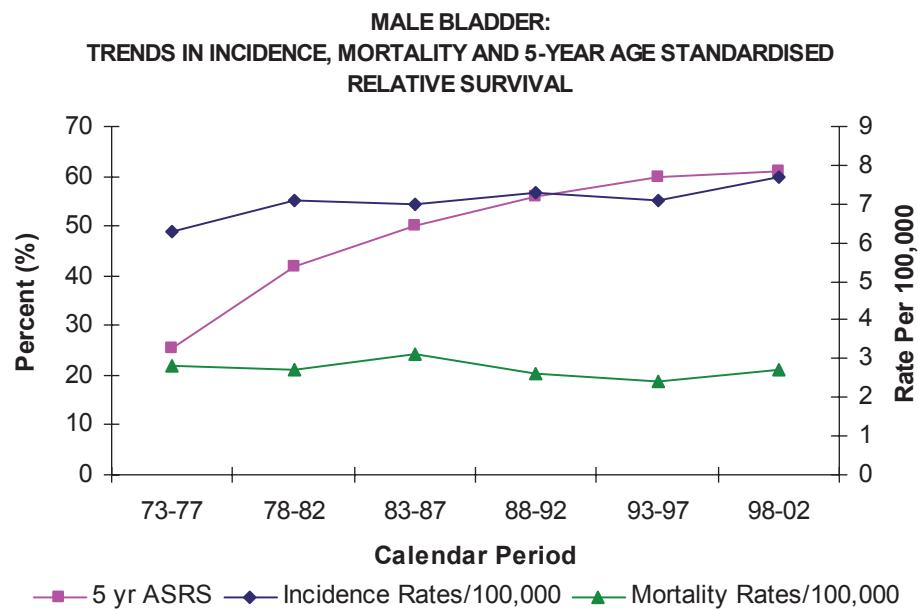
The incidence and mortality of bladder cancer remained fairly stable over the study period. Among females, the mortality of bladder cancer dipped slightly from 1.0 per 100,000 in 1973-77, to 0.6 per 100,000 in 1998-2002 while its incidence fluctuated between 1.8 and 2.2 per 100,000. On the other hand, the incidence and mortality of bladder cancer in males ranged from 6.3 to 7.7 per 100,000 and 2.4 to 3.1 per 100,000 respectively during the study period. In terms of survival, both genders showed improvement. The 5-year ASRS had increased by 35.8% and 18.7% in males and females respectively over the study period. The relative survival for bladder cancer in Singapore was lower than that in Europe for both genders.

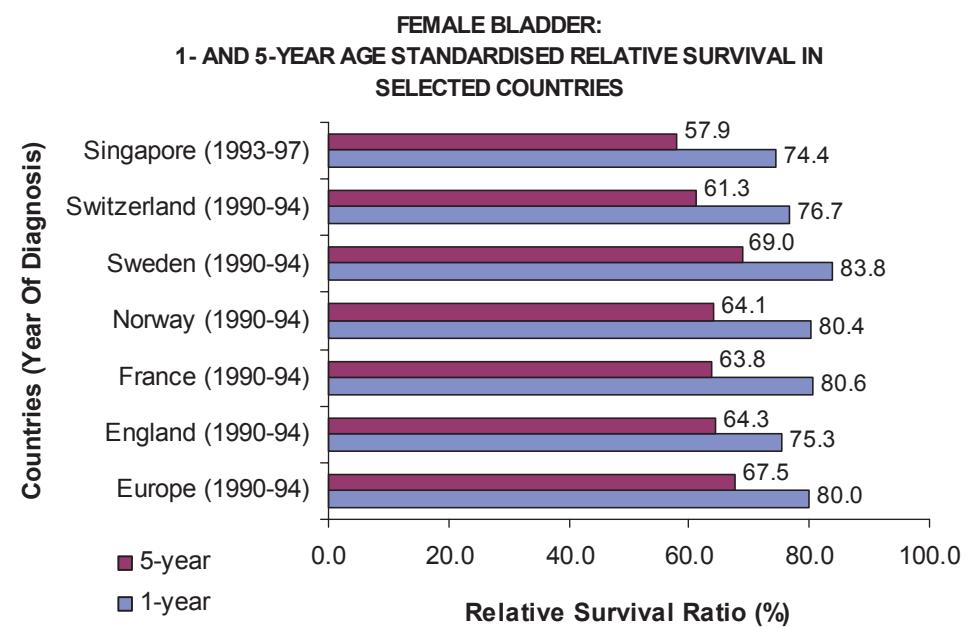
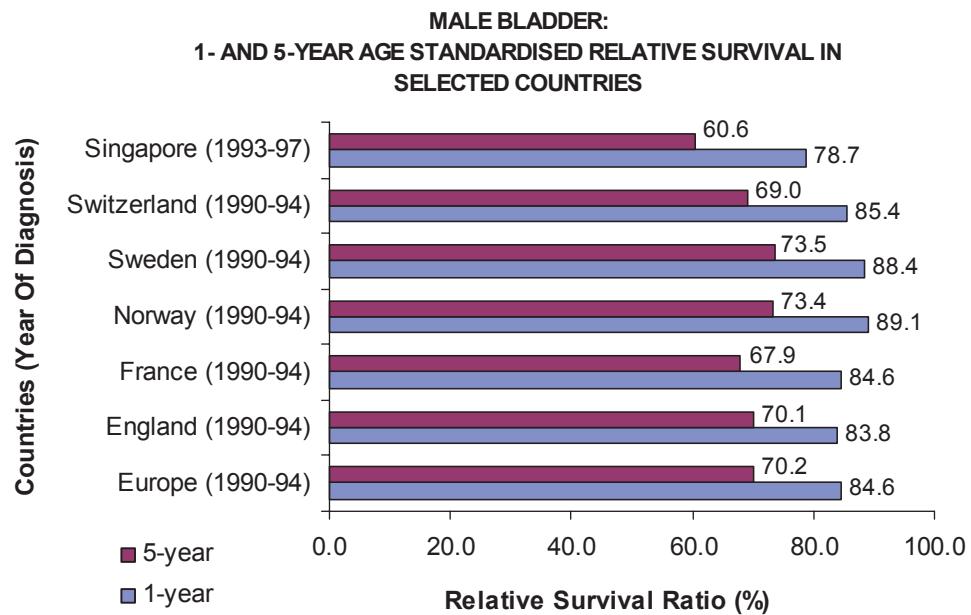
Therapeutic advances such as the use of intravesical Bacillus Calmette-Guerin (BCG) could help to explain the improvement in the survival in bladder cancer. This treatment modality evolved out of the need to prevent tumour recurrence after successful local surgical resection. Morales et al demonstrated that intravesical instillation of BCG reduced the number of recurrence in superficial bladder cancer⁹⁷ and this treatment became more widely accepted after clear

benefit was demonstrated in terms of decreased recurrence rate and increased median time to recurrence in patients given BCG immunoprophylaxis after local surgery in a randomised trial.⁹⁸ Besides its role as an immunoprophylactic agent, BCG also has 50–60% effectiveness against small residual bladder tumours and a 70–75% complete response rate for carcinoma-in-situ of the bladder.⁹⁹

The level of care of bladder cancer patients was likely to have improved alongside the overall progress of healthcare infrastructure in Singapore over the past decades. Additionally, there was greater specialisation in the discipline of urology over the study period. The first urology division was established in Singapore General Hospital in 1987 and this was followed by other specialised units in other public hospitals.¹⁰⁰ These units provided the infrastructure for service and training of urology expertise. Such developments would have directly contributed to better care for bladder cancer patients.

There were other factors during the study period that could have predisposed towards earlier diagnosis of bladder cancer and hence elevated the survival estimates as a result of lead time bias. We did not have adequate local data to quantify the extent of such bias. These factors included advances in the diagnosis of bladder cancer such as the use of flow cytometry and fluorescence cystoscopy. Flow cytometry is considered to be more sensitive than and as specific as the more traditional voided urinary cytology.¹⁰¹ Fluorescence cystoscopy allowed for guided biopsies that are more sensitive in detecting dysplasia or bladder cancer.¹⁰² Furthermore, there were marked improvements in overall socioeconomic status and educational status of the population during the study period, it would be conceivable that in general, Singaporeans would be more aware of new urinary symptoms e.g. haematuria and would present earlier to their physicians with these symptoms. The earlier diagnoses would lead to an apparent improvement in survival simply because the patients would be diagnosed at an earlier time point along the natural history of the disease.





Age standardised observed survival and relative survival of bladder cancer by calendar period and gender

Calendar Period	ASOS (%)					Males				ASRS (%)			
	1yr	3yr	5yr	10yr	-	1yr	3yr	5yr	10yr	1yr	3yr	5yr	10yr
1973-1977	46.2	29.7	20.7	-		48.5	34.6	25.6					
1978-1982	61.2	41.6	33.3	18.3		63.9	47.9	41.8					
1983-1987	70.2	49.9	38.7	20.0		74.2	58.4	49.7					
1988-1992	77.2	54.8	43.9	32.2		81.4	63.7	56.1					
1993-1997	75.6	57.0	47.5	35.4		79.1	65.5	60.3					
1998-2002	76.8	59.2	51.1	38.5		79.9	66.0	61.4					
Calendar Period	ASOS (%)					Females				ASRS (%)			
	1yr	3yr	5yr	10yr	-	1yr	3yr	5yr	10yr	1yr	3yr	5yr	10yr
1973-1977	51.9	39.9	36.8	-		54.1	44.9	46.2					
1978-1982	53.1	31.7	21.7	10.9		55.4	37.5	29.7					
1983-1987	46.3	34.6	24.0	12.5		47.8	38.2	27.3					
1988-1992	64.0	38.5	31.3	23.0		66.1	42.5	36.4					
1993-1997	69.8	48.6	38.3	28.4		71.9	52.7	42.2					
1998-2002	71.8	59.8	56.9	48.6		73.7	64.8	64.9					

ASOS: Age standardised observed survival

ASRS: Age standardised relative survival

-:the estimates were not computed due to insufficient sample

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APPENDIX A

Relative Survival and Observed Survival
by Stage, Period, Site and Age Group

APPENDIX A

SITE	STAGE : LOCAL	Age Group	RELATIVE SURVIVAL AND OBSERVED SURVIVAL BY STAGE, PERIOD, SITE AND AGE GROUP												SINGAPORE MALES, 1973-2002																
			1973 - 1977				1978 - 1982				1983 - 1987				1988 - 1992				1993 - 1997				1998 - 2002				Observed Survival (%)				
			1 yr	3 yr	5 yr	10 yr	1 yr	3 yr	5 yr	10 yr	1 yr	3 yr	5 yr	10 yr	1 yr	3 yr	5 yr	10 yr	1 yr	3 yr	5 yr	10 yr	1 yr	3 yr	5 yr	10 yr	1 yr	3 yr	5 yr	10 yr	
Tongue	<=34	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	35-49	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	50-64	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	65-74	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	75+	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
All ages	70.7	29.5	*	*	60.0	*	*	*	45.0	*	*	82.9	*	*	74.2	*	*	80.8	48.0	*	*	79.6	45.8	*	*	*	*	*	*	*	
Salivary gland	<=34	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	35-49	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	50-64	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	65-74	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
All ages	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Nasopharynx	<=34	92.8	*	*	100.1	88.7	89.0	*	92.5	63.2	54.1	*	95.5	78.5	73.3	53.6	95.7	81.3	77.6	57.0	100.1	92.7	93.0	78.2	100.0	92.3	92.3	77.0	*		
	35-49	95.1	78.1	59.9	*	94.2	66.0	62.8	46.5	96.5	74.8	61.3	52.8	99.1	93.4	87.4	70.4	98.4	87.5	77.2	57.9	95.5	85.7	77.8	62.8	95.2	85.0	76.7	60.6	*	
	50-64	88.2	54.0	40.7	*	97.8	66.9	45.5	*	90.2	59.0	42.9	*	96.8	81.8	78.9	58.9	94.6	88.3	79.1	34.6	94.6	80.3	76.2	73.1	93.9	78.3	72.5	64.4	*	
	65-74	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	75+	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
All ages	65.2	44.8	34.6	*	91.8	56.9	50.1	27.4	98.0	49.3	39.1	22.5	79.5	72.3	56.3	37.7	97.8	71.0	62.9	32.2	98.1	64.9	59.7	50.8	96.1	63.0	56.6	45.1	*		
Oesophagus	<=34	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	35-49	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	50-64	17.6	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	65-74	10.9	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	75+	19.2	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
All ages	21.1	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Stomach	<=34	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	35-49	61.9	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	50-64	30.8	17.7	15.9	*	57.4	36.2	*	*	53.7	39.3	34.7	*	27.1	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	
	65-74	24.2	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	75+	31.4	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
All ages	36.0	15.7	14.4	*	40.9	24.7	18.9	11.4	45.5	30.9	24.7	17.9	59.8	44.1	41.3	41.7	65.8	45.9	41.3	33.9	68.4	55.5	50.8	45.9	66.6	51.8	44.9	33.9	*		
Colon	<=34	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	35-49	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	50-64	83.6	52.2	48.9	*	68.0	60.6	41.5	*	92.3	67.5	53.6	*	89.0	77.6	72.7	58.5	99.1	89.1	83.3	82.2	95.9	92.2	84.0	80.5	95.0	89.3	79.1	69.3	*	
	65-74	53.2	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	75+	32.1	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
All ages	52.6	31.6	32.1	*	53.4	39.7	34.7	27.2	78.9	63.2	52.6	64.8	83.2	72.8	62.7	49.5	88.0	78.2	74.2	75.9	90.2	89.9	82.6	82.1	86.8	79.2	66.0	48.8	*		
Rectum	<=34	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	35-49	73.3	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	50-64	63.0	35.0	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	
	65-74	59.6	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	75+	41.4	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
All ages	54.4	35.9	29.1	*	75.2	49.2	43.4	42.7	83.4	61.8	50.0	46.2	90.2	69.2	56.9	75.8	81.1	69.8	60.1	61.2	71.0	71.6	60.2	87.3	68.5	58.2	39.5	*			

* refers to cells where estimates are not computed due to insufficient sample size
Estimates for "all ages" are age standardised
Sites which have insufficient sample size for all cells are excluded from this appendix

SITE	Age Group	RELATIVE SURVIVAL AND OBSERVED SURVIVAL BY STAGE, PERIOD, SITE AND AGE GROUP										SINGAPORE MALES, 1973-2002										Observed Survival (%)											
		1973-1977					1978-1982					1983-1987					1988-1992					1993-1997					1998-2002						
		1 yr	3 yr	5 yr	10 yr	1 yr	3 yr	5 yr	10 yr	1 yr	3 yr	5 yr	10 yr	1 yr	3 yr	5 yr	10 yr	1 yr	3 yr	5 yr	10 yr	1 yr	3 yr	5 yr	10 yr	1 yr	3 yr	5 yr	10 yr				
Liver	<34	3.3	*	*	*	*	*	*	*	4.9	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	
	35-49	4.7	*	*	*	1.1	*	*	5.9	*	*	4.9	*	*	20.9	*	*	36.9	*	*	45.1	29.6	16.4	*	44.9	29.3	16.2	*	*	*	*		
	50-64	1.5	*	*	*	3.0	*	*	4.9	*	*	2.0	*	*	18.3	*	*	29.6	*	*	41.3	25.0	20.0	*	41.0	24.2	18.9	*	*	*	*		
	65-74	1.0	*	*	*	1.4	*	*	2.0	*	*	1.1	*	*	13.1	*	*	20.8	*	*	31.6	17.1	11.8	*	30.8	15.7	10.1	*	*	*	*		
	75+	0.2	*	*	*	5.4	*	*	2.7	*	*	3.7	*	*	17.3	7.7	*	18.4	*	*	23.9	14.5	*	*	22.0	11.4	*	*	*	*	*	*	
Pancreas	All ages	1.9	0.7	0.5	*	3.0	0.5	*	3.7	1.0	*	*	*	*	17.3	7.7	*	26.9	10.3	6.3	*	39.6	25.1	19.8	*	38.9	23.9	18.1	*	*	*	*	
	<34	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	
	35-49	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	25.8	*	*	*	*	*	*	*	*	*	*	
	50-64	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	61.6	*	*	*	*	*	*	*	*	*	*	
	65-74	*	*	*	*	15.7	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	18.9	*	*	*	*	*	*	*	*	*	*	
	75+	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	24.1	*	*	*	*	*	*	*	*	*	*	
	All ages	8.0	*	*	*	27.7	*	*	31.3	*	*	33.5	*	*	19.9	*	*	43.2	27.1	*	*	42.3	26.0	*	*	*	*	*	*	*	*	*	
Larynx	<34	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	
	35-49	*	*	*	*	79.6	*	*	*	*	*	*	*	*	90.7	*	*	100.4	101.1	101.9	*	100.3	100.9	101.7	*	100.0	100.0	100.0	*	*	*	*	
	50-64	82.4	50.6	41.7	*	84.6	43.2	32.5	17.4	83.8	57.9	44.7	*	97.3	94.1	*	98.5	88.3	80.5	*	98.1	91.9	94.2	87.2	97.1	88.9	88.9	*	*	*	*		
	65-74	53.6	34.0	22.0	*	58.1	38.8	*	76.7	48.3	*	85.1	*	*	96.8	80.5	64.4	*	91.9	70.0	64.9	*	89.5	64.3	55.8	*	*	*	*	*	*		
	75+	*	*	*	*	*	*	*	*	*	*	*	*	*	61.3	*	*	86.7	62.9	*	86.7	62.9	*	80.9	49.7	*	*	*	*	*	*	*	
	All ages	69.7	26.4	15.4	*	55.5	45.3	27.8	16.4	73.0	40.0	30.3	*	76.4	70.8	68.5	29.4	92.5	71.7	69.9	*	90.8	71.4	60.2	58.8	87.2	62.9	50.0	37.1	*	*		
Lung	<34	*	*	*	*	39.8	19.7	*	*	47.2	*	*	*	37.6	*	*	53.6	*	*	77.2	59.3	*	77.2	59.3	*	77.0	58.8	*	*	*	*	*	*
	35-49	37.3	24.3	*	*	25.6	9.4	6.6	*	36.0	11.0	7.5	*	36.4	15.8	10.0	7.4	55.4	25.5	19.7	13.1	63.1	41.7	32.3	22.5	62.5	40.4	30.4	19.2	*	*	*	
	50-64	24.5	5.2	3.4	*	21.3	6.6	*	23.5	4.6	3.6	*	28.3	11.9	5.1	*	33.9	17.0	14.3	*	47.7	25.6	19.1	*	46.4	23.5	16.3	*	*	*	*		
	65-74	20.9	4.6	*	*	10.0	*	*	18.5	5.1	*	10.8	*	*	32.5	11.2	*	32.0	16.4	11.3	*	29.5	12.7	7.1	*	*	*	*	*	*	*		
	75+	18.7	*	*	*	21.5	8.4	6.0	4.4	28.5	8.7	6.2	*	26.7	11.7	6.2	4.3	42.9	21.2	17.2	9.9	51.0	32.1	24.3	18.5	49.7	30.0	21.7	*	*	*		
	All ages	22.8	5.6	4.0	*	70.8	54.9	*	43.7	48.3	47.8	*	56.2	22.9	23.0	55.6	40.5	*	14.4	60.8	57.8	38.4	*	59.9	55.4	34.7	*	*	*	*	*	*	
Bone	<34	49.2	*	*	*	77.0	*	*	94.1	82.1	77.7	*	100.3	100.6	87.8	88.6	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	
	35-49	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	
	50-64	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	
	65-74	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	
	75+	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*		
	All ages	56.9	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*		
Connective tissue	<34	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*		
	35-49	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*		
	50-64	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*		
	65-74	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*		
	75+	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*		
	All ages	72.8	73.7	*	*	69.0	52.5	43.5	*	55.0	23.5	*	102.4	99.7	44.4	*	92.4	66.4	50.7	32.1	92.9	57.5	41.7	48.4	89.8	52.7	37.7	37.7	37.7	*	*		
Skin (inc.melanoma)	<34	100.4	*	*	100.3	97.0	97.9	*	96.2	90.6	87.0	75.4	100.3	93.2	90.1	86.2	100.3	96.8	97.6	96.3	100.3	99.8	99.0	101.3	100.0	98.9	97.4	97.4	*	*			
	50-64	89.4	73.1	63.0	*	86.1	82.4	82.0	*	96.3	86.2	75.0	71.3	98.3	93.0	90.3	87.5	99.5	101.1	97.9	93.9	99.7	96.0	95.6	90.4	98.8	93.2	90.4	78.4	*	*		
	65-74	92.8	92.2	102.6	*	98.3	82.0	82.9	*	96.7	98.1	95.7	89.7	98.2	93.8	97.3	63.6	98.6	92.3	100.6	77.8	97.8	100.6	99.0	90.5	95.2	92.1	84.5	60.9	*	*		
	75+	96.6	82.7	*	86.4	64.8	*	99.2	95.1	107.9	*	102.8	104.7	100.9	*	105.3	113.3	111.0	*	95.2	100.5	107.6	83.5	85.8	71.6	59.2	22.3	*	*	*			
	All ages	94.2	83.7	76.3	*	90.9	77.0	82.9	60.7	97.6	93.2	94.5	68.4	100.2	97.8	96.4	79.6	101.6	102.8	103.4	74.8	97.5	99.4	101.6	89.0	93.0	85.3	77.6	54.3	*	*		

* refers to cells where estimates are not computed due to insufficient sample size
Estimates for "all ages" are age standardised
Sites which have insufficient sample size for all cells are excluded from this appendix

APPENDIX A

SITE	Age Group	RELATIVE SURVIVAL AND OBSERVED SURVIVAL BY STAGE, PERIOD, SITE AND AGE GROUP										SINGAPORE MALES, 1973-2002										Observed Survival (%)												
		1973 - 1977					1978 - 1982					1983 - 1987					1988 - 1992					1993 - 1997					1998 - 2002							
		1 yr	3 yr	5 yr	10 yr	1 yr	3 yr	5 yr	10 yr	1 yr	3 yr	5 yr	10 yr	1 yr	3 yr	5 yr	10 yr	1 yr	3 yr	5 yr	10 yr	1 yr	3 yr	5 yr	10 yr	1 yr	3 yr	5 yr	10 yr					
Prostate	<=34	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*		
	35-49	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*		
	50-64	73.5	69.6	*	*	81.2	*	*	*	82.0	51.1	*	*	101.6	105.5	*	*	94.2	91.8	83.2	*	100.4	96.6	97.7	101.3	99.3	93.2	91.4	84.4	*	*			
	65-74	85.6	60.4	*	*	83.4	56.2	*	*	91.6	83.0	68.7	*	95.1	78.6	63.8	*	100.5	91.8	82.4	*	100.2	95.0	92.2	69.7	97.5	86.7	77.9	45.7	*	*			
	75+	74.4	*	*	*	88.6	51.8	*	*	83.6	68.0	71.2	*	84.8	78.5	63.4	*	90.3	85.1	68.3	*	92.0	87.6	76.9	50.5	85.3	68.2	48.8	17.3	*	*			
All ages	75.6	80.3	77.8	*	86.8	52.5	42.9	*	85.2	68.3	65.7	*	87.6	80.4	66.7	42.6	91.6	86.1	72.0	56.4	94.8	90.3	82.6	59.4	89.6	75.2	60.2	30.4	*	*				
Testis	<=34	*	*	*	*	90.0	*	*	*	*	*	*	*	*	*	*	*	*	*	*	93.9	94.2	*	*	100.2	100.4	100.7	*	100.0	100.0	100.0	*	*	
	35-49	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*		
	50-64	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*			
	65-74	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*			
	75+	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*			
All ages	77.4	*	71.1	*	83.5	54.4	*	55.9	92.8	93.3	94.0	*	95.7	96.2	93.8	82.1	92.3	92.8	84.3	94.7	95.7	94.8	94.1	88.5	95.5	94.2	93.1	86.9	*	*				
Bladder	<=34	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*			
	35-49	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*			
	50-64	76.7	57.7	47.8	*	82.0	61.1	46.2	*	97.6	85.9	75.8	*	97.3	76.5	66.3	53.5	94.8	85.2	79.8	70.0	100.0	93.8	92.8	82.8	99.0	90.8	87.4	71.4	*	*			
	65-74	47.7	23.8	*	*	74.6	54.7	*	*	89.7	81.7	68.5	*	88.8	80.9	67.2	56.4	84.2	69.5	58.7	47.6	89.1	75.0	72.2	66.7	86.8	68.7	61.5	44.6	*	*			
	75+	*	*	*	*	67.2	*	*	*	68.0	55.8	*	*	98.5	73.4	77.2	*	75.3	61.0	55.2	*	80.6	63.1	56.2	55.2	74.3	48.8	35.3	16.5	*	*			
All ages	60.2	37.8	22.7	*	76.2	55.7	44.1	25.2	82.9	72.5	57.4	27.4	96.2	77.9	73.9	75.6	84.8	72.3	66.1	67.4	89.2	77.2	73.2	68.6	85.8	69.0	60.6	44.2	*	*				
Kidney	<=34	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*			
	35-49	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*			
	50-64	63.0	*	*	*	74.7	*	*	*	101.4	104.4	*	*	86.3	88.5	70.4	*	92.4	81.0	78.6	61.5	98.0	86.0	81.6	73.9	97.2	83.5	77.1	64.2	*	*			
	65-74	*	*	*	*	25.5	*	*	*	51.1	*	*	*	77.2	*	*	*	99.3	86.6	*	*	96.7	89.7	94.0	*	94.1	81.9	79.5	*	*				
	75+	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	74.3	*	*	*	77.8	*	*	*	71.0	*	*	*	*				
All ages	49.7	33.4	30.6	*	79.3	74.9	*	*	89.2	79.3	93.5	*	81.4	74.0	70.9	*	88.5	71.3	62.0	50.8	90.8	81.5	71.9	68.6	88.2	74.4	63.4	53.9	*	*				
Thyroid	<=34	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	100.1	*	*	*	*	*	*	*	*	*				
	35-49	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	100.3	100.9	101.6	*	100.3	100.9	101.6	*	100.0	100.0	100.0	*	*	
	50-64	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	101.2	*	*	*	*	*	*	*	*	100.0	100.0	83.4	*	*
	65-74	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*			
	75+	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*			
All ages	11.8	*	*	52.6	56.5	*	*	52.3	54.5	18.7	*	104.9	89.3	23.8	19.9	85.4	86.3	95.9	24.0	96.1	107.8	121.2	64.8	91.0	88.6	40.6	*	*						

* refers to cells where estimates are not computed due to insufficient sample size
Estimates for "all ages" are age standardised
Sites which have insufficient sample size for all cells are excluded from this appendix

SITE	AGE GROUP	STAGE : LOCAL										RELATIVE SURVIVAL AND OBSERVED SURVIVAL BY STAGE, PERIOD, SITE AND AGE GROUP										SINGAPORE FEMALES, 1973-2002												
		1973 - 1977					1978 - 1982					1983 - 1987					1988 - 1992					1993 - 1997					Observed Survival (%)							
		1 yr	3 yr	5 yr	10 yr	1 yr	3 yr	5 yr	10 yr	1 yr	3 yr	5 yr	10 yr	1 yr	3 yr	5 yr	10 yr	1 yr	3 yr	5 yr	10 yr	1 yr	3 yr	5 yr	10 yr	1 yr	3 yr	5 yr	10 yr					
Tongue	<=34	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*				
	35-49	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*				
	50-64	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*				
	65-74	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*				
	75+	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*				
All ages	*	*	*	*	*	80.8	*	*	*	*	*	*	*	*	*	*	81.9	*	*	*	*	81.3	*	*	*	*	68.9	84.1	87.2	*	67.7	80.5	80.5	
Salivary gland	<=34	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*			
	35-49	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*			
	50-64	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*			
	65-74	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*			
	75+	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	117.5	*	93.3	85.2	*	56.7	51.7	71.8	*	84.7	87.6	71.4	73.5	83.5	84.0	69.3	69.3
All ages	<=34	80.8	*	*	*	100.1	93.4	*	*	64.6	58.7	*	96.8	89.6	82.7	*	96.7	89.4	84.9	82.8	100.2	92.0	89.4	77.5	100.1	100.4	97.5	92.2	100.0	100.0	96.8	90.4		
Nasopharynx	35-49	91.4	*	*	*	86.9	80.7	54.3	*	100.8	82.0	45.7	*	96.6	79.0	72.8	*	96.0	97.2	82.8	*	100.4	101.4	102.6	*	82.9	100.0	100.0	100.0	100.0	77.6	*		
	50-64	91.2	*	*	*	100.9	76.5	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*			
	65-74	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*			
	75+	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*			
All ages	96.3	79.5	44.0	*	78.1	62.5	41.2	35.5	79.1	70.5	57.7	25.5	99.6	72.3	64.7	43.1	94.5	92.7	81.2	46.6	93.5	86.7	88.3	70.9	92.4	84.3	83.7	65.3	*					
Oesophagus	<=34	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*			
	35-49	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*			
	50-64	34.2	*	*	*	35.9	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*			
	65-74	13.5	*	*	*	25.8	*	*	*	*	*	*	*	*	*	*	*	43.3	*	*	*	*	*	*	*	*	*	*	*	*	*			
	75+	*	*	*	*	24.2	*	*	*	*	*	*	*	*	*	*	27.9	*	*	32.5	*	*	*	*	*	*	*	*	*	*				
All ages	17.5	*	*	*	33.0	*	*	*	*	40.1	*	*	*	*	*	*	36.4	*	*	36.0	*	*	*	*	*	*	38.5	24.6	*	37.9	23.5	*		
Stomach	<=34	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*			
	35-49	59.7	*	*	*	80.5	*	*	*	*	*	*	*	*	*	*	94.0	69.3	*	91.8	*	59.8	*	83.5	73.6	*	*	83.4	73.3	*	*			
	50-64	33.3	*	*	*	59.1	*	*	*	*	*	*	*	*	*	*	69.6	47.1	44.9	83.2	67.3	51.7	*	90.4	81.3	78.0	69.3	90.0	80.0	75.6	63.6	*		
	65-74	33.1	*	*	40.5	*	*	*	*	*	*	*	*	*	*	*	34.4	27.7	*	63.1	53.1	*	70.7	47.3	34.8	*	82.7	57.4	48.7	41.5	81.3	54.4	44.3	32.6
	75+	12.8	*	*	21.8	*	*	*	*	*	*	*	*	*	*	*	9.7	*	*	24.5	*	*	38.5	26.6	27.8	*	55.1	43.4	30.5	*	51.9	36.2	22.4	*
All ages	33.0	23.1	12.4	*	48.0	31.2	22.0	*	49.9	38.9	34.2	*	59.0	43.6	40.3	*	35.7	67.7	49.1	42.5	37.2	76.5	62.2	54.9	46.2	75.0	58.9	50.7	40.0	*				
Colon	<=34	*	*	*	*	*	*	*	*	100.1	*	*	*	*	*	*	100.4	*	*	*	*	100.1	*	*	*	*	*	100.0	*	*	*			
	35-49	75.9	*	*	*	91.9	68.1	*	*	94.3	87.5	72.3	*	100.2	100.7	71.5	*	92.3	80.8	74.5	71.9	*	96.1	86.7	81.6	82.7	95.9	86.3	80.9	80.9	*			
	50-64	80.9	53.9	*	88.8	66.1	53.8	*	87.1	70.3	67.7	65.6	95.2	85.2	82.3	75.3	*	95.9	90.6	83.8	75.4	96.3	86.0	80.6	74.2	95.8	84.5	77.9	67.7	*				
	65-74	59.1	51.9	*	62.4	52.3	52.2	*	78.4	57.8	49.5	*	86.6	73.5	61.6	65.3	*	95.5	88.6	78.0	79.9	88.6	81.0	78.1	68.8	87.1	76.6	70.5	53.0	*				
	75+	38.7	*	*	32.2	*	*	*	61.9	*	*	*	80.5	76.2	62.0	*	81.2	74.3	65.8	68.0	84.4	74.9	64.3	36.0	79.9	62.9	47.1	17.4	*					
All ages	58.7	43.2	34.4	*	60.2	42.5	35.8	34.3	75.9	67.7	55.1	54.8	87.9	80.9	68.7	67.8	89.1	80.5	73.6	72.7	89.8	80.8	74.0	58.9	87.4	74.5	64.5	46.1	*					
Rectum	<=34	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*			
	35-49	*	*	*	*	75.2	*	*	*	96.0	60.6	56.8	*	93.2	68.7	63.5	*	90.9	86.5	*	88.4	95.3	95.6	96.1	*	95.2	95.2	*	*	*				
	50-64	70.8	38.3	*	89.1	61.9	33.5	*	93.5	70.0	55.3	*	89.8	76.3	55.7	44.9	93.2	91.7	86.5	78.2	94.0	90.2	78.7	65.3	93.5	88.6	76.2	59.9	*					
	65-74	70.7	*	*	81.0	59.6	*	*	87.5	76.5	56.4	*	75.0	66.1	50.8	48.0	98.8	85.0	81.9	82.4	90.9	85.5	81.2	88.0	89.5	81.2	73.8	69.1	*					
	75+	37.0	*	*	54.7	*	*	*	84.7	50.5	*	*	72.2	53.0	45.7	*	87.1	77.8	61.3	*	78.4	56.8	*	74.0	57.7	42.3	*	*						
All ages	57.0	32.4	17.9	*	71.6	49.6	34.0	17.3	89.0	61.9	51.9	31.4	79.3	62.2	49.9	91.9	83.5	74.8	69.1	87.2	81.1	72.7	65.4	84.9	75.2	64.4	49.7	*						

* refers to cells where estimates are not computed due to insufficient sample size
Estimates for "all ages" are age standardised
Sites which have insufficient sample size for all cells are excluded from this appendix

Stage : Local		Relative Survival and Observed Survival by Stage, Period, Site and Age Group												Singapore Females, 1973-2002													
		Relative Survival (%)												Observed Survival (%)													
Site	Age Group	1973 - 1977			1978 - 1982			1983 - 1987			1988 - 1992			1993 - 1997			1998 - 2002			1998 - 2002			1998 - 2002				
		1 yr	3 yr	5 yr	10 yr	1 yr	3 yr	5 yr	10 yr	1 yr	3 yr	5 yr	10 yr	1 yr	3 yr	5 yr	10 yr	1 yr	3 yr	5 yr	10 yr	1 yr	3 yr	5 yr	10 yr		
Liver	<=34	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	
	35-49	9.8	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	27.8	*	*	*	91.4	*	*	*	
	50-64	7.1	*	*	*	19.4	*	*	*	7.3	*	*	6.9	*	*	24.5	*	*	31.9	*	*	51.6	29.3	*	*		
	65-74	3.9	*	*	4.2	*	*	5.7	*	*	10.2	*	*	10.9	*	*	52.5	31.0	*	*	8.6	*	*	*			
	75+	*	*	*	*	*	*	1.0	*	*	2.1	*	*	8.1	*	*	9.1	*	*	47.1	26.0	22.0	*	46.7	25.4	21.3	
Pancreas	<=34	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	
	35-49	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	
	50-64	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	
	65-74	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	
	75+	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	
All ages	5.0	*	*	*	16.7	7.0	*	*	13.2	*	*	12.4	*	*	25.4	*	*	47.1	26.0	22.0	*	46.7	25.4	21.3	*		
Larynx	<=34	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	
	35-49	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	
	50-64	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	
	65-74	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	
	75+	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	
All ages	54.0	*	*	*	13.8	*	*	*	36.9	*	*	23.3	*	*	31.4	*	*	35.7	*	*	*	*	35.4	*	*	*	
Lung	<=34	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	
	35-49	54.3	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	78.9	*	*	90.3	54.5	42.6	*	90.2	54.2	42.2
	50-64	25.6	*	*	25.3	21.2	*	*	43.8	30.5	*	40.1	18.6	*	63.8	42.8	37.2	*	68.9	52.3	44.2	*	68.5	51.4	42.9		
	65-74	14.4	5.8	*	19.6	5.4	*	*	28.7	*	*	30.9	13.4	*	61.0	31.7	*	55.3	41.9	28.7	*	54.4	39.6	25.9	*		
	75+	18.4	*	*	16.5	*	*	11.3	*	*	16.7	*	*	28.1	*	*	36.0	23.5	*	*	34.1	19.6	*	*	*	*	
All ages	25.3	11.1	11.1	*	22.8	12.8	*	*	30.5	15.9	11.2	*	32.4	13.4	9.7	*	53.8	29.6	25.0	*	58.2	41.5	32.7	26.5	57.3	39.4	29.9
Bone	<=34	55.2	*	*	*	*	*	*	*	*	*	*	*	*	*	*	81.1	*	74.5	*	*	100.0	*	*	*		
	35-49	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	
	50-64	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	
	65-74	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	
	75+	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	
All ages	4.6	*	*	*	28.6	17.5	*	*	50.0	20.2	20.3	*	18.1	45.1	*	7.1	38.3	*	*	*	51.1	71.7	*	*	50.9	70.8	*
Connective tissue (inc.melanoma)	<=34	*	*	*	*	*	*	*	69.8	*	*	*	*	*	*	*	*	*	*	*	100.1	94.2	86.4	*	100.0	94.0	86.2
	35-49	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	100.1	*	*	*	100.0	*	*
	50-64	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	90.9	*	*	*	90.5	*	*
	65-74	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	
	75+	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	
All ages	56.6	31.5	*	*	63.9	55.5	48.0	*	92.1	61.6	64.3	*	78.6	71.8	60.0	47.2	93.6	70.4	72.3	77.6	85.8	75.9	69.4	50.3	83.9	71.3	64.5

* refers to cells where estimates are not computed due to insufficient sample size

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Estimates for "all ages" are age standardised

STAGE : LOCAL		RELATIVE SURVIVAL AND OBSERVED SURVIVAL BY STAGE, PERIOD, SITE AND AGE GROUP												SINGAPORE FEMALES, 1973-2002																	
		SITE		Age		1973 - 1977			1978 - 1982			1983 - 1987			1983 - 1992			1993 - 1997			1998 - 2002			Observed Survival (%)							
	Group	1 yr	3 yr	5 yr	10 yr	1 yr	3 yr	5 yr	10 yr	1 yr	3 yr	5 yr	10 yr	1 yr	3 yr	5 yr	10 yr	1 yr	3 yr	5 yr	10 yr	1 yr	3 yr	5 yr	10 yr						
Female breast	<=34	90.6	73.8	*	*	100.1	84.5	73.3	*	97.4	79.7	69.4	57.9	100.1	87.9	73.8	64.7	100.1	87.7	77.5	65.8	100.1	95.8	91.9	92.2	100.0	95.7	91.6	91.6		
	35-49	97.8	90.8	80.1	*	98.4	81.2	70.0	61.0	96.1	85.6	79.6	65.9	99.3	92.7	88.2	75.9	99.3	97.2	92.6	80.7	99.8	97.3	92.1	86.8	99.7	96.9	91.3	85.0		
	50-64	93.1	75.5	69.5	*	93.1	72.7	64.7	53.0	96.2	86.8	75.4	61.7	99.0	89.6	82.0	64.1	100.6	99.0	93.8	85.9	99.8	97.6	92.4	85.4	99.4	96.2	90.0	79.3		
	65-74	99.6	88.6	90.5	*	87.8	72.1	58.4	55.6	102.5	88.4	78.5	69.0	97.7	89.0	85.4	75.2	97.6	94.9	87.5	65.0	97.3	98.4	95.4	89.8	95.7	93.3	86.7	70.4		
	75+	100.8	*	*	*	99.6	82.6	61.6	50.0	*	86.5	71.6	50.0	*	90.6	83.4	75.2	69.7	95.2	90.4	87.7	81.4	70.2	95.4	100.0	95.5	90.4	80.4	76.7	56.5	
All ages	96.8	75.8	72.2	*	95.3	77.6	60.7	45.3	95.4	83.2	71.4	60.8	97.0	89.9	81.1	66.0	98.6	94.8	91.5	82.4	97.7	95.1	90.4	81.2	96.2	70.7	83.3	69.3			
Cervix	<=34	100.1	100.4	91.5	*	88.5	*	71.7	*	93.8	89.6	89.8	*	100.1	81.5	81.7	79.0	88.5	81.0	76.5	76.9	97.0	92.0	92.1	88.6	96.9	91.8	87.9			
	35-49	87.4	77.7	74.4	*	89.9	69.9	70.4	64.7	95.5	83.8	75.4	68.8	95.4	85.5	77.8	71.4	93.9	84.7	80.2	76.3	98.6	91.6	87.3	85.7	98.5	91.2	86.6	84.1		
	50-64	91.2	65.5	55.9	*	89.2	67.0	58.2	56.3	96.2	85.9	74.0	74.6	96.1	85.7	81.6	64.8	93.5	75.1	70.1	61.6	91.0	80.7	72.5	64.5	90.6	79.5	70.5	59.9		
	65-74	*	*	*	*	86.1	*	*	*	81.2	*	83.9	*	*	*	*	86.6	60.9	*	*	90.6	72.1	68.2	*	96.2	67.2	94.8	71.5	61.6	53.4	
All ages	85.0	64.7	60.5	*	84.4	62.9	61.4	52.0	94.8	73.9	59.7	56.3	91.7	75.5	71.6	63.4	92.0	76.2	73.2	68.9	93.7	81.0	75.4	72.0	92.8	79.0	72.2	64.8			
Corpus uteri	<=34	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	100.1	*	*	*	94.0	94.1	94.2	*	94.0	94.0	*
	35-49	*	55.9	50.5	*	100.3	92.1	*	*	92.9	90.2	90.8	*	97.6	96.3	96.8	96.0	100.2	99.3	98.3	96.5	99.0	95.6	94.8	98.9	97.7	94.8	92.8			
	50-64	84.0	61.6	57.3	*	86.3	70.1	62.0	57.8	97.8	85.5	87.5	90.0	97.3	89.8	87.9	79.8	97.3	98.7	93.2	91.6	93.9	96.7	91.8	94.4	93.0	84.4				
	65-74	*	*	*	*	97.2	*	*	*	92.4	88.1	84.2	*	87.5	72.3	71.7	55.6	96.6	87.5	91.6	92.7	95.2	89.6	82.0	77.1	93.8	85.3	74.9	61.4		
	75+	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	69.3	*	*	92.3	*	*	*	95.2	97.0	88.2	*	91.5	86.2	71.0	
All ages	81.8	54.6	55.5	*	96.2	80.9	82.8	74.6	92.8	81.6	84.0	79.5	89.5	77.3	75.7	72.7	96.7	87.4	75.1	74.2	96.6	94.0	89.5	86.4	95.3	90.2	83.3	72.9			
Ovary	<=34	88.5	83.8	76.4	*	94.1	81.1	77.5	62.9	98.1	88.3	88.4	80.4	97.2	95.6	93.6	94.0	96.6	95.6	94.5	98.4	97.5	95.5	100.0	98.2	97.2	94.9				
	35-49	100.3	82.3	69.5	*	98.1	83.6	84.2	86.1	98.0	91.2	91.8	93.7	96.2	91.9	89.3	85.1	78.5	97.8	91.9	87.7	83.7	97.3	94.7	91.7	87.8	81.8				
	50-64	83.4	74.9	71.0	*	95.6	81.9	74.3	94.9	77.0	71.9	61.0	94.7	85.6	81.3	75.8	100.6	97.4	93.2	81.7	97.0	86.7	89.3	70.7	88.7	84.2	80.7				
	65-74	*	*	*	*	93.7	*	*	*	102.6	*	*	*	102.1	107.3	100.1	*	90.0	83.2	69.8	60.2	87.7	71.9	66.2	60.0	86.4	68.3	59.9	45.9		
	75+	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	77.5	*	*	86.6	*	*	*	83.1	*	*	*	83.1	*	*	
All ages	91.2	62.8	59.0	*	94.7	71.2	71.3	48.5	94.6	89.3	89.4	55.8	97.3	91.1	90.2	72.2	93.7	88.5	83.4	74.2	94.2	84.7	80.8	80.6	93.2	82.1	76.3	70.3			
Bladder	<=34	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*		
	35-49	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*		
	50-64	45.1	*	*	*	*	*	*	*	60.3	*	*	*	*	*	*	92.6	*	78.1	*	100.7	*	*	*	90.7	86.3	87.7	*	90.2	84.7	*
	65-74	*	*	*	*	*	*	*	*	91.9	*	*	*	*	*	*	77.9	*	*	94.8	63.5	*	*	96.5	95.2	*	*	94.9	89.6	*	*
	75+	*	*	*	*	39.2	*	*	*	45.9	*	*	*	70.6	*	*	77.2	*	*	*	79.1	69.4	74.2	*	74.2	56.8	*	*	52.8	*	
All ages	58.8	50.1	52.3	*	57.4	33.5	34.9	*	63.3	52.0	40.5	*	80.9	58.4	51.4	*	87.9	63.8	45.9	36.6	88.3	81.9	85.4	54.2	85.7	75.0	73.3	46.8			
Kidney	<=34	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	100.1	*	*	*	100.0	*	*	*	*		
	35-49	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	100.1	*	*	*	100.0	*	*	*	*		
	50-64	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	94.0	*	*	*	96.6	94.1	83.8	*	100.6	88.2	89.6	85.8	*	*	
	65-74	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	82.0	*	*	*	101.8	95.1	*	*	100.0	88.9	94.2	*	*		
	75+	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	72.8	*	*	*	68.0	*	*	*	*		
All ages	75.1	*	*	*	46.5	42.8	*	*	79.8	51.7	43.7	*	88.5	79.6	80.2	88.0	87.3	76.1	72.7	*	93.4	84.6	86.3	57.0	91.6	80.3	78.9	50.3			
Thyroid	<=34	94.7	94.9	95.1	*	100.1	96.9	97.1	97.6	100.1	100.2	100.4	100.9	100.1	100.2	100.4	100.8	100.1	100.2	100.3	100.1	100.1	100.0	100.0	100.0	100.0	100.0	100.0			
	35-49	82.5	83.1	83.8	*	100.3	100.8	101.6	*	100.2	100.6	101.1	*	100.2	100.6	101.1	102.7	100.2	100.5	100.9	102.4	100.1	100.4	99.6	100.7	100.0	100.0	100.0	98.8		
	50-64	74.8	*	*	90.9	*	*	*	100.7	102.3	94.7	*	100.7	102.1	103.8	*	100.6	102.7	100.6	102.7	100.7	100.7	100.4	100.0	100.0	100.0	100.0	100.0	98.8		
	65-74	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	90.8	*	*	107.6	*	*	*	93.2	97.0	*	*	91.6	*	*	*
	75+	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*		
All ages	99.7	98.8	35.8	*	56.4	51.8	22.0	64.6	88.3	84.9	90.2	21.1	77.6	44.9	81.1	89.7	103.4	112.9	113.2	100.2	94.9	85.8	80.2	97.3	87.2	59.1					

* refers to cells where estimates are not computed due to insufficient sample size

APPENDIX A

SITE	STAGE : REGIONAL	Age Group	RELATIVE SURVIVAL AND OBSERVED SURVIVAL BY STAGE, PERIOD, SITE AND AGE GROUP												Observed Survival (%)							
			1973 - 1977			1978 - 1992			1983 - 1987			1988 - 1992			1993 - 1997			1998 - 2002				
			1 yr	3 yr	5 yr	10 yr	1 yr	3 yr	5 yr	10 yr	1 yr	3 yr	5 yr	10 yr	1 yr	3 yr	5 yr	10 yr	1 yr	3 yr	5 yr	10 yr
Tongue	<=34	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	35-49	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	74.8	*	*
	50-64	45.2	*	*	*	*	*	*	*	37.2	*	*	*	74.7	*	*	*	*	70.3	*	*	
	65-74	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	69.7	*	*
	75+	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
All ages	50.0	*	*	*	47.4	*	*	*	37.8	*	*	*	49.5	*	*	45.5	*	*	66.6	*	*	
Salivary gland	<=34	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	35-49	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	50-64	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	65-74	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	75+	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
All ages		*	*	*	*	*	*	*	*	43.9	*	*	*	*	*	*	*	*	102.5	*	100.0	
Oropharynx	<=34	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	35-49	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	50-64	31.6	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	51.6	*	*	
	65-74	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	75+	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
All ages	44.5	*	*	*	30.8	*	*	*	32.5	*	*	*	51.0	*	*	60.8	*	*	57.1	*	55.5	
Nasopharynx	<=34	88.1	53.1	40.3	*	83.2	35.9	26.4	18.8	88.4	47.1	33.9	26.5	93.8	58.3	41.4	39.0	92.0	73.5	63.3	58.7	92.5
	35-49	74.0	34.2	25.6	*	78.7	46.1	35.1	21.4	82.5	44.5	32.8	19.0	88.9	55.4	41.6	30.6	91.9	70.3	53.8	44.9	93.1
	50-64	60.2	27.0	17.2	*	70.5	37.3	14.5	4.7	59.3	33.6	22.5	*	83.4	49.6	28.9	23.0	88.5	57.8	45.3	*	86.7
	65-74	44.8	*	*	*	*	*	*	57.7	*	*	52.4	*	*	60.9	*	*	72.1	51.7	*	70.0	43.3
	75+	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	64.4	*	*	58.5	*
All ages	55.0	21.1	14.5	*	65.2	28.7	17.8	7.2	74.4	27.2	18.2	11.8	76.4	47.6	29.1	18.2	81.5	53.2	45.7	30.9	79.5	46.9
Hypopharynx	<=34	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	35-49	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	50-64	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	61.9	*	*	77.9	*
	65-74	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	48.6	*	*	*	43.3
	75+	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	18.6	*	*	17.1	*
All ages	30.9	*	*	*	21.7	*	*	*	33.5	*	*	*	49.4	*	*	57.8	31.0	*	43.7	15.6	*	
Oesophagus	<=34	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	35-49	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	50-64	17.4	*	*	13.2	*	*	*	*	*	*	*	*	*	*	*	26.0	*	*	31.0	*	*
	65-74	11.5	*	*	12.8	*	*	*	*	*	*	*	*	*	*	*	21.8	*	*	13.4	*	*
	75+	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	3.2	*	*	3.1	*	*
All ages	13.8	*	*	*	10.6	*	*	*	21.6	*	*	*	24.1	6.1	*	21.4	9.1	*	33.0	*	32.2	

* refers to cells where estimates are not computed due to insufficient sample size
Estimates for "all ages" are age standardised
Sites which have insufficient sample size for all cells are excluded from this appendix

SITE	Age Group	RELATIVE SURVIVAL AND OBSERVED SURVIVAL BY STAGE, PERIOD, SITE AND AGE GROUP												SINGAPORE MALES, 1973-2002												
		1973 - 1977				1978 - 1982				1983 - 1987				1988 - 1992				1993 - 1997				1998 - 2002				Observed Survival (%)
		1 yr	3 yr	5 yr	10 yr	1 yr	3 yr	5 yr	10 yr	1 yr	3 yr	5 yr	10 yr	1 yr	3 yr	5 yr	10 yr	1 yr	3 yr	5 yr	10 yr	1 yr	3 yr	5 yr	10 yr	
Stomach	<=34	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	35-49	33.0	6.7	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	50-64	29.8	6.2	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	65-74	15.1	12.0	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	75+	6.8	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
All ages	20.0	5.9	4.5	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Colon	<=34	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	35-49	71.5	35.0	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	50-64	44.9	36.3	33.8	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	65-74	36.4	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	75+	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
All ages	39.3	32.4	15.5	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Rectum	<=34	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	35-49	68.8	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	50-64	47.3	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	65-74	38.7	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	75+	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
All ages	38.5	22.7	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Liver	<=34	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	35-49	0.3	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	50-64	0.5	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	65-74	0.1	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	75+	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
All ages	0.2	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Pancreas	<=34	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	35-49	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	50-64	2.8	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	65-74	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	75+	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
All ages	18.3	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Larynx	<=34	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	35-49	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	50-64	69.3	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	65-74	51.7	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	75+	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
All ages	43.0	16.5	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*

* refers to cells where estimates are not computed due to insufficient sample size
Estimates for "all ages" are age standardised
Sites which have insufficient sample size for all cells are excluded from this appendix

APPENDIX A

SITE	Age Group	STAGE : REGIONAL										RELATIVE SURVIVAL AND OBSERVED SURVIVAL BY STAGE, PERIOD, SITE AND AGE GROUP										SINGAPORE (MALES, 1973-2002) Observed Survival (%)				
		1973 - 1977			1978 - 1982			1983 - 1987			1988 - 1992			1993 - 1997			1998 - 2002			1998 - 2002						
		1 yr	3 yr	5 yr	10 yr	1 yr	3 yr	5 yr	10 yr	1 yr	3 yr	5 yr	10 yr	1 yr	3 yr	5 yr	10 yr	1 yr	3 yr	5 yr	10 yr					
Lung	<=34	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*			
	35-49	19.5	*	*	*	39.8	*	*	*	31.9	*	*	23.1	*	*	51.9	13.2	*	40.0	6.3	*	39.9	6.3			
	50-64	15.7	5.1	*	*	18.2	6.6	*	22.4	4.3	2.4	*	30.0	6.9	*	34.0	8.5	6.1	41.7	5.7	4.5	41.3	5.5			
	65-74	8.5	*	*	*	7.2	*	*	11.9	*	*	11.1	*	*	26.7	6.9	*	26.5	5.2	2.1	25.8	4.8				
	75+	1.5	*	*	*	4.4	*	*	3.3	*	*	11.4	*	*	11.5	*	*	14.7	3.6	*	13.6	2.8				
All ages	9.9	3.1	1.8	*	14.5	3.7	1.9	*	15.2	3.5	2.5	*	18.9	5.0	4.0	2.7	27.2	6.9	4.3	*	30.4	4.9	3.2	2.4	29.7	4.5
Bone	<=34	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*			
	35-49	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*			
	50-64	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*			
	65-74	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*			
	75+	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*			
All ages	21.4	*	*	*	*	*	*	*	*	*	*	*	*	*	*	51.4	*	*	*	*	*	*	*			
Connective tissue	<=34	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*			
	35-49	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*			
	50-64	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*			
	65-74	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*			
	75+	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*			
All ages	24.4	*	*	*	*	27.1	*	*	74.5	*	*	*	*	*	*	*	72.9	*	*	*	*	*	*			
Skin (inc.melanoma)	<=34	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*			
	35-49	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*			
	50-64	80.3	*	*	45.2	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*			
	65-74	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*			
	75+	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*			
All ages	76.5	68.4	*	58.3	26.9	*	75.5	*	49.1	*	96.7	90.3	106.3	*	70.2	*	53.3	*	56.5	*	*	54.3	*			
Prostate	<=34	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*			
	35-49	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*			
	50-64	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	101.2	72.4	*	100.0	69.7	*		
	65-74	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	100.3	62.6	51.2	97.7	57.4	43.2		
	75+	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	83.2	57.8	*	79.0	39.8	*		
All ages	67.8	*	*	*	*	32.4	*	*	25.3	*	*	76.6	*	*	87.2	63.6	66.1	*	86.2	48.9	43.4	*	81.4	41.6	32.6	
Testis	<=34	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*			
	35-49	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*			
	50-64	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*			
	65-74	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*			
	75+	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*			
All ages	67.8	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*			

* refers to cells where estimates are not computed due to insufficient sample size
Estimates for "all ages" are age standardised
Sites which have insufficient sample size for all cells are excluded from this appendix

SITE	STAGE : REGIONAL Age Group	RELATIVE SURVIVAL AND OBSERVED SURVIVAL BY STAGE, PERIOD, SITE AND AGE GROUP										SINGAPORE MALES, 1973-2002												
		Relative Survival (%)					1988 - 1992					1993 - 1997					1998 - 2002					Observed Survival (%)		
		1973 - 1977	1978 - 1992	1983 - 1987	1988 - 1992	1993 - 1997	1998 - 2002	1973 - 1977	1978 - 1992	1983 - 1987	1988 - 1992	1993 - 1997	1998 - 2002	1973 - 1977	1978 - 1992	1983 - 1987	1988 - 1992	1993 - 1997	1998 - 2002	1973 - 1977	1978 - 1992	1983 - 1987		
Bladder	<=34	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	
	35-49	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	
	50-64	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	
	65-74	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	
	75+	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	
All ages	9.7	*	*	*	40.8	*	*	*	74.2	*	*	50.3	26.3	*	58.7	35.3	*	50.3	17.9	*	48.3	16.3	*	
Kidney	<=34	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	
	35-49	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	79.7	*	*	*	*	*	
	50-64	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	63.0	29.3	*	*	76.7	*	
	65-74	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	55.4	*	*	74.0	*	*	
	75+	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	48.6	*	*	48.6	*	*	
All ages	33.4	*	*	*	42.0	*	*	*	40.5	*	*	48.6	*	*	52.0	24.3	23.6	*	73.4	27.3	15.2	*	71.9	25.2
Thyroid	<=34	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	100.1	*	*	100.0	*	*
	35-49	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	100.3	*	*	100.2	*	*	
	50-64	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	95.1	*	*	94.2	*	*	
	65-74	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	
	75+	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	
All ages	68.4	*	*	*	38.5	30.6	18.5	*	12.8	*	*	14.4	*	*	91.3	17.7	17.9	*	90.4	90.6	34.3	*	87.4	80.9

* refers to cells where estimates are not computed due to insufficient sample size
Estimates for "all ages" are age standardised
Sites which have insufficient sample size for all cells are excluded from this appendix

APPENDIX A

SITE	Age Group	RELATIVE SURVIVAL AND OBSERVED SURVIVAL BY STAGE, PERIOD, SITE AND AGE GROUP										SINGAPORE FEMALES, 1973-2002													
		1973 - 1977			1978 - 1982			1983 - 1987			1988 - 1992			1993 - 1997			1998 - 2002			1998 - 2002			Observed Survival (%)		
		1 yr	3 yr	5 yr	10 yr	1 yr	3 yr	5 yr	10 yr	1 yr	3 yr	5 yr	10 yr	1 yr	3 yr	5 yr	10 yr	1 yr	3 yr	5 yr	10 yr	1 yr	3 yr	5 yr	10 yr
Tongue	<34	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	35-49	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	50-64	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	65-74	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	75+	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
All ages		*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	46.3	*	*	*	*	83.3	*	*
Salivary gland	<34	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	82.3
	35-49	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	50-64	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	65-74	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	75+	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
All ages		*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	75.1	*	*	*	*	*	*	*
Nasopharynx	<34	75.8	55.5	48.2	*	97.2	54.7	41.9	*	83.3	57.2	38.8	30.9	94.1	73.4	50.6	34.1	89.2	68.5	55.4	*	95.0	90.0	*	62.7
	35-49	92.0	46.4	30.2	*	86.2	62.4	49.6	*	93.3	68.1	48.0	31.8	90.9	72.3	60.6	44.8	94.1	70.4	62.7	40.8	94.2	74.8	49.1	40.3
	50-64	72.5	33.1	21.9	*	75.2	38.0	29.5	*	81.4	35.9	23.8	*	97.1	63.5	31.1	*	96.5	81.2	61.9	*	94.2	60.2	53.9	34.5
	65-74	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	79.7	*	*	*	76.0	*	*	*
	75+	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	42.4	*	*	*	71.3	*	*	*
All ages		57.4	28.3	21.1	*	72.2	35.4	27.5	19.1	75.6	45.5	25.3	11.6	82.7	48.3	31.2	19.6	86.9	61.9	46.3	37.1	86.2	59.4	42.6	24.6
Oesophagus	<34	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	35-49	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	50-64	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	23.0	*	*	*	*	*	*	*
	65-74	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	15.7	*	*	*	25.4	*	*	*
	75+	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	42.4	*	*	*	23.1	*	*	*
All ages		19.6	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	15.1	*	*	*	40.3	*	*	*
Stomach	<34	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	35-49	36.4	*	*	*	27.3	13.2	*	*	47.5	*	*	*	62.1	35.3	*	*	73.8	64.8	*	*	60.6	21.6	*	*
	50-64	22.3	10.1	*	34.5	18.1	12.1	*	50.9	21.5	18.0	*	49.5	18.9	*	*	56.2	26.6	19.2	*	48.9	28.3	23.4	*	
	65-74	22.8	*	*	29.4	7.2	*	*	41.0	*	*	*	62.3	26.1	*	*	46.6	26.0	24.0	*	51.7	17.1	9.5	*	
	75+	11.6	*	*	29.8	*	*	*	22.6	*	*	*	29.0	*	*	*	36.9	22.0	*	*	31.5	9.1	*	*	
All ages		21.5	7.9	5.4	*	30.5	12.4	9.2	*	38.6	16.9	13.7	11.9	47.9	21.1	14.0	11.5	51.2	31.4	24.2	22.5	45.3	18.0	13.1	10.0
Colon	<34	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	100.1	*	*	*
	35-49	59.5	*	*	*	63.6	*	*	*	78.9	54.2	38.0	*	83.8	65.8	49.5	*	82.0	51.7	41.8	*	95.6	59.9	50.5	51.2
	50-64	57.4	39.2	*	66.8	34.9	21.8	*	74.2	39.8	35.7	*	87.7	64.8	52.2	*	52.1	87.0	57.2	67.7	*	24.0	50.8	25.8	9.0
	65-74	42.9	*	*	51.4	21.6	21.6	*	66.2	42.3	*	*	76.9	48.1	33.6	*	83.0	61.2	48.9	41.9	85.8	52.8	31.6	26.0	
	75+	7.4	*	*	27.2	*	*	*	52.8	*	*	*	63.6	45.2	39.2	*	66.9	52.2	36.2	*	71.5	39.7	25.6	17.6	
All ages		34.0	21.1	20.6	*	45.4	24.8	14.1	12.6	64.9	37.9	29.8	16.2	74.9	52.7	41.9	28.4	77.7	60.0	47.7	43.9	82.6	48.3	30.2	24.8
Rectum	<34	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	35-49	*	*	*	*	*	*	*	*	62.7	*	*	*	78.3	*	*	*	87.6	58.6	41.1	*	89.0	47.1	32.7	*
	50-64	40.8	*	*	*	55.0	*	*	*	67.7	35.0	*	*	91.7	69.0	37.1	*	91.6	61.5	45.0	*	92.7	55.9	35.1	23.4
	65-74	51.8	*	*	*	54.8	28.5	*	*	74.2	29.8	*	*	78.6	33.5	*	*	83.7	61.3	45.2	*	87.2	49.3	27.0	*
	75+	41.4	*	*	43.5	*	*	*	38.4	*	*	*	53.4	29.9	*	*	71.8	51.8	42.6	*	77.4	41.3	37.4	*	
All ages		48.4	18.5	12.7	*	51.6	28.8	27.4	*	59.1	29.8	*	*	70.5	43.8	29.1	23.7	81.5	57.0	43.4	25.9	85.0	45.8	35.5	22.8

* refers to cells where estimates are not computed due to insufficient sample size
Estimates for 'all ages' are age standardised
Sites which have insufficient sample size for all cells are excluded from this appendix

SITE	Age Group	RELATIVE SURVIVAL AND OBSERVED SURVIVAL BY STAGE, PERIOD, SITE AND AGE GROUP												SINGAPORE FEMALES, 1973-2002														
		1973 - 1977				1978 - 1982				1983 - 1987				1988 - 1992				1993 - 1997				1998 - 2002				Observed Survival (%)		
		1 yr	3 yr	5 yr	10 yr	1 yr	3 yr	5 yr	10 yr	1 yr	3 yr	5 yr	10 yr	1 yr	3 yr	5 yr	10 yr	1 yr	3 yr	5 yr	10 yr	1 yr	3 yr	5 yr	10 yr	*	*	
Liver	<=34	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	35-49	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	50-64	5.6	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	65-74	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	75+	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Pancreas	All ages	10.2	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	<=34	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	35-49	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	50-64	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	65-74	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	75+	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Larynx	All ages	9.0	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	<=34	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	35-49	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	50-64	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	65-74	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	75+	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Lung	All ages	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	<=34	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	35-49	50.0	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	50-64	17.5	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	65-74	12.1	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	75+	1.3	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Bone	All ages	14.4	5.0	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	<=34	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	35-49	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	50-64	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	65-74	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	75+	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Connective tissue	All ages	<=34	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	35-49	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	50-64	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	65-74	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	75+	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Skin (inc.melanoma)	All ages	22.0	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	<=34	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	35-49	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	50-64	74.1	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	65-74	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	75+	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	All ages	75.4	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*

* refers to cells where estimates are not computed due to insufficient sample size
Estimates for "all ages" are age standardised
Sites which have insufficient sample size for all cells are excluded from this appendix

APPENDIX A

SITE	Age Group	STAGE : REGIONAL										RELATIVE SURVIVAL AND OBSERVED SURVIVAL BY STAGE, PERIOD, SITE AND AGE GROUP										Observed Survival (%)							
		1973 - 1977					1978 - 1982					1983 - 1987					1988 - 1992												
		1 yr	3 yr	5 yr	10 yr	1 yr	3 yr	5 yr	10 yr	1 yr	3 yr	5 yr	10 yr	1 yr	3 yr	5 yr	10 yr	1 yr	3 yr	5 yr	10 yr	1 yr	3 yr	5 yr	10 yr				
Female breast	<=34	94.1	76.9	*	*	90.3	*	*	*	84.8	42.6	*	*	94.8	76.5	61.8	*	98.0	77.7	65.9	*	97.9	83.7	55.6	38.2				
	35-49	82.3	50.6	43.2	*	85.0	53.8	44.9	25.9	93.3	63.4	49.2	34.2	96.1	72.4	58.5	45.6	97.0	86.3	68.2	56.7	97.4	86.3	52.4	37.9				
	50-64	78.7	45.4	33.0	*	80.6	42.1	26.2	18.3	87.3	61.5	48.8	39.9	92.2	63.2	50.9	34.8	97.1	73.5	63.5	52.3	97.8	83.4	65.4	51.1				
	65-74	74.3	54.4	35.5	*	89.9	57.1	55.5	*	79.8	60.9	36.3	*	90.8	76.4	57.9	*	92.4	70.8	63.6	46.9	99.2	82.2	55.8	43.7				
	75+	73.0	*	*	66.9	*	*	*	76.6	65.2	*	*	77.8	53.4	*	*	75.5	58.4	54.2	*	91.8	64.7	48.2	*	87.7	54.7	35.8		
All ages	78.8	47.7	39.4	*	81.2	44.8	36.4	26.0	85.2	61.2	37.3	25.0	90.2	66.8	54.2	31.9	92.0	73.5	63.0	47.0	96.7	80.2	58.7	44.3	95.4	77.0	54.6		
Cervix	<=34	91.6	*	*	71.8	*	*	*	79.2	51.4	*	*	80.1	*	*	*	90.4	*	*	*	*	*	*	*	*	*	*		
	35-49	84.8	53.2	45.2	*	77.3	56.0	47.2	40.9	81.2	49.1	38.9	36.1	87.8	65.7	58.0	52.5	84.1	63.3	58.5	53.9	82.3	45.5	41.7	35.5	82.2	45.3	41.3	
	50-64	77.2	49.7	38.5	*	76.3	52.7	41.4	31.9	82.3	49.4	40.0	32.8	86.4	63.4	51.7	40.6	80.8	55.5	48.0	39.4	87.4	41.0	26.8	24.2	87.0	40.3	26.1	
	65-74	73.5	48.7	39.9	*	75.4	47.8	41.0	32.4	74.7	37.4	24.8	18.5	77.2	48.0	42.8	*	71.6	56.2	47.4	36.3	81.3	45.9	41.0	29.3	80.0	43.5	37.1	
	75+	62.0	*	*	61.1	*	*	*	73.3	41.6	*	*	67.6	33.6	*	*	79.6	51.0	*	*	79.7	69.2	*	*	75.3	58.2	*		
All ages	78.5	50.5	41.6	*	74.2	47.5	38.0	30.5	79.5	46.8	36.9	27.9	82.6	56.0	47.9	38.6	81.2	58.6	49.7	42.4	85.2	43.7	35.1	30.3	84.3	41.7	32.4		
Corpus uteri	<=34	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*			
	35-49	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*			
	50-64	56.8	*	*	*	*	*	*	63.9	*	*	*	*	*	*	*	*	57.1	33.6	*	*	89.3	*	55.3	*	88.9	*	53.8	
	65-74	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*			
	75+	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*			
All ages	61.9	31.8	24.9	*	54.5	39.8	36.7	*	68.2	46.5	22.6	*	50.6	37.2	26.6	*	76.6	61.4	42.4	47.4	79.4	42.9	31.5	17.7	78.3	41.9	30.1		
Ovary	<=34	*	*	*	*	72.5	*	*	*	73.3	*	*	*	*	*	*	*	70.9	*	*	*	*	*	*	*				
	35-49	78.1	44.6	*	67.0	*	*	*	83.7	35.6	30.3	*	87.4	62.2	59.1	*	79.7	51.9	49.2	42.2	95.2	75.1	39.8	29.2	95.0	74.8	39.4		
	50-64	59.7	24.0	*	58.0	29.3	*	*	74.5	49.2	*	*	78.0	50.9	42.7	*	81.2	47.9	33.0	24.7	94.6	60.3	42.0	22.1	94.2	59.4	40.9		
	65-74	43.2	*	*	42.6	*	*	*	33.0	*	*	*	*	48.6	*	*	*	68.7	*	*	92.9	*	*	*	*	91.4	*		
	75+	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*			
All ages	51.4	29.8	28.3	*	50.2	31.1	26.0	20.8	60.3	34.4	30.4	30.5	66.6	44.4	39.6	30.4	70.1	48.3	34.4	27.5	85.5	50.4	35.3	23.7	84.8	49.6	34.3		
Bladder	<=34	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*			
	35-49	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*			
	50-64	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*			
	65-74	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*			
	75+	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*			
All ages	29.3	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	52.3	*	*	50.8	*	*	49.2		
Kidney	<=34	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*			
	35-49	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	55.1	*	*	52.2	*	*	51.9		
	50-64	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*			
	65-74	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*			
	75+	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*			
All ages	26.8	*	*	21.2	*	*	*	47.5	*	*	*	*	71.9	*	*	*	47.6	53.3	*	*	51.5	*	*	50.6	*	*	*		
Thyroid	<=34	*	*	*	*	100.1	*	*	100.1	100.2	100.4	*	100.1	100.3	100.7	*	100.1	94.7	95.0	100.1	*	100.2	*	100.0	*	100.0	*		
	35-49	100.2	*	*	*	101.0	*	*	101.0	*	*	*	100.2	100.6	*	*	100.1	94.5	95.0	100.9	*	100.1	*	95.9	*	100.0	*		
	50-64	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	72.0	*	*	100.7	102.4	104.2	*	*	*	*	*	100.0	94.0
	65-74	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	55.9	*	*	71.2	*	*	*	*	*	*	*	*	
	75+	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*			
All ages	75.9	72.6	11.3	*	57.0	57.7	26.6	8.6	64.4	50.2	54.1	8.5	38.0	30.7	28.2	20.0	43.9	43.9	45.2	29.9	53.8	47.2	50.3	30.2	52.9	44.1	44.1		

* refers to cells where estimates are not computed due to insufficient sample size
Estimates for "all ages" are age standardised
Sites which have insufficient sample size for all cells are excluded from this appendix

SITE	Age Group	RELATIVE SURVIVAL AND OBSERVED SURVIVAL BY STAGE, PERIOD, SITE AND AGE GROUP										SINGAPORE MALES, 1973-2002										Observed Survival (%)										
		1973 - 1977					1978 - 1982					1983 - 1987					1988 - 1992					1993 - 1997					1998 - 2002					
		1 yr	3 yr	5 yr	10 yr	1 yr	3 yr	5 yr	10 yr	1 yr	3 yr	5 yr	10 yr	1 yr	3 yr	5 yr	10 yr	1 yr	3 yr	5 yr	10 yr	1 yr	3 yr	5 yr	10 yr	1 yr	3 yr	5 yr	10 yr			
Nasopharynx	<=34	*	*	*	*	38.2	*	*	*	56.5	*	*	*	62.3	*	*	*	25.1	*	*	*	45.2	*	*	*	45.1	*	*	*	*		
	35-49	*	*	*	*	50.7	*	*	*	47.9	*	*	*	47.9	*	*	*	37.3	*	*	*	47.7	*	*	*	47.3	*	*	*	*		
	50-64	31.9	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	
	65-74	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	
	75+	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	
Oesophagus	All ages	26.4	*	*	*	29.5	*	*	*	63.4	*	*	*	40.4	7.8	*	*	19.5	*	*	*	57.9	*	*	*	56.7	*	*	*	*		
	<=34	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	
	35-49	*	*	*	*	7.4	*	*	*	2.7	*	*	*	12.3	*	*	*	24.5	*	*	*	32.8	*	*	*	32.5	*	*	*	*		
	50-64	3.1	*	*	*	3.3	*	*	*	5.7	*	*	*	*	*	*	*	32.7	*	*	*	5.6	*	*	*	5.4	*	*	*	*		
	65-74	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	
	75+	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	
Stomach	All ages	8.3	*	*	*	12.9	*	*	*	13.8	*	*	*	7.0	*	*	*	23.4	*	*	*	21.0	*	*	*	20.4	*	*	*	*		
	<=34	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	
	35-49	14.4	*	*	*	8.7	*	*	*	19.6	*	*	*	16.8	*	*	*	19.8	*	*	*	19.9	*	*	*	19.9	*	*	*	*		
	50-64	3.5	*	*	*	4.1	*	*	*	9.6	*	*	*	14.2	*	*	*	11.7	*	*	*	15.2	*	*	*	15.0	*	*	*	*		
	65-74	2.5	*	*	*	6.8	*	*	*	5.9	*	*	*	8.2	*	*	*	9.7	*	*	*	9.0	*	*	*	8.8	*	*	*	*		
	75+	0.1	*	*	*	12.9	*	*	*	1.1	*	*	*	6.5	*	*	*	5.1	*	*	*	8.8	*	*	*	8.1	*	*	*	*		
Colon	All ages	4.4	*	*	*	8.7	*	*	*	8.1	2.2	*	*	10.6	*	*	*	10.6	*	*	*	13.3	*	*	*	13.0	*	*	*	*		
	<=34	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	
	35-49	33.2	*	*	*	42.4	*	*	*	54.9	*	*	*	41.4	*	*	*	43.8	*	*	*	55.7	*	*	*	55.6	*	*	*	*		
	50-64	23.4	*	*	*	29.9	*	*	*	29.2	*	*	*	36.9	*	*	*	51.3	14.5	*	*	41.5	11.2	4.6	*	41.1	10.9	4.3	*	*		
	65-74	8.8	*	*	*	26.9	*	*	*	17.3	*	*	*	30.4	*	*	*	45.8	9.3	*	*	31.1	7.6	*	*	30.2	6.9	*	*	*		
	75+	*	*	*	*	*	*	*	*	20.8	*	*	*	26.6	*	*	*	22.1	*	*	*	18.6	*	*	*	17.2	*	*	*	*		
Rectum	All ages	11.9	*	*	*	19.8	6.4	*	*	25.6	7.9	*	*	31.3	5.4	*	*	37.6	8.9	6.7	*	30.6	6.2	3.6	*	29.7	5.8	3.1	*			
	<=34	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	
	35-49	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	
	50-64	21.2	*	*	*	27.9	*	*	*	32.5	*	*	*	47.9	11.9	*	*	45.9	*	*	*	56.9	10.9	*	*	56.3	10.5	*	*			
	65-74	8.1	*	*	*	21.5	*	*	*	28.3	*	*	*	22.2	*	*	*	31.7	*	*	*	40.7	*	*	*	39.6	*	*	*			
	75+	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	33.2	*	*	*	21.6	*	*	*	30.8	*	*	*	28.8	*	*
Liver	All ages	28.4	*	*	*	28.0	*	*	*	17.9	*	*	*	32.7	11.4	*	*	33.4	10.6	*	*	42.1	10.2	3.6	*	40.9	9.6	3.5	*			
	<=34	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	
	35-49	0.5	*	*	*	1.1	*	*	*	5.9	*	*	*	1.5	*	*	*	3.8	*	*	*	10.6	*	*	*	10.5	*	*	*			
	50-64	0.9	*	*	*	0.6	*	*	*	1.7	*	*	*	7.3	*	*	*	2.8	*	*	*	6.6	*	*	*	6.5	*	*	*			
	65-74	0.1	*	*	*	0.1	*	*	*	0.1	*	*	*	4.3	*	*	*	2.4	*	*	*	7.7	*	*	*	7.5	*	*	*			
	75+	*	*	*	*	0.4	*	*	*	0.8	*	*	*	4.1	*	*	*	2.2	*	*	*	1.9	*	*	*	1.8	*	*	*			
Pancreas	All ages	0.4	*	*	*	0.6	*	*	*	1.9	*	*	*	4.1	*	*	*	2.6	*	*	*	14.3	*	*	*	14.2	*	*	*			
	<=34	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	
	35-49	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	
	50-64	0.3	*	*	*	1.2	*	*	*	0.7	*	*	*	1.7	*	*	*	6.8	*	*	*	6.9	*	*	*	6.9	*	*	*			
	65-74	*	*	*	*	0.1	*	*	*	0.9	*	*	*	31.3	*	*	*	1.4	*	*	*	9.3	*	*	*	9.1	*	*	*			
	75+	*	*	*	*	0.9	*	*	*	1.3	*	*	*	11.1	*	*	*	5.2	*	*	*	0.1	*	*	*	0.1	*	*	*			
	All ages	5.0	*	*	0.7	*	*	*	*	*	*	*	*	5.3	*	*	*	6.2	*	*	*	6.1	*	*	*	6.1	*	*	*			

* refers to cells where estimates are not computed due to insufficient sample size
Estimates for "all ages" are age standardised
Sites which have insufficient sample size for all cells are excluded from this appendix

APPENDIX A

SITE	STAGE : DISTANT METASTASIS	RELATIVE SURVIVAL AND OBSERVED SURVIVAL BY STAGE, PERIOD, SITE AND AGE GROUP												SINGAPORE MALES, 1973-2002												
		Age Group		1973 - 1977			1978 - 1982			1983 - 1987			1988 - 1992			1993 - 1997			1998 - 2002			Observed Survival (%)				
		1 yr	3 yr	5 yr	10 yr	1 yr	3 yr	5 yr	10 yr	1 yr	3 yr	5 yr	10 yr	1 yr	3 yr	5 yr	10 yr	1 yr	3 yr	5 yr	10 yr	1 yr	3 yr	5 yr	10 yr	
Larynx	<=34	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	35-49	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	50-64	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	65-74	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	75+	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
All ages	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Lung	<=34	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	35-49	5.3	*	*	2.7	*	*	8.5	*	*	9.5	*	*	27.3	*	*	29.8	*	*	29.8	*	*	29.8	*	*	*
	50-64	1.2	*	*	1.9	*	*	5.9	*	*	7.7	*	*	19.2	4.8	*	19.1	1.6	*	18.9	1.6	*	18.9	1.6	*	*
	65-74	0.9	*	*	2.0	*	*	5.5	*	*	6.6	*	*	11.8	*	*	11.0	*	*	10.7	*	*	10.7	*	*	*
	75+	0.1	*	*	1.8	*	*	3.1	*	*	3.6	*	*	6.3	*	*	5.1	*	*	4.7	*	*	4.7	*	*	*
All ages	1.2	*	*	2.2	*	*	5.5	*	*	6.2	0.4	*	15.2	2.5	*	14.2	1.7	0.8	*	13.9	1.7	0.8	*	*	*	*
Connective tissue	<=34	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	35-49	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	50-64	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	65-74	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	75+	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
All ages	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Skin (inc. melanoma)	<=34	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	35-49	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	50-64	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	65-74	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	75+	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
All ages	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Prostate	<=34	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	35-49	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	50-64	34.2	*	*	*	*	*	69.8	*	*	73.2	*	*	86.0	26.8	*	82.7	39.0	*	81.8	37.6	*	81.8	37.6	*	*
	65-74	*	*	*	*	*	*	52.7	*	*	75.7	47.2	*	81.6	40.6	31.0	*	88.2	47.8	31.6	*	85.7	43.7	26.8	*	*
	75+	*	*	*	*	*	*	51.5	*	*	81.2	55.0	*	72.8	44.7	19.3	*	86.2	33.9	20.9	*	79.5	26.1	13.1	*	*
All ages	69.1	*	*	61.8	*	*	53.1	38.7	*	78.1	51.0	28.2	*	75.1	41.2	21.4	*	86.4	36.9	23.1	*	81.3	30.6	16.7	*	*
Bladder	<=34	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	35-49	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	50-64	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	65-74	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	75+	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
All ages	12.8	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Kidney	<=34	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	45.6	*	*	14.3	*	*	13.9	*
	35-49	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	50-64	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	10.6	*	*	28.0	*	*	27.8	*
	65-74	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	15.1	*	*	22.1	*	*	16.9	*
	75+	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	9.1	*	*	12.5	*	*	7.8	*
All ages	16.9	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	30.3	*	*	20.8	*	*	20.5	*

* refers to cells where estimates are not computed due to insufficient sample size
Estimates for "all ages" are age standardised
Sites which have insufficient sample size for all cells are excluded from this appendix

SITE	Age Group	STAGE : DISTANT METASTASIS										RELATIVE SURVIVAL AND OBSERVED SURVIVAL BY STAGE, PERIOD, SITE AND AGE GROUP										Relative Survival (%)	Observed Survival (%)		
		1973 - 1977			1978 - 1982			1983 - 1987			1988 - 1992			1993 - 1997			1998 - 2002			1998 - 2002					
<=34	1 yr	3 yr	5 yr	10 yr	1 yr	3 yr	5 yr	10 yr	1 yr	3 yr	5 yr	10 yr	1 yr	3 yr	5 yr	10 yr	1 yr	3 yr	5 yr	10 yr					
Nasopharynx																									
35-49	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
50-64	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
65-74	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
75+	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
All ages	48.1	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	42.2	*	*	*	*	*	*	*	*
Oesophagus	<=34	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
35-49	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
50-64	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
65-74	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
75+	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
All ages	3.1	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Stomach	<=34	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
35-49	16.7	*	*	*	8.8	*	*	*	*	32.0	*	*	*	*	*	6.1	*	*	9.7	*	*	25.3	*	*	25.2
50-64	3.9	*	*	13.0	*	*	9.4	*	*	12.3	*	*	27.2	*	*	21.5	*	*	21.5	*	*	21.5	*	*	*
65-74	1.8	*	*	8.3	*	*	6.4	*	*	9.6	*	*	6.3	*	*	13.2	*	*	13.0	*	*	13.0	*	*	*
75+	5.4	*	*	1.9	*	*	3.6	*	*	3.7	*	*	7.1	*	*	8.5	*	*	7.9	*	*	7.9	*	*	*
All ages	6.1	*	*	7.6	*	*	10.9	*	*	8.0	*	*	13.3	*	*	16.2	*	*	16.0	*	*	16.0	*	*	*
Colon	<=34	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
35-49	*	*	*	44.7	*	*	21.2	*	*	31.4	*	*	50.4	*	*	57.4	*	*	57.3	*	*	57.3	*	*	*
50-64	16.4	*	*	27.0	*	*	36.9	*	*	34.5	*	*	29.7	*	*	45.4	9.4	*	45.2	9.2	*	45.2	9.2	*	*
65-74	16.5	*	*	13.7	*	*	24.3	*	*	23.1	*	*	45.1	*	*	29.8	8.1	*	29.3	7.7	*	29.3	7.7	*	*
75+	*	*	*	17.2	*	*	9.0	*	*	7.5	*	*	23.4	*	*	18.0	5.7	*	17.0	4.8	*	17.0	4.8	*	*
All ages	8.7	*	*	21.3	8.5	*	21.6	7.2	4.5	21.0	6.9	*	32.8	15.9	12.4	*	32.8	7.9	3.5	*	32.2	7.4	3.0	*	
Rectum	<=34	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
35-49	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	51.9	*	*	26.1	*	*	26.0	*	*	*
50-64	19.5	*	*	21.3	*	*	30.4	*	*	57.5	*	*	34.2	*	*	66.1	*	*	65.7	*	*	65.7	*	*	*
65-74	7.0	*	*	43.2	*	*	24.1	*	*	58.5	*	*	22.7	*	*	35.0	*	*	34.4	*	*	34.4	*	*	*
75+	*	*	*	25.1	*	*	30.4	*	*	44.2	14.2	*	30.5	18.4	*	28.0	*	*	29.8	*	*	28.1	*	*	*
All ages	20.3	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Liver	<=34	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
35-49	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	0.3	*	*	*	*	*	*	*	*	
50-64	1.2	*	*	1.4	*	*	0.2	*	*	*	*	*	*	*	*	0.1	*	*	0.1	*	*	0.1	*	*	*
65-74	0.1	*	*	0.5	*	*	1.2	*	*	*	*	*	*	*	*	0.3	*	*	0.3	*	*	0.3	*	*	*
75+	*	*	*	2.2	*	*	0.1	*	*	*	*	*	*	*	*	0.2	*	*	0.2	*	*	0.2	*	*	*
All ages	2.7	*	*	9.2	*	*	1.7	*	*	9.8	*	*	0.2	*	*	13.9	*	*	13.7	*	*	13.7	*	*	*
Pancreas	<=34	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
35-49	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	7.3	*	*	7.3	*	*	7.3	*	*	*
50-64	0.1	*	*	1.1	*	*	15.1	*	*	2.7	*	*	3.7	*	*	12.7	*	*	12.7	*	*	12.7	*	*	*
65-74	*	*	*	*	*	*	4.5	*	*	2.2	*	*	10.3	*	*	4.3	*	*	4.3	*	*	4.3	*	*	*
75+	*	*	*	*	*	*	*	*	*	*	*	*	2.3	*	*	1.1	*	*	1.0	*	*	1.0	*	*	*
All ages	4.6	*	*	3.9	*	*	7.7	*	*	2.1	*	*	6.2	*	*	5.7	*	*	5.6	*	*	5.6	*	*	*

* refers to cells where estimates are not computed due to insufficient sample size
 Estimates for "all ages" are age standardised
 Sites which have insufficient sample size for all cells are excluded from this appendix

APPENDIX A

SITE	Age Group	STAGE : DISTANT METASTASIS										RELATIVE SURVIVAL AND OBSERVED SURVIVAL BY STAGE, PERIOD, SITE AND AGE GROUP										SINGAPORE FEMALES, 1973-2002 Observed Survival (%)			
		1973 - 1977			1978 - 1982			1983 - 1987			1988 - 1992			1993 - 1997			1998 - 2002			1998 - 2002					
		1 yr	3 yr	5 yr	10 yr	1 yr	3 yr	5 yr	10 yr	1 yr	3 yr	5 yr	10 yr	1 yr	3 yr	5 yr	10 yr	1 yr	3 yr	5 yr	10 yr				
Lung	<=34	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*		
	35-49	34.0	*	*	*	18.4	*	*	13.4	*	*	33.1	*	*	28.6	*	*	34.4	*	*	34.3	*	*		
	50-64	4.3	*	*	*	8.3	*	*	5.5	*	*	11.0	*	*	30.5	*	*	29.0	*	*	28.9	*	*		
	65-74	7.2	*	*	*	6.7	*	*	13.1	*	*	8.8	*	*	16.8	*	*	13.5	*	*	13.2	*	*		
	75+	10.9	*	*	*	3.1	*	*	0.8	*	*	1.9	*	*	4.2	*	*	7.8	*	*	7.3	*	*		
All ages	10.4	*	*	*	*	7.3	*	*	6.8	*	*	10.2	*	*	18.6	1.9	*	19.9	2.1	*	19.7	2.0	*		
Connective tissue	<=34	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*		
	35-49	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*		
	50-64	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*		
	65-74	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*		
	75+	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*		
All ages	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*		
Female breast	<=34	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*		
	35-49	32.2	*	*	*	57.7	*	*	49.5	*	*	72.4	47.1	31.8	66.7	37.6	32.1	*	67.0	22.1	13.1	6.7	66.9	22.0	
	50-64	45.5	*	*	*	47.3	*	*	46.1	*	*	53.6	19.4	*	56.2	35.4	*	74.4	21.2	*	74.0	20.8	*		
	65-74	46.6	*	*	*	29.6	*	*	53.5	*	*	60.2	*	*	46.4	*	*	49.3	*	*	48.4	*	*		
	75+	*	*	*	*	43.6	*	*	38.0	*	*	33.5	*	*	48.2	*	*	60.4	*	*	57.4	*	*		
All ages	37.2	20.0	*	*	43.0	13.7	*	50.6	24.8	15.9	*	55.8	29.6	17.9	*	56.2	30.6	21.5	*	66.0	25.8	16.2	10.8	65.1	24.5
Cervix	<=34	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*		
	35-49	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*		
	50-64	41.2	*	*	*	26.6	*	*	41.5	*	*	47.0	*	*	48.9	*	*	28.4	*	*	28.3	*	*		
	65-74	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*		
	75+	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*		
All ages	36.8	*	*	*	*	24.2	17.3	*	29.5	*	*	31.4	14.8	*	30.6	*	*	46.8	28.4	13.5	*	46.6	27.9		
Placenta	<=34	*	77.9	78.1	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*		
	35-49	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*		
	50-64	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*		
	65-74	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*		
	75+	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*		
All ages	12.8	11.9	11.9	*	*	*	*	*	21.7	*	*	*	*	*	*	*	*	*	*	*	*	*	*		
Corpus uteri	<=34	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*		
	35-49	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*		
	50-64	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*		
	65-74	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*		
	75+	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*		
All ages	*	*	*	*	*	14.1	*	*	21.4	*	*	29.5	*	*	52.6	*	*	48.8	11.8	*	48.3	11.6	*		
Ovary	<=34	*	*	*	*	3.9	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*		
	35-49	46.0	*	*	*	50.2	*	*	54.8	*	*	78.6	*	*	72.4	43.7	*	70.1	34.8	23.4	*	70.0	34.6		
	50-64	40.5	*	*	*	27.4	*	*	32.9	*	*	62.0	24.7	*	70.9	37.8	*	63.7	26.6	13.4	*	63.4	26.1		
	65-74	*	*	*	*	33.8	*	*	26.1	*	*	28.5	*	*	50.3	*	*	63.0	*	*	62.1	*	*		
	75+	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	25.7	*	*	48.3	*	*		
All ages	42.1	18.4	*	*	29.1	8.5	*	36.5	14.9	*	55.9	28.3	16.4	*	60.0	36.2	29.8	*	66.4	33.3	22.6	18.2	65.7	22.2	

* refers to cells where estimates are not computed due to insufficient sample size
Estimates for "all ages" are age standardised
Sites which have insufficient sample size for all cells are excluded from this appendix

SITE	Age Group	STAGE : DISTANT METASTASIS										RELATIVE SURVIVAL AND OBSERVED SURVIVAL BY STAGE, PERIOD, SITE AND AGE GROUP										SINGAPORE FEMALES, 1973-2002 Observed Survival (%)								
		1973 - 1977					1978 - 1982					1983 - 1987					1988 - 1992					1993 - 1997								
		1 yr	3 yr	5 yr	10 yr	1 yr	3 yr	5 yr	10 yr	1 yr	3 yr	5 yr	10 yr	1 yr	3 yr	5 yr	10 yr	1 yr	3 yr	5 yr	10 yr	1 yr	3 yr	5 yr	10 yr	1 yr	3 yr	5 yr	10 yr	
Bladder	<=34	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	35-49	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	50-64	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	65-74	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	75+	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	All ages	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Kidney	<=34	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	35-49	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	50-64	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	65-74	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	75+	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	All ages	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Thyroid	<=34	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	35-49	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	50-64	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	65-74	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	75+	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	All ages	98.5	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*

* refers to cells where estimates are not computed due to insufficient sample size
Estimates for "all ages" are age standardised
Sites which have insufficient sample size for all cells are excluded from this appendix

APPENDIX B

Computation of the Expected Survival Rate, Confidence Interval, and
Age Standardised Estimate

APPENDIX B

(A) Computation of the Expected Survival Rate

The Ederer II method is outlined below:

Suppose that we want to estimate the cumulative expected survival from the start of follow-up to the end of the i^{th} sub-interval (in our case, one interval length is one year).

Then, we calculate $P_i^* = \prod_{j=1}^i P_{j2}^*$, which is the i^{th} year cumulative survival proportion,

where $P_{j2}^* = \frac{\sum_{h=1}^{l_j} P_j^*(h)}{l_j}$ is the average of the one-year expected survival probabilities of

the patients alive at the start of the j^{th} interval. $P_j^*(h)$ is the expected survival probability of the h^{th} patient in the j^{th} interval; and l_j is the number of patients in the j^{th} interval.



The i -year cumulative expected survival is then = $P_{I2}^* \times P_{22}^* \times \dots \times P_{i-I,2}^* \times P_{i2}^*$

(B) Computation of the Confidence Interval

- (i) Working on the assumption that the estimated survival rate is normally distributed, the 2-sided $100(1-\alpha)\%$ confidence interval for cumulative relative survival can be computed as

$$\hat{CSR} \pm z_{\alpha/2} SE(\hat{CSR})$$

$SE(\hat{CSR})$ is the standard error for cumulative relative survival using Greenwood's formula

Note: This computation method can also be applied to interval-specific relative survival or the cumulative observed survival.

- (ii) In the event that the upper and lower bounds are out-of-range (i.e. exceed the range of 0 and 1), the complementary log-log transformation is used.

APPENDIX B

Then, the 2-sided $100(1-\alpha)\%$ confidence interval for cumulative relative survival can be written as

$$\frac{I}{\text{Expected Survival Rate}} \{\log(-\log(\text{Cumulative OSR})) \pm z_{\alpha/2} \text{SE}(\log(-\log(\text{Cumulative OSR})))\}$$

Using Taylor series, the standard error of the complementary log-log transformed observed survival rate can be approximated by $\frac{\text{SE(OSR)}}{\text{OSR} * \log(\text{OSR})}$ ¹

(C) Computation of the Age Standardised Estimate

The procedure to obtain age-standardised survival estimates is shown below.

Suppose there are J age classes and K population strata.

Cumulative i -year age-standardised relative survival estimates for the k^{th} population stratum are formulated as:

$$\text{ASRS}_{ik} = \sum_{j=1}^J \frac{M_j}{M} R_{ijk},$$

where R_{ijk} is the cumulative relative survival estimate at the end of the i^{th} year of follow-up for age class j and k^{th} population stratum;

$M_j = \sum_j m_{jk}$ is the number of patients in age class j ;

$M = \sum_j M_j$ is the total number of patients, summed across all age classes.

M_j and M are independent of population strata.²

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2. Sankaranarayanan R, Black RJ, Swaminathan R, Parkin DM. Cancer Survival in Developing Countries; 1998.

