Health Promotion Board

Singapore Cancer Registry

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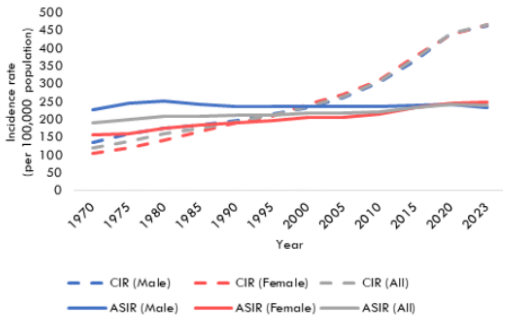
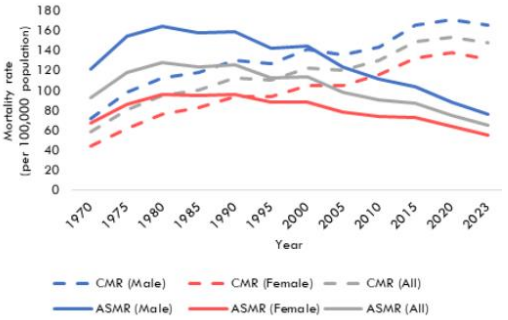


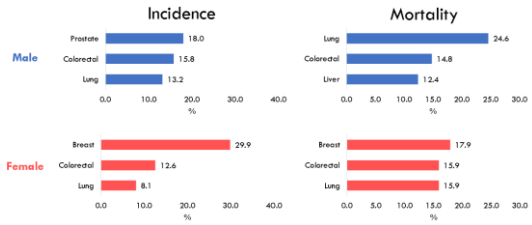
CANCER INCIDENCE

- Between 1968-1972 and 2019-2023, the crude incidence rate (CIR) of cancer approximately tripled for males and quadrupled for females.
- The age-standardised incidence rate (ASIR) of cancer has also increased for females, while there was little change in males.
- With the ageing population, median age at diagnosis has risen for both males (from 59.6 to 69.1 years) and females (from 57.3 to 64.6 years).



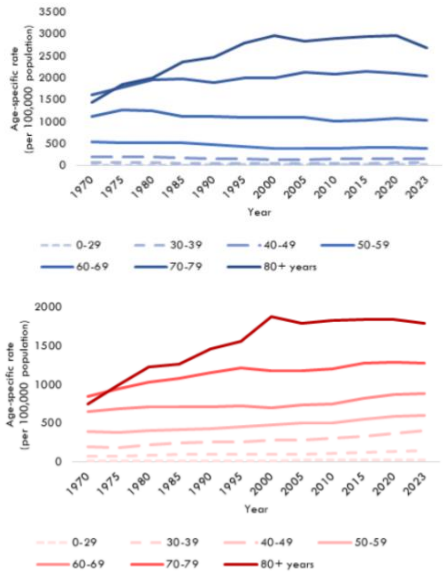
CANCER MORTALITY & SURVIVAL

- While the crude mortality rates (CMR) of cancer rose for both sexes, the age-standardised mortality rates (ASMR) have declined for both sexes after an initial rise to a peak in 1978-1982.
- Cancer survival has improved dramatically over the years — the 5-year age-standardised relative survival (ASRS) increased from 19.5% in 1973-1977 to 61.4% in 2019-2023.



TOP CANCERS IN MALES & FEMALES

- In 2019-2023, prostate, colorectal, and lung were the three most commonly diagnosed cancers in males, while breast, colorectal, and lung were the three most commonly diagnosed cancers in females.
- Lung, colorectal, and liver cancers were the three leading contributors to cancer deaths in males, while breast, colorectal, and lung cancers accounted for the most cancer deaths among females.



AGE-SPECIFIC TRENDS

- In recent years, the most rapid increase in age-specific incidence rates (ASPIRs) of cancer was observed in younger age groups (under 50 years of age).
- Notably, the greatest increases were among young adults aged 30-39 years for males, and 40-49 years for females.
- While males aged 40-69 years showed declines in the ASPIRs, females across all ages displayed varying degrees of increase in the ASPIRs.

SINGAPORE CANCER REGISTRY

The Singapore Cancer Registry (SCR) was first established in 1967 to collect information on all cancers diagnosed in Singapore from 1 January 1968 onwards. The key objective of setting up this registry was to obtain information on population-based cancer trends and patterns in Singapore.

LEGISLATION

The National Registry of Diseases (including the Singapore Cancer Registry) is governed by the National Registry of Diseases Act which was enacted in 2007. The Act ensures comprehensive coverage of reportable diseases through the mandatory reporting and collection of information from healthcare providers and ensures appropriate use of the information while maintaining patient confidentiality. The National Registry of Diseases (Cancer Notification) Regulations 2009 has been operational since 1 August 2009.

DATA SOURCES

Comprehensive cancer registration is achieved through data obtained via notifications received from (a) medical practitioners, (b) histopathology laboratories, (c) haematology laboratories and departments, and (d) healthcare institutions.

IDENTIFICATION KEY

The primary identification key for Singapore residents (consisting of Singapore citizens and permanent residents) is the National Registration Identity Card (NRIC) number. These unique numbers are used for updating existing records in the database and filtering duplicate records notified by multiple data sources.

VERIFICATION OF INFORMATION

All notifications were corroborated with clinical medical records. Registry coordinators (RCs) would review medical records to verify discrepancies in information and collect data to complete the registration of case records.

A visiting consultant pathologist would be consulted for complex cases. Regular internal audits to assess the quality of the data were conducted and results from the audits showed that the registry achieved high inter-rater reliability (above 95%) for all data items.

CODING OF PRIMARY SITE AND HISTOLOGY

In this report, data on primary sites were presented using the International Statistical Classification of Diseases and Related Health Problems, 10th Edition, Australian Modification (ICD-10-AM) (1). The referenced sites and respective ICD-10-AM codes can be found in Appendix 1.

The Manual of Tumour Nomenclature and Coding (MOTNAC) (2) was used for histology coding until 1992. Between 1993 and 2002, the SCR employed the International Classification of Diseases for Oncology, 2nd Edition (ICD-O-2) (3). From 2003, the International Classification of Diseases for Oncology, 3rd Edition (ICD-O-3) was adopted (4). In addition to ICD-O-3, the World Health Organisation (WHO) Classification of Tumours, 4th Edition volumes (also known as the Blue Books) were also used (5).

CANCER STAGING

The registry adopted stage grouping guidelines from the American Joint Committee on Cancer (AJCC) Cancer Staging Manual, the 6th edition for cases diagnosed between 2003 and 2009, the 7th edition for cases diagnosed from 2010 to 2017, the 8th edition for cases diagnosed from 2018 onwards, and Version 9 for selected cancer sites in accordance with AJCC staging protocols (e.g. cervix cancer diagnosed from 2021 onwards) (6) (7) (8) (9).

STATISTICAL METHODS

This report is based on the analysis of anonymised data on all cases of malignant and some tumours with borderline malignant potential diagnosed among Singapore residents from 1 January 1968 through 31 December 2023 in Singapore, as they stood as of 28 February 2025. Mortality data were as they stood as of 30 September 2024.

CANCER INCIDENCE AND MORTALITY

The computation of cancer incidence excluded benign and in-situ tumours (behaviour codes '0' and '2' respectively) (4).

Cancer incidence and mortality rates were calculated for all cancer sites combined, and for the most common cancer sites by sex, ethnicity, and age group. Incidence and mortality rates were age-standardised to adjust for differences in the age structure of the Singapore resident population over time. Age-standardised incidence or mortality rates were calculated as the sum of the weighted age-specific incidence or mortality rates using the direct method, based on the Segi-Doll World Standards.

The age-specific incidence or mortality rates were defined as the number of new cancer cases or deaths, in the specified time period by the population at risk for that age stratum.

The population estimates were used as the denominators to calculate incidence and mortality rates. Population denominators from 1968 to 2023 were obtained from the Department of Statistics (DOS) (10).

LIFETIME RISK

Lifetime risk of developing cancer was calculated using the DevCan software package (version 6.6.1), developed by Surveillance, Epidemiology, and End Results (SEER), based on age-specific cancer rates (11). The cut-off point for lifetime risk was set at 75 years of age.

RELATIVE SURVIVAL

Single and multiple primary malignant tumours diagnosed in individuals aged 15 years and above were included in the survival analysis in this report. Childhood cancer cases were not included in the survival analysis because of their differences in biological characteristics, treatment protocols, and survival outcomes. Multiple primary cases were included in accordance with the Eurocare-6 (European Cancer Registry) and CONCORD-3 study protocols (12) (13).

Cases based on Death Certificates Only (DCO), i.e. cases registered solely from mortality data, were excluded from the survival analysis since their survival time was unknown.

Relative survival was defined as the ratio of observed survival of patients to the expected survival of a comparable group in the general population, matched according to factors associated with survival at baseline (sex, age, and calendar year of diagnosis). In other words, it reflected the chances of survival assuming that cancer is the only possible cause of death.

The expected survival was estimated from the Singapore general population, which included deaths from all causes. Population life tables for the period of 1968-2002 were constructed using the Mortpak software, with deaths and population counts obtained from the DOS (10) (14). Complete life tables for the period of 2003-2023 were available from the DOS (15).

The Brenner method was used for age-standardisation (16). This was done so that age-standardised survival could still be obtained even if none of the patients within one or more age strata was followed up over the entire period of interest. Furthermore, this method also assured that age-adjustment using the study population's own age-distribution yields exactly the same result as obtained in the crude analysis. Analysis of five-year relative survival for the earliest five-year period (1968-1972) was omitted, as there were insufficient cases in one or more age groups.

Age-standardisation was performed using the International Cancer Survival Standards (ICSS) age categories as weights (17).

INTRODUCTION

Since its independence, Singapore has undergone an epidemiological transition, where the disease pattern shifted from one dominated by infectious and vector-borne diseases, such as cholera and tuberculosis, to one characterised by chronic and non-communicable diseases, including cancer and heart disease (18) (19).

As a result, Singapore's disease burden has undergone a similar shift. As the burden of infectious diseases declined, chronic and non-communicable diseases, such as cancer, rose in prominence. In 1990, cancer was the second leading contributor (after cardiovascular diseases) to disability-adjusted life-years (DALYs)[1] in Singapore, accounting for 15.1% of all DALYs. This proportion remained stable in 2023 at 14.9%, with cancer continuing to be the second leading contributor to total DALYs (20).

A comparable shift in disease burden was observed across high-income countries globally. In 2023, cancer accounted for 16.7% of all DALYs and became the leading contributor since overtaking cardiovascular diseases in 2004 (20).

(1) TRENDS IN CANCER INCIDENCE AND MORTALITY, 1968-2023

1.1 Trends by sex

Incidence of cancer by sex, 1968-2023

Sex differences have been observed in cancer incidence trends over the past five decades (Figure 1.1.1(a), Table 1.1.1(a)). The crude incidence rate (CIR) of cancer increased more than threefold in males and fourfold in females from 1968-1972 to 2019-2023. While males had a higher CIR in 1968-1972 (136.4 per 100,000 population, compared to 104.3 per 100,000 in females), the CIRs for males and females were similar in 2019-2023, at 453.8 for males and 449.4 per 100,000 for females.

In contrast, there was little change in the age-standardised incidence rate (ASIR) of cancer in males over this period, whereas the ASIR for females rose, though less drastically than the corresponding CIR, suggesting that the sharp increase in CIR was partly attributable to population ageing. In 1968-1972, the ASIR of cancer among males was 229.0 per 100,000, significantly higher than that for females (155.6 per 100,000). Following an initial rise in cancer incidence during the 1970s-1980s, reaching 237.6 and 191.9 per 100,000 respectively in 1988-1992. The ASIR for males plateaued, remaining relatively stable at 242.1 per 100,000 in 2019-2023. In contrast, the ASIR for females continued to rise over the years and overtook that of males from 2018-2022. In 2019-2023, the female ASIR reached 247.6 per 100,000.

Globally, however, cancer incidence rates remain consistently higher in males than in females. According to the latest estimates from the International Agency for Research on Cancer (IARC), part of the World Health Organization (WHO), the global ASIR was 212.6 per 100,000 for males and 186.3 per 100,000 for females (21).

[1] DALYs: a composite measure of health loss within a population that summarises the burden of early death and time spent with disability linked to ill health.

Figure 1.1.1(a) Crude and age-standardised incidence rate (per 100,000 population) of cancer by sex, 1968-2023

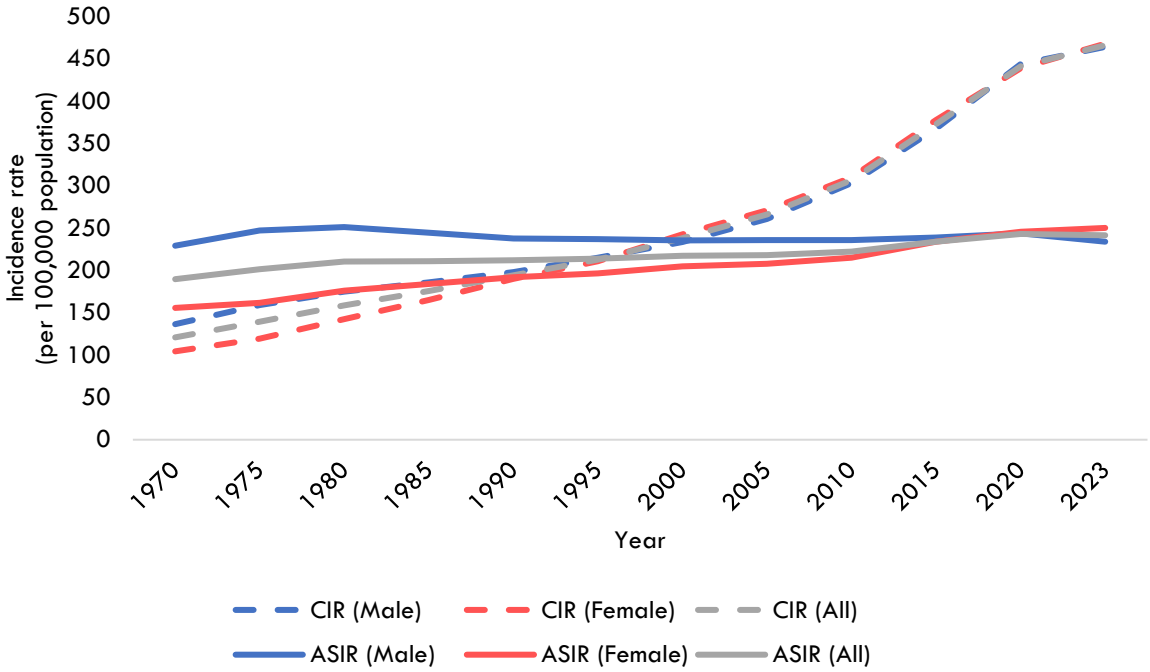


Table 1.1.1(a) Incidence number, crude and age-standardised incidence rate (per 100,000 population) of cancer by sex, 1968-2023

		1968-1972	1973-1977	1978-1982	1983-1987	1988-1992
Male	No.	7007	8577	10135	11689	13650
	CIR (95% CI)	136.4 (133.2-139.6)	158.8 (155.4-162.2)	174.7 (171.3-178.1)	185.9 (182.5-189.2)	197.9 (194.6-201.2)
	ASIR (95% CI)	229.0 (223.2-234.8)	247.0 (241.5-252.4)	251.0 (246.0-256.0)	244.2 (239.7-248.7)	237.6 (233.6-241.7)
Female	No.	5106	6199	8001	10083	12775
	CIR (95% CI)	104.3 (101.4-107.2)	119.3 (116.3-122.2)	142.3 (139.2-145.4)	164.9 (161.7-168.1)	189.8 (186.6-193.1)
	ASIR (95% CI)	155.6 (151.3-160.0)	161.5 (157.5-165.6)	176.0 (172.1-179.9)	184.0 (180.3-187.6)	191.9 (188.4-195.3)
All	No.	12113	14776	18136	21772	26425
	CIR (95% CI)	120.8 (118.6-122.9)	139.4 (137.2-141.7)	158.7 (156.4-161.1)	175.5 (173.2-177.9)	193.9 (191.6-196.3)
	ASIR (95% CI)	189.5 (186.0-193.0)	201.1 (197.8-204.4)	210.4 (207.3-213.5)	210.7 (207.9-213.6)	211.8 (209.2-214.4)
		1993-1997	**1998-2002**	**2003-2007**	**2008-2012**	**2013-2017**
Male	No.	16262	19092	22442	28038	35174
	CIR (95% CI)	214.7 (211.4-218.0)	233.3 (230.0-236.6)	260.5 (257.1-263.9)	302.9 (299.4-306.4)	367.0 (363.2-370.9)
	ASIR (95% CI)	236.7 (233.0-240.4)	235.3 (231.9-238.6)	235.6 (232.4-238.7)	235.7 (232.9-238.5)	238.6 (236.0-241.2)
Female	No.	15787	19902	23668	29430	37497
	CIR (95% CI)	210.6 (207.3-213.9)	242.4 (239.1-245.8)	270.7 (267.3-274.2)	309.8 (306.3-313.4)	377.5 (373.6-381.3)
	ASIR (95% CI)	196.5 (193.3-199.6)	204.7 (201.8-207.6)	207.6 (204.8-210.3)	214.8 (212.2-217.3)	233.8 (231.3-236.3)
All	No.	32049	38994	46110	57468	72671
	CIR (95% CI)	212.7 (210.3-215.0)	237.9 (235.5-240.2)	265.7 (263.3-268.1)	306.4 (303.9-308.9)	372.3 (369.6-375.1)
	ASIR (95% CI)	213.6 (211.2-216.0)	217.0 (214.8-219.2)	218.0 (216.0-220.1)	222.2 (220.4-224.1)	233.9 (232.2-235.7)

		2018-2022	2023	2019-2023
Male	**No.**	43679	9375	**44981**
	CIR (95% CI)	443.6 (439.5-447.8)	463.7 (454.3-473.1)	**453.8 (449.6-458.0)**
	ASIR (95% CI)	243.7 (241.3-246.1)	233.7 (228.6-238.7)	**242.1 (239.8-244.5)**
Female	**No.**	45064	9946	**46593**
	CIR (95% CI)	438.4 (434.4-442.5)	467.5 (458.3-476.7)	**449.4 (445.3-453.5)**
	ASIR (95% CI)	245.3 (242.8-247.7)	250.0 (244.6-255.4)	**247.6 (245.2-250.1)**
All	**No.**	88743	19321	**91574**
	CIR (95% CI)	441.0 (438.1-443.9)	465.7 (459.1-472.2)	**451.6 (448.6-454.5)**
	ASIR (95% CI)	242.9 (241.2-244.6)	241.2 (237.5-244.8)	**243.5 (241.8-245.2)**

Mortality of cancer by sex, 1968-2023

The crude mortality rate (CMR) of cancer also increased over the years, more than twofold in males and threefold in females (Figure 1.1.1(b), Table 1.1.1(b)). Similar to the CIR, the rise in CMR was more pronounced in females than in males. Over the same period, a narrowing sex gap in cancer mortality was also observed.

While the age-standardised mortality rate (ASMR) declined overall among males, it showed a relatively flat trend in females. In 1968-1972, the ASMR for males was nearly twice that of females, at 121.8 per 100,000 compared to 67.5 per 100,000. After an initial rise to a peak in 1978-1982, the ASMR declined to 84.5 per 100,000 for males and 61.7 per 100,000 for females in 2019-2023. Nonetheless, the ASMR of cancer remained consistently higher in males than in females throughout the period.

Figure 1.1.1(b) Crude and age-standardised mortality rate (per 100,000 population) of cancer by sex, 1968-2023

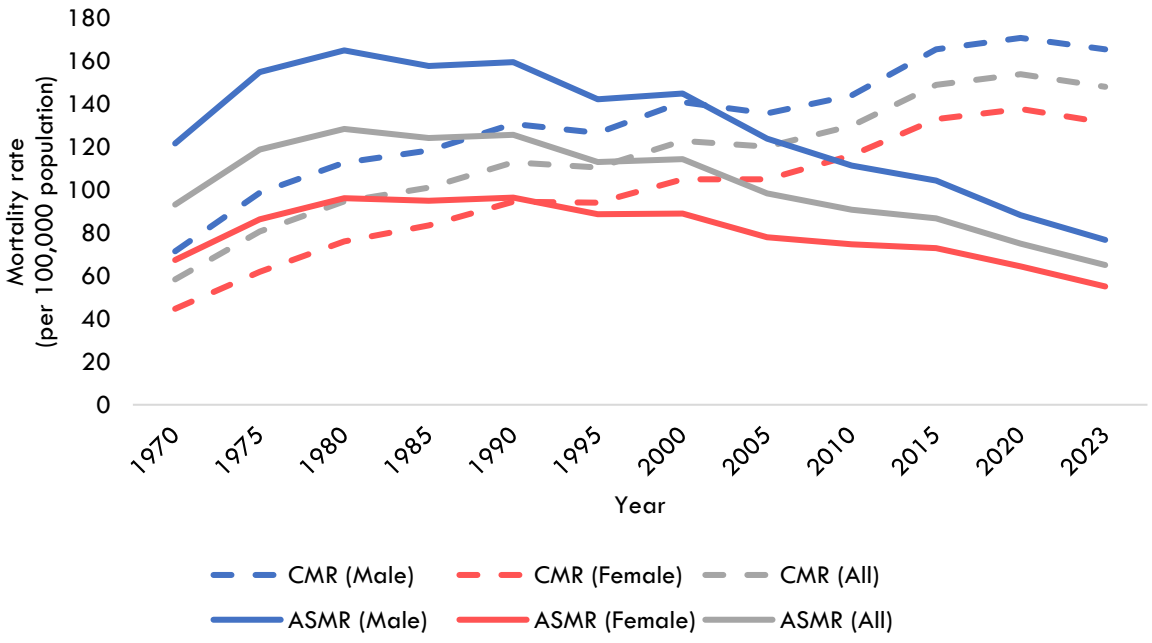


Table 1.1.1(b) Mortality number, crude and age-standardised mortality rate (per 100,000 population) of cancer by sex, 1968-2023

		1968-1972	1973-1977	1978-1982	1983-1987	1988-1992
Male	No.	3671	5330	6543	7448	9031
	CMR (95% CI)	71.5 (69.2-73.8)	98.7 (96.0-101.3)	112.8 (110.0-115.5)	118.4 (115.7-121.1)	130.9 (128.2-133.6)
	ASMR (95% CI)	121.8 (117.6-126.1)	155.0 (150.6-159.3)	165.1 (161.0-169.2)	157.9 (154.3-161.6)	159.6 (156.3-163.0)
Female	No.	2187	3224	4279	5104	6363
	CMR (95% CI)	44.7 (42.8-46.5)	62.0 (59.9-64.2)	76.1 (73.8-78.4)	83.5 (81.2-85.8)	94.6 (92.2-96.9)
	ASMR (95% CI)	67.5 (64.6-70.4)	86.4 (83.4-89.4)	96.3 (93.4-99.3)	95.1 (92.5-97.8)	96.5 (94.0-98.9)
All	No.	5858	8554	10822	12552	15394
	CMR (95% CI)	58.4 (56.9-59.9)	80.7 (79.0-82.4)	94.7 (92.9-96.5)	101.2 (99.4-103.0)	113.0 (111.2-114.8)
	ASMR (95% CI)	93.2 (90.8-95.7)	118.9 (116.3-121.4)	128.5 (126.1-131.0)	124.3 (122.1-126.5)	125.7 (123.7-127.7)
		1993-1997	**1998-2002**	**2003-2007**	**2008-2012**	**2013-2017**
Male	No.	9597	11539	11690	13337	15866
	CMR (95% CI)	126.7 (124.2-129.2)	141.0 (138.4-143.6)	135.7 (133.3-138.2)	144.1 (141.6-146.5)	165.6 (163.0-168.1)
	ASMR (95% CI)	142.3 (139.4-145.2)	145.0 (142.3-147.7)	123.9 (121.6-126.2)	111.4 (109.5-113.3)	104.4 (102.7-106.0)
Female	No.	7054	8621	9181	11041	13224
	CMR (95% CI)	94.1 (91.9-96.3)	105.0 (102.8-107.2)	105.0 (102.9-107.2)	116.2 (114.1-118.4)	133.1 (130.9-135.4)
	ASMR (95% CI)	88.7 (86.6-90.8)	89.1 (87.1-91.0)	78.1 (76.4-79.7)	74.7 (73.2-76.1)	73.0 (71.7-74.3)
All	No.	16651	20160	20871	24378	29090
	CMR (95% CI)	110.5 (108.8-112.2)	123.0 (121.3-124.7)	120.3 (118.6-121.9)	130.0 (128.4-131.6)	149.0 (147.3-150.8)
	ASMR (95% CI)	113.1 (111.4-114.9)	114.4 (112.8-116.0)	98.4 (97.0-99.7)	90.8 (89.6-92.0)	86.9 (85.9-87.9)
		2018-2022	**2023**	**2019-2023**		
Male	No.	16827	3349	**16802**		
	CMR (95% CI)	170.9 (168.3-173.5)	165.6 (160.0-171.2)	**169.5 (166.9-172.1)**		
	ASMR (95% CI)	88.4 (87.0-89.7)	76.8 (74.1-79.5)	**84.5 (83.2-85.8)**		
Female	No.	14162	2797	**14177**		
	CMR (95% CI)	137.8 (135.5-140.0)	131.5 (126.6-136.4)	**136.7 (134.5-139.0)**		
	ASMR (95% CI)	64.4 (63.3-65.6)	55.1 (52.9-57.3)	**61.7 (60.7-62.8)**		
All	No.	30989	6146	**30979**		
	CMR (95% CI)	154.0 (152.3-155.7)	148.1 (144.4-151.8)	**152.8 (151.1-154.5)**		
	ASMR (95% CI)	75.0 (74.1-75.9)	65.1 (63.3-66.8)	**71.9 (71.0-72.7)**		

Ten most frequent incident cancers and cancer deaths by sex, 2019-2023

The overall lifetime risk (LTR) for cancer was 26.8% for males and 26.2% for females in 2019-2023 (Table 1.1.2)—an estimated 1 in 4 Singapore residents might develop cancer by the age of 75 years. This is similar to estimates by the WHO (23.7% for males and 22.1% for females in 2022 [2] . In comparison, the estimated LTR of cancer up to 75 years of age was 16.3% (1 in 6) for males and 15.0% (about 1 in 7) for females in the Southeast Asia region[3] and 32.9% (1 in 3) and 27.0% (about 1 in 4) for males and females, respectively, in high-income countries[4] (21).

Cancer is currently the leading cause of death in Singapore, accounting for 26.2% of all deaths from

[2] Based on 2013-2017 incidence, projected to 2022

[3] Populations included: Brunei Darussalam, Cambodia, Indonesia, Lao People's Democratic Republic, Malaysia, Myanmar, Philippines, Singapore, Thailand, Timor-Leste, Vietnam

[4] Populations included: Bahrain, Brunei Darussalam, Israel, Japan, Korea, Republic of, Kuwait, Oman, Qatar, Saudi Arabia, Singapore, United Arab Emirates, Austria, Belgium, Croatia, Cyprus, Czechia, Denmark, Estonia, Finland, France (metropolitan), Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Norway, Poland, Portugal, Slovakia, Slovenia, Spain, Sweden, Switzerland, The Netherlands, United Kingdom, Canada, United States of America, Bahamas, Barbados, Chile, Puerto Rico, Trinidad and Tobago, Uruguay, Australia, New Caledonia, French Polynesia, Guam, New Zealand

2019-2023 (22). During this period, 44,981 males and 46,593 females were diagnosed with cancer, while 16,802 males and 14,177 females died from the disease (Figure 1.1.2, Table 1.1.2). For both sexes, the ten most frequent incident cancers and causes of cancer deaths accounted for more than 80% of all cancer diagnoses and cancer-related deaths.

Prostate and breast cancers remained the most common cancers among males and females, respectively. Between 2019 to 2023, 8,114 males were diagnosed with prostate cancer, with a LTR of 5.0% (1 in 20) by age 75. Over the same period, 13,935 females were diagnosed with breast cancer, with a LTR of 8.6% (1 in 12) by age 75.

Colorectal and lung cancers were the second and third most commonly diagnosed cancers in both sexes. Together, the top three cancers in males and females accounted for nearly half of all cancer cases during this period. These top three cancers mirrored global trends reported by the Global Cancer Observatory, WHO (21).

In Singapore, lung cancer was the leading cause of cancer deaths in males, accounting for 4,033 cases, or approximately one-quarter of all male cancer deaths from 2019 to 2023. Among females, breast cancer was the leading cause of cancer mortality, contributing to 2,426 deaths, or about 1 in every 5.5 female cancer deaths over the same period.

Colorectal, liver, and pancreatic cancers were also among the top contributors to cancer mortality in both sexes during this period. The three leading causes of cancer death, as shown Figure 1.1.2 below, are consistent with global trends reported by the WHO (21).

Figure 1.1.2 Ten most frequent incident cancers and cancer deaths by sex, 2019-2023

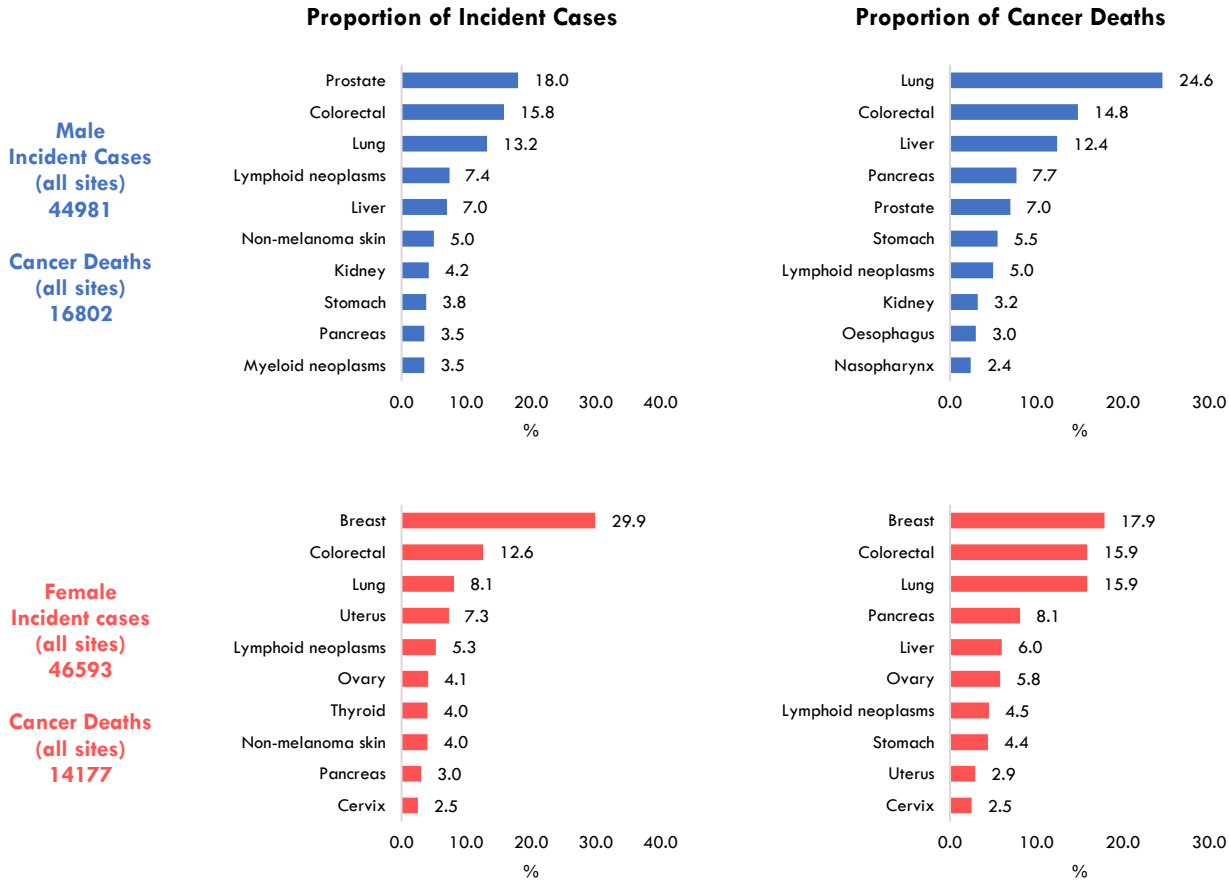


Table 1.1.2 Ten most frequent incident cancers, lifetime risk, and cancer deaths by sex, 2019-2023

Sex	Rank	Incident cases			Lifetime risk		Cancer Deaths		
		Site	No.	%	%	1 in N	Site	No.	%
Male	1	Prostate	8114	18.0	5.0	20	Lung	4033	24.6
	2	Colorectal	7101	15.8	4.3	23	Colorectal	2429	14.8
	3	Lung	5938	13.2	3.3	30	Liver	2039	12.4
	4	Lymphoid neoplasms	3336	7.4	2.1	49	Pancreas	1264	7.7
	5	Liver	3148	7.0	1.8	54	Prostate	1157	7.0
	6	Non-melanoma skin	2268	5.0	1.1	88	Stomach	896	5.5
	7	Kidney	1867	4.2	1.2	86	Lymphoid neoplasms	820	5.0
	8	Stomach	1713	3.8	0.9	107	Kidney	519	3.2
	9	Pancreas	1585	3.5	0.9	106	Oesophagus	489	3.0
	10	Myeloid neoplasms	1573	3.5	0.9	110	Nasopharynx	399	2.4
		All sites	**44981**	**100.0**	**26.8**	**4**	**All sites**	**16802**	**100.0**
Female	1	Breast	13935	29.9	8.6	12	Breast	2426	17.9
	2	Colorectal	5849	12.6	2.9	34	Colorectal	2162	15.9
	3	Lung	3794	8.1	1.9	52	Lung	2157	15.9
	4	Uterus	3424	7.3	2.2	45	Pancreas	1096	8.1
	5	Lymphoid neoplasms	2463	5.3	1.4	71	Liver	815	6.0
	6	Ovary	1899	4.1	1.2	82	Ovary	784	5.8
	7	Thyroid	1886	4.0	1.2	82	Lymphoid neoplasms	605	4.5
	8	Non-melanoma skin	1842	4.0	0.7	139	Stomach	598	4.4
	9	Pancreas	1398	3.0	0.7	151	Uterus	399	2.9
	10	Cervix	1146	2.5	0.7	143	Cervix	344	2.5
		All sites	**46593**	**100.0**	**26.2**	**4**	**All sites**	**14177**	**100.0**

1.2 Trends by ethnicity

Incidence and mortality of cancer by sex and ethnicity, 1968-2023

Over the years, differing trends have been observed among the three main ethnic groups in Singapore for both sexes. Ethnic differences in cancer trends were apparent for both incidence and mortality (Figure 1.2.1(a)-(c), Table 1.2.1(a)-(c), Figure 1.2.2 (a)-(c), Table 1.2.2(a)-(c)).

From 1968-1972 to 2019-2023, the CIR of cancer increased among males of all three ethnic groups. The ASIR of cancer among Chinese males declined slightly, from 258.9 per 100,000 in 1968-1972 to 247.2 per 100,000 in 2019-2023. The ASIR among Malay males more than doubled, increasing from 96.6 to 232.1 per 100,000, but still slightly below the ASIR for Chinese males. Among Indian males, the increase was less steep, with some fluctuations over the years, rising from 126.8 to 163.7 per 100,000 (Figure 1.2.1(a), Table 1.2.1(a)).

During this period, a similar trend in CIR was observed among females, with increases across all three ethnic groups. The ASIR rose among females of all three ethnic groups. Among Chinese females, the ASIR increased from 159.2 to 249.3 per 100,000 population. The largest increase was observed among Malay females, whose ASIR more than doubled, from 98.5 per 100,000 in 1968-1972 to 258.2 per 100,000 in 2019-2023, surpassing that of Chinese females and becoming the highest among the three ethnic groups. In contrast, Indian females experienced a more modest increase, with the ASIR rising from 184.6 to 200.1 per 100,000 (Figure 1.2.1(b), Table 1.2.1(b)).

Overall, while the Chinese population historically had the highest ASIR of cancer, recent decades have seen faster increases among Malays, narrowing the ethnic gap in cancer incidence, particularly between Chinese and Malays. In the local context, studies on leading cancers such as colorectal cancer have shown that the Malay ethnic group has experienced a more rapid rise in incidence rates (23).

In 1968-1972, the Chinese had a significantly higher ASIR compared to the Malays and Indians (203.5, 96.4, and 140.6 per 100,000 population, respectively). By 2019-2023, however, these ethnic disparities had become less apparent. The ASIR among the Chinese increased gradually to 247.0 per 100,000, while the rates among Malays and Indians rose more rapidly to 243.6 and 179.3 per 100,000, respectively. Since 1988-1992, the ASIR for Indians has remained the lowest among the three ethnic groups (Figure 1.2.1(c), Table 1.2.1(c)).

Figure 1.2.1(a) Crude and age-standardised incidence rate (per 100,000 population) of cancer in males by ethnicity, 1968-2023

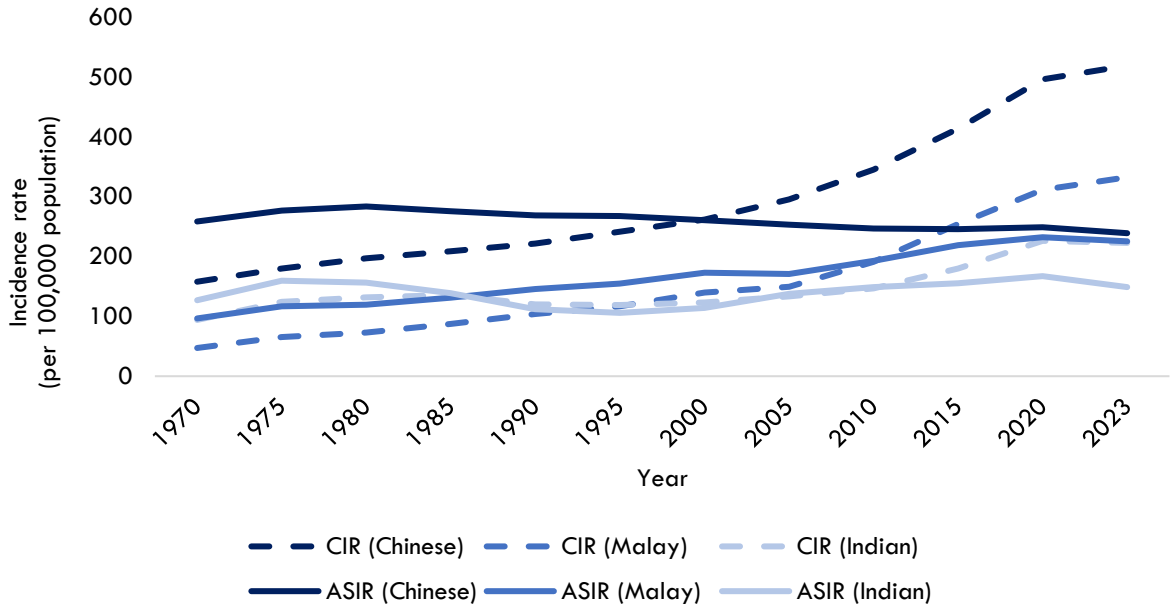


Figure 1.2.1(b) Crude and age-standardised incidence rate (per 100,000 population) of cancer in females by ethnicity, 1968-2023

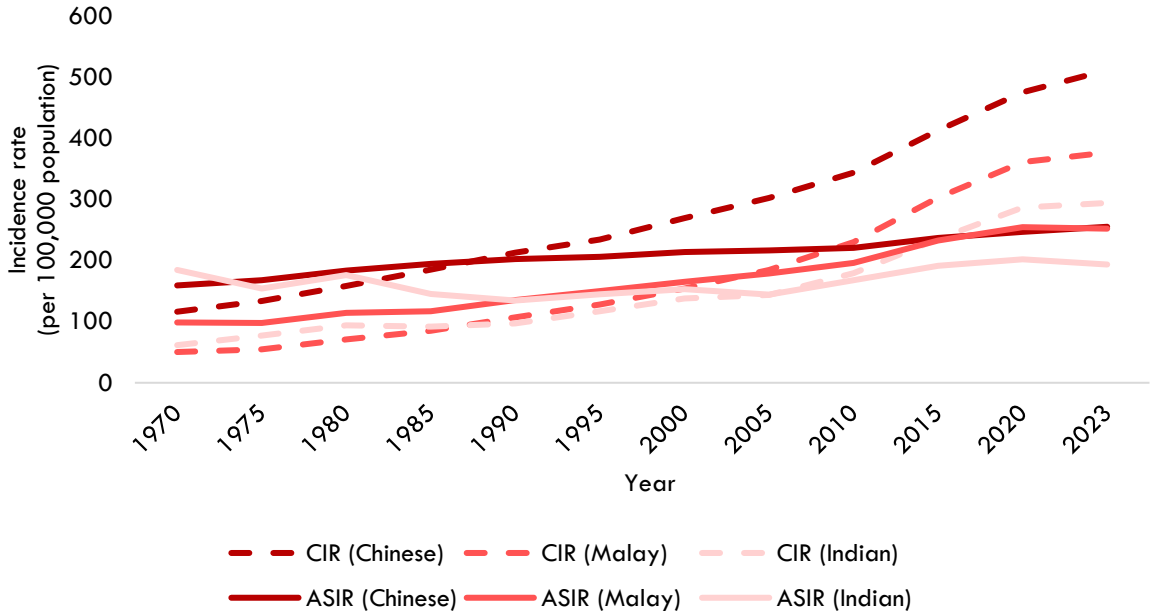


Figure 1.2.1(c) Crude and age-standardised incidence rate (per 100,000 population) of cancer by ethnicity, 1968-2023

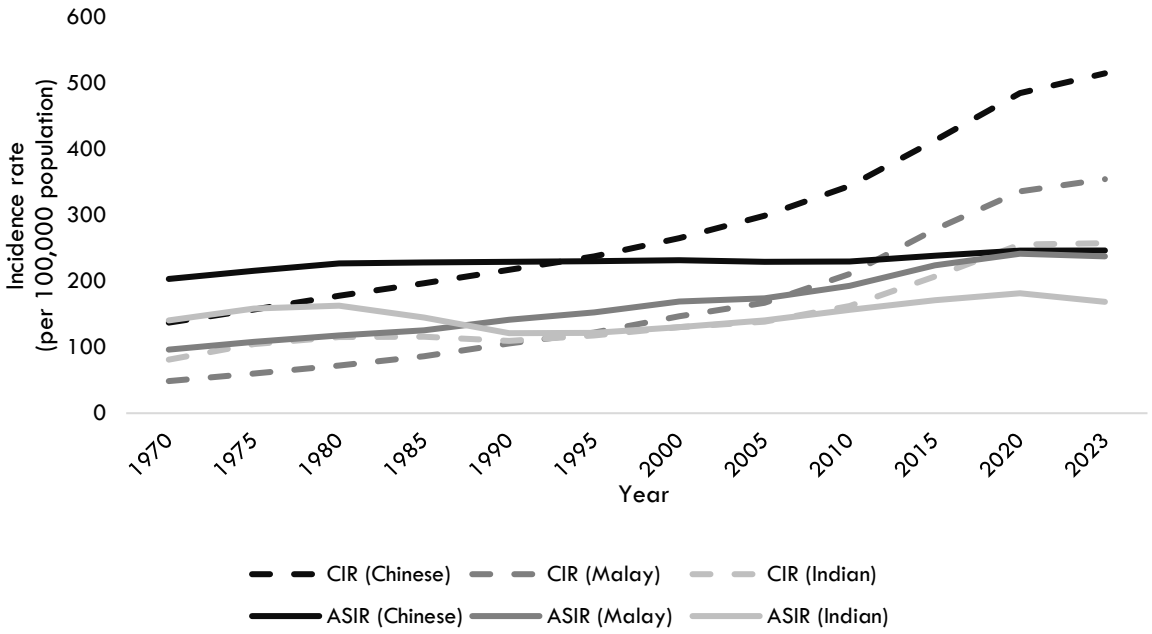


Table 1.2.1(a) Incidence number, crude and age-standardised incidence rate (per 100,000 population) of cancer in males by ethnicity, 1968-2023

		1968-1972	1973-1977	1978-1982	1983-1987	1988-1992
Chinese	No.	6184	7479	8886	10161	11824
	CIR (95% CI)	158.0 (154.0-161.9)	179.9 (175.8-184.0)	197.4 (193.3-201.5)	208.7 (204.6-212.7)	222.0 (218.0-226.0)
	ASIR (95% CI)	258.9 (252.0-265.7)	276.7 (270.2-283.2)	283.8 (277.8-289.8)	275.7 (270.2-281.1)	269.0 (264.0-273.9)
Malay	No.	359	514	611	787	1017
	CIR (95% CI)	47.2 (42.3-52.1)	65.7 (60.0-71.4)	73.2 (67.4-79.0)	87.6 (81.5-93.7)	103.9 (97.5-110.3)
	ASIR (95% CI)	96.6 (84.9-108.3)	116.8 (105.8-127.9)	119.7 (109.4-129.9)	131.1 (121.5-140.8)	146.0 (136.7-155.3)
Indian	No.	401	504	539	622	624
	CIR (95% CI)	94.1 (84.9-103.3)	124.4 (113.5-135.3)	131.9 (120.8-143.1)	135.7 (125.0-146.3)	120.0 (110.6-129.4)
	ASIR (95% CI)	126.8 (110.5-143.1)	159.5 (142.6-176.5)	156.4 (141.4-171.4)	139.0 (127.1-150.9)	112.2 (102.9-121.6)
		1993-1997	**1998-2002**	**2003-2007**	**2008-2012**	**2013-2017**
Chinese	No.	14097	16372	19206	23590	29279
	CIR (95% CI)	241.7 (237.7-245.7)	261.7 (257.7-265.7)	295.8 (291.6-300.0)	345.3 (340.9-349.7)	413.8 (409.0-418.5)
	ASIR (95% CI)	267.7 (263.2-272.2)	261.0 (256.9-265.0)	253.1 (249.4-256.7)	246.9 (243.7-250.2)	245.6 (242.7-248.5)
Malay	No.	1248	1600	1799	2397	3296
	CIR (95% CI)	116.6 (110.2-123.1)	139.7 (132.8-146.5)	149.7 (142.8-156.6)	191.4 (183.7-199.0)	254.2 (245.5-262.9)
	ASIR (95% CI)	154.9 (146.0-163.8)	173.1 (164.2-181.9)	170.9 (162.7-179.2)	193.1 (185.0-201.1)	219.0 (211.3-226.8)
Indian	No.	697	830	1000	1302	1642
	CIR (95% CI)	119.1 (110.3-128.0)	123.3 (114.9-131.7)	133.6 (125.3-141.9)	146.8 (138.9-154.8)	180.2 (171.5-188.9)
	ASIR (95% CI)	105.9 (97.7-114.2)	114.3 (106.1-122.5)	137.6 (128.7-146.6)	148.9 (140.4-157.5)	155.5 (147.6-163.4)

		2018-2022	2023	2019-2023
Chinese	No.	36086	7731	**37126**
	CIR (95% CI)	496.4 (491.3-501.5)	519.2 (507.6-530.8)	**507.7 (502.5-512.8)**
	ASIR (95% CI)	248.8 (246.1-251.6)	239.1 (233.3-245.0)	**247.2 (244.4-249.9)**
Malay	No.	4220	928	**4379**
	CIR (95% CI)	311.6 (302.2-321.0)	332.6 (311.2-354.0)	**320.4 (310.9-329.8)**
	ASIR (95% CI)	232.4 (225.2-239.5)	225.7 (210.8-240.6)	**232.1 (225.0-239.1)**
Indian	No.	2094	425	**2135**
	CIR (95% CI)	226.3 (216.6-235.9)	222.6 (201.4-243.8)	**229.1 (219.4-238.8)**
	ASIR (95% CI)	167.3 (159.9-174.7)	148.9 (134.2-163.6)	**163.7 (156.6-170.9)**

Table 1.2.1(b) Incidence number, crude and age-standardised incidence rate (per 100,000 population) of cancer in females by ethnicity, 1968-2023

		1968-1972	1973-1977	1978-1982	1983-1987	1988-1992
Chinese	No.	4475	5476	7039	8897	11211
	CIR (95% CI)	116.2 (112.8-119.7)	133.7 (130.1-137.2)	158.5 (154.8-162.2)	185.0 (181.2-188.9)	212.9 (208.9-216.8)
	ASIR (95% CI)	159.2 (154.4-163.9)	167.9 (163.4-172.4)	183.4 (179.0-187.7)	194.2 (190.0-198.3)	202.5 (198.6-206.3)
Malay	No.	368	412	573	734	1009
	CIR (95% CI)	50.3 (45.1-55.4)	54.6 (49.3-59.8)	71.1 (65.2-76.9)	84.9 (78.7-91.0)	107.0 (100.4-113.6)
	ASIR (95% CI)	98.5 (87.0-110.0)	97.8 (87.4-108.2)	114.4 (104.2-124.6)	117.0 (108.0-126.1)	135.2 (126.4-143.9)
Indian	No.	172	224	300	346	429
	CIR (95% CI)	61.5 (52.3-70.7)	77.1 (67.0-87.2)	94.0 (83.3-104.6)	91.9 (82.2-101.5)	96.9 (87.8-106.1)
	ASIR (95% CI)	184.6 (148.9-220.4)	154.1 (130.0-178.2)	176.2 (152.5-199.9)	145.2 (127.4-162.9)	134.5 (120.6-148.4)
		1993-1997	**1998-2002**	**2003-2007**	**2008-2012**	**2013-2017**
Chinese	No.	13652	17047	20101	24398	30657
	CIR (95% CI)	234.2 (230.2-238.1)	269.2 (265.2-273.3)	302.3 (298.1-306.5)	343.9 (339.6-348.2)	413.0 (408.3-417.6)
	ASIR (95% CI)	205.7 (202.1-209.2)	213.7 (210.4-217.0)	216.3 (213.2-219.4)	220.6 (217.7-223.6)	236.9 (234.0-239.7)
Malay	No.	1337	1744	2217	2906	3968
	CIR (95% CI)	128.0 (121.1-134.9)	154.0 (146.8-161.2)	184.7 (177.0-192.3)	230.2 (221.8-238.6)	302.9 (293.4-312.3)
	ASIR (95% CI)	149.8 (141.4-158.1)	164.9 (156.8-173.0)	178.9 (171.1-186.7)	195.9 (188.5-203.3)	232.7 (225.3-240.2)
Indian	No.	611	854	1017	1482	2031
	CIR (95% CI)	117.0 (107.8-126.3)	137.9 (128.7-147.2)	143.9 (135.1-152.8)	179.0 (169.9-188.1)	235.1 (224.9-245.3)
	ASIR (95% CI)	144.9 (132.2-157.6)	152.9 (142.0-163.8)	144.4 (135.1-153.7)	167.7 (158.9-176.5)	191.1 (182.5-199.6)
		2018-2022	**2023**	**2019-2023**		
Chinese	No.	36461	8096	**37694**		
	CIR (95% CI)	474.8 (469.9-479.7)	511.3 (500.2-522.5)	**487.1 (482.2-492.0)**		
	ASIR (95% CI)	246.6 (243.8-249.3)	255.1 (248.8-261.3)	**249.3 (246.5-252.1)**		
Malay	No.	4929	1063	**5114**		
	CIR (95% CI)	360.8 (350.7-370.8)	376.5 (353.9-399.2)	**370.8 (360.6-380.9)**		
	ASIR (95% CI)	254.5 (247.1-261.8)	251.9 (236.0-267.7)	**258.2 (250.8-265.5)**		
Indian	No.	2527	541	**2587**		
	CIR (95% CI)	286.8 (275.6-297.9)	294.1 (269.3-318.9)	**291.0 (279.7-302.2)**		
	ASIR (95% CI)	201.9 (193.7-210.0)	193.6 (176.5-210.7)	**200.1 (192.1-208.1)**		

Table 1.2.1(c) Incidence number, crude and age-standardised incidence rate (per 100,000 population) of cancer by ethnicity, 1968-2023

		1968-1972	1973-1977	1978-1982	1983-1987	1988-1992
Chinese	No.	10659	12955	15925	19058	23035
	CIR (95% CI)	137.3 (134.7-139.9)	157.0 (154.3-159.7)	178.1 (175.3-180.8)	196.9 (194.1-199.7)	217.4 (214.6-220.2)
	ASIR (95% CI)	203.5 (199.6-207.5)	216.0 (212.3-219.8)	227.1 (223.6-230.7)	228.3 (225.0-231.6)	229.6 (226.6-232.7)
Malay	No.	727	926	1184	1521	2026
	CIR (95% CI)	48.7 (45.2-52.3)	60.2 (56.4-64.1)	72.1 (68.0-76.2)	86.2 (81.9-90.6)	105.5 (100.9-110.0)
	ASIR (95% CI)	96.4 (88.4-104.4)	108.2 (100.5-115.8)	118.1 (110.8-125.4)	125.6 (119.0-132.3)	141.6 (135.2-148.0)
Indian	No.	573	728	839	968	1053
	CIR (95% CI)	81.2 (74.5-87.8)	104.6 (97.0-112.2)	115.3 (107.5-123.1)	115.9 (108.6-123.2)	109.4 (102.8-116.0)
	ASIR (95% CI)	140.6 (125.2-156.0)	158.8 (145.0-172.7)	163.1 (150.5-175.7)	145.1 (135.1-155.0)	121.3 (113.6-129.1)
		1993-1997	**1998-2002**	**2003-2007**	**2008-2012**	**2013-2017**
Chinese	No.	27749	33419	39307	47988	59936
	CIR (95% CI)	237.9 (235.1-240.7)	265.5 (262.6-268.3)	299.1 (296.1-302.1)	344.6 (341.5-347.7)	413.4 (410.1-416.7)
	ASIR (95% CI)	230.5 (227.8-233.3)	231.7 (229.1-234.2)	229.6 (227.3-232.0)	230.1 (228.0-232.3)	238.9 (236.8-240.9)
Malay	No.	2585	3344	4016	5303	7264
	CIR (95% CI)	122.2 (117.5-127.0)	146.8 (141.8-151.8)	167.2 (162.0-172.3)	210.9 (205.2-216.5)	278.6 (272.2-285.1)
	ASIR (95% CI)	153.0 (146.9-159.1)	169.1 (163.1-175.1)	174.2 (168.5-179.8)	192.9 (187.5-198.3)	224.1 (218.8-229.4)
Indian	No.	1308	1684	2017	2784	3673
	CIR (95% CI)	118.1 (111.7-124.5)	130.3 (124.1-136.5)	138.6 (132.5-144.6)	162.4 (156.3-168.4)	206.9 (200.2-213.6)
	ASIR (95% CI)	121.6 (114.7-128.5)	130.6 (124.1-137.1)	140.8 (134.4-147.2)	156.7 (150.7-162.8)	171.0 (165.3-176.8)
		2018-2022	**2023**	**2019-2023**		
Chinese	No.	72547	15827	**74820**		
	CIR (95% CI)	485.3 (481.8-488.8)	515.1 (507.1-523.2)	**497.1 (493.5-500.6)**		
	ASIR (95% CI)	246.2 (244.3-248.2)	246.6 (242.3-250.9)	**247.0 (245.1-248.9)**		
Malay	No.	9149	1991	**9493**		
	CIR (95% CI)	336.3 (329.4-343.2)	354.7 (339.1-370.3)	**345.7 (338.7-352.6)**		
	ASIR (95% CI)	241.7 (236.6-246.8)	237.5 (226.7-248.4)	**243.6 (238.5-248.7)**		
Indian	No.	4621	966	**4722**		
	CIR (95% CI)	255.8 (248.4-263.1)	257.7 (241.4-273.9)	**259.3 (251.9-266.7)**		
	ASIR (95% CI)	181.8 (176.4-187.2)	168.8 (157.7-179.9)	**179.3 (174.0-184.6)**		

In terms of mortality rates, Malay males showed the greatest increase in CMR among the three ethnic groups, with the rate in 2019-2023 more than six times higher than in 1968-1972. In comparison, Chinese and Indian males experienced a slower increase over the same period. Furthermore, Chinese males saw the most significant decline in ASMR, dropping from 140.1 to 84.8 per 100,000 population between 1968-1972 and 2019-2023. Indian males consistently had the lowest ASMR among the three ethnic groups, with minimal change, reaching 56.8 per 100,000 in 2019-2023. In contrast, Malay males experienced more than a twofold increase in ASMR, rising from 45.8 to 101.8 per 100,000 over the same period (Figure 1.2.2(a), Table 1.2.2(a)).

Among females, the greatest increase in CMR was also seen among Malays. While the ASIR of cancer increased among females across all three ethnic groups, the ASMR rose only among Malay females—rising from 46.6 to 81.5 per 100,000 population between 1968-1972 and 2019-2023. In contrast, over the same period, the ASMR among Chinese females declined slightly from 68.2 to 59.4 per 100,000, while that among Indian females decreased more noticeably from 82.6 to 55.6 per 100,000 (Figure 1.2.2(b), Table 1.2.2(b)).

Local research on breast cancer, the leading female cancer, has shown that Malay females experience poorer prognosis and lower survival rates compared to the other ethnic groups. Malay ethnicity has been associated with a higher risk of all-cause mortality, independent of age, stage, tumour characteristics, and treatment (24).

Overall, Malays have had the highest ASMR among the three ethnic groups for approximately the last decade (since 2013-2017, when its ASMR was 94.4 per 100,000). This marks a significant shift, as Malays had the lowest ASMR in the 1970s. In contrast, the ASMRs for both Chinese and Indians began declining from the 1980s onwards, with the most recent rates falling to 70.7 and 55.7 per 100,000, respectively (Figure 1.2.2(c), Table 1.2.2(c)).

Figure 1.2.2(a) Crude and age-standardised mortality rate (per 100,000 population) of cancer in males by ethnicity, 1968-2023

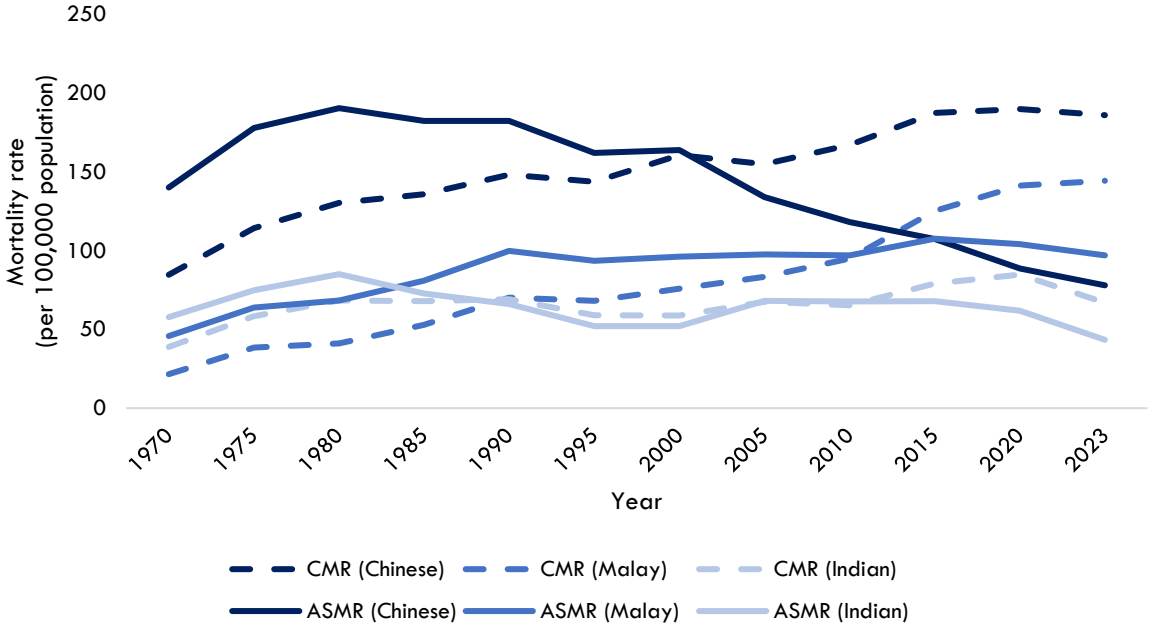


Figure 1.2.2(b) Crude and age-standardised mortality rate (per 100,000 population) of cancer in females by ethnicity, 1968-2023

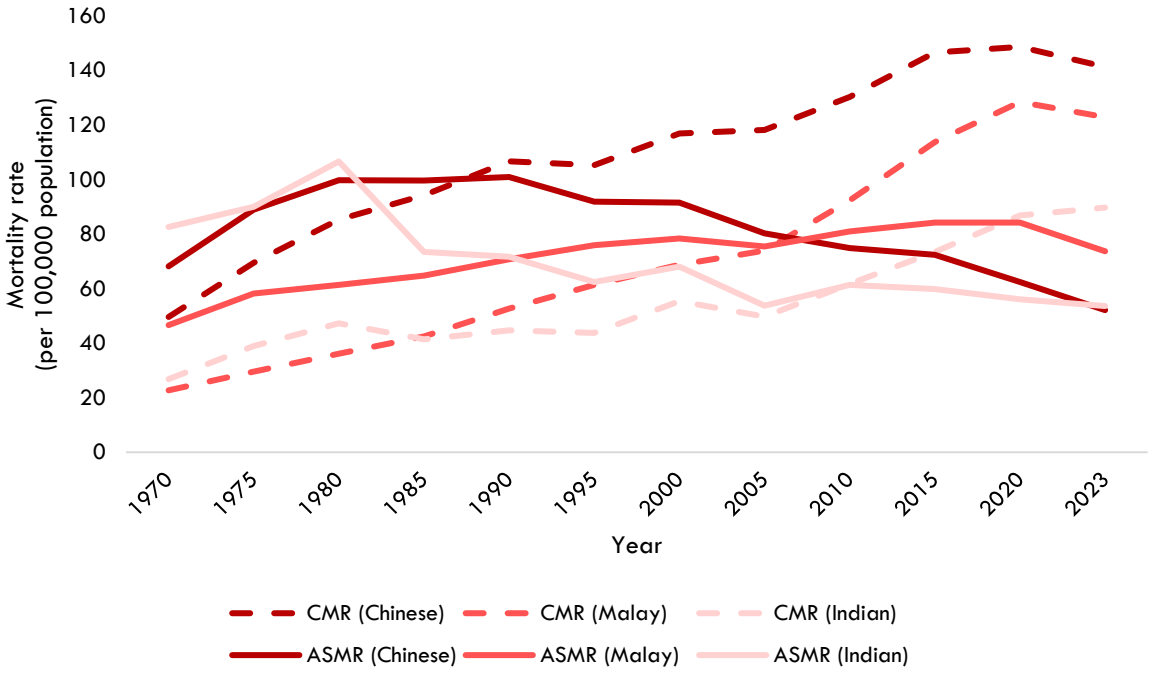


Figure 1.2.2(c) Crude and age-standardised mortality rate (per 100,000 population) of cancer by ethnicity, 1968-2023

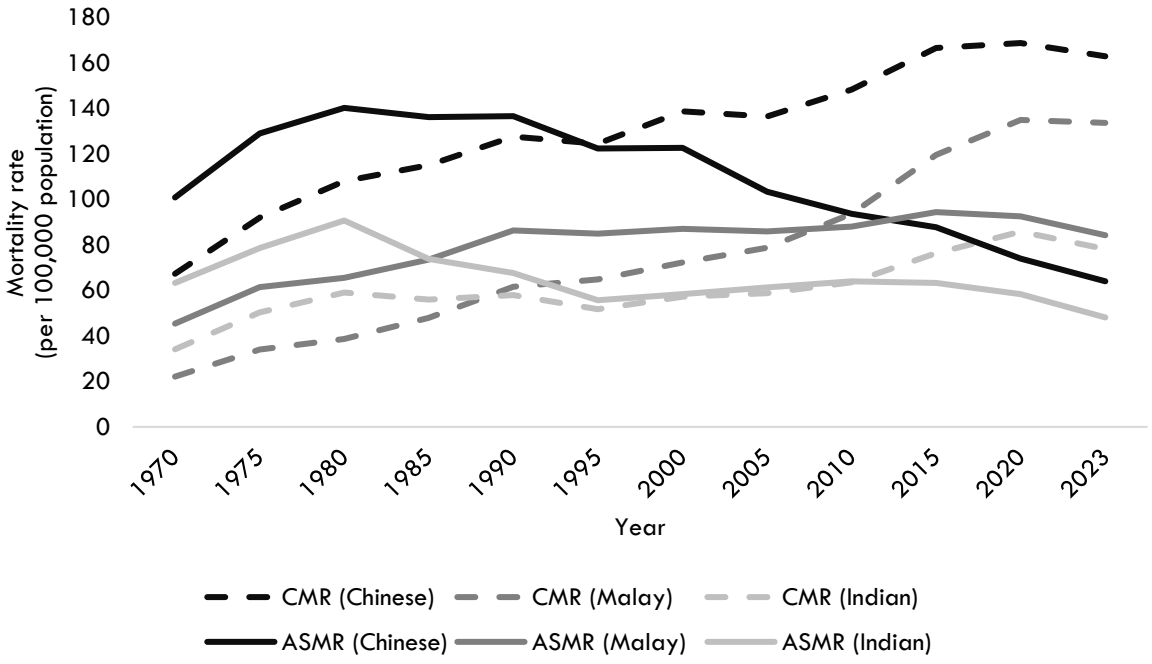


Table 1.2.2(a) Mortality number, crude and age-standardised mortality rate (per 100,000 population) of cancer in males by ethnicity, 1968-2023

		1968-1972	1973-1977	1978-1982	1983-1987	1988-1992
Chinese	No.	3315	4751	5869	6613	7896
	CMR (95% CI)	84.7 (81.8-87.6)	114.3 (111.0-117.5)	130.4 (127.0-133.7)	135.8 (132.5-139.1)	148.2 (144.9-151.5)
	ASMR (95% CI)	140.1 (135.0-145.2)	177.9 (172.6-183.1)	190.5 (185.6-195.5)	182.4 (177.9-186.8)	182.4 (178.3-186.5)
Malay	No.	164	300	343	476	686
	CMR (95% CI)	21.6 (18.3-24.9)	38.4 (34.0-42.7)	41.1 (36.7-45.4)	53.0 (48.2-57.7)	70.1 (64.9-75.3)
	ASMR (95% CI)	45.8 (37.6-54.0)	63.9 (56.0-71.8)	68.3 (60.5-76.1)	80.9 (73.2-88.5)	99.8 (92.0-107.5)
Indian	No.	166	237	279	312	359
	CMR (95% CI)	38.9 (33.0-44.9)	58.5 (51.1-65.9)	68.3 (60.3-76.3)	68.0 (60.5-75.6)	69.1 (61.9-76.2)
	ASMR (95% CI)	57.8 (45.6-70.0)	74.8 (63.9-85.6)	85.1 (73.6-96.6)	72.8 (64.0-81.7)	66.1 (58.7-73.6)
		1993-1997	**1998-2002**	**2003-2007**	**2008-2012**	**2013-2017**
Chinese	No.	8379	10051	10066	11420	13257
	CMR (95% CI)	143.7 (140.6-146.8)	160.7 (157.5-163.8)	155.0 (152.0-158.1)	167.2 (164.1-170.2)	187.4 (184.2-190.5)
	ASMR (95% CI)	162.1 (158.6-165.7)	163.8 (160.6-167.0)	134.0 (131.3-136.7)	118.2 (116.0-120.4)	107.4 (105.5-109.3)
Malay	No.	730	868	1004	1188	1625
	CMR (95% CI)	68.2 (63.3-73.2)	75.8 (70.7-80.8)	83.5 (78.4-88.7)	94.9 (89.5-100.2)	125.3 (119.2-131.4)
	ASMR (95% CI)	93.6 (86.6-100.6)	96.3 (89.7-103.0)	97.7 (91.4-104.1)	97.0 (91.2-102.7)	107.6 (102.2-113.0)
Indian	No.	346	396	505	580	722
	CMR (95% CI)	59.1 (52.9-65.4)	58.8 (53.0-64.6)	67.5 (61.6-73.3)	65.4 (60.1-70.7)	79.2 (73.5-85.0)
	ASMR (95% CI)	52.0 (46.3-57.7)	52.1 (46.6-57.5)	68.2 (62.0-74.5)	67.8 (62.0-73.6)	68.0 (62.8-73.2)

		2018-2022	2023	2019-2023
Chinese	**No.**	13803	2769	**13786**
	CMR	189.9	186.0	**188.5**
	(95% CI)	(186.7-193.0)	(179.0-192.9)	**(185.4-191.7)**
	ASMR	88.7	78.0	**84.8**
	(95% CI)	(87.1-90.2)	(74.9-81.1)	**(83.3-86.3)**
Malay	**No.**	1915	403	**1948**
	CMR	141.4	144.4	**142.5**
	(95% CI)	(135.1-147.7)	(130.3-158.5)	**(136.2-148.8)**
	ASMR	104.1	97.0	**101.8**
	(95% CI)	(99.3-108.8)	(87.4-106.7)	**(97.2-106.4)**
Indian	**No.**	785	128	**749**
	CMR	84.8	67.0	**80.4**
	(95% CI)	(78.9-90.8)	(55.4-78.7)	**(74.6-86.1)**
	ASMR	61.8	43.4	**56.8**
	(95% CI)	(57.4-66.2)	(35.9-51.0)	**(52.7-61.0)**

Table 1.2.2(b) Mortality number, crude and age-standardised mortality rate (per 100,000 population) of cancer in females by ethnicity, 1968-2023

		1968-1972	1973-1977	1978-1982	1983-1987	1988-1992
Chinese	**No.**	1909	2843	3787	4531	5614
	CMR	49.6	69.4	85.3	94.2	106.6
	(95% CI)	(47.4-51.8)	(66.8-71.9)	(82.6-88.0)	(91.5-97.0)	(103.8-109.4)
	ASMR	68.2	88.9	99.7	99.6	100.9
	(95% CI)	(65.1-71.3)	(85.6-92.2)	(96.5-102.9)	(96.7-102.6)	(98.2-103.6)
Malay	**No.**	166	223	291	368	497
	CMR	22.7	29.5	36.1	42.5	52.7
	(95% CI)	(19.2-26.1)	(25.7-33.4)	(31.9-40.2)	(38.2-46.9)	(48.1-57.3)
	ASMR	46.6	58.2	61.4	64.8	70.8
	(95% CI)	(38.6-54.5)	(49.8-66.6)	(53.7-69.0)	(57.8-71.8)	(64.4-77.3)
Indian	**No.**	75	113	151	156	198
	CMR	26.8	38.9	47.3	41.4	44.7
	(95% CI)	(20.8-32.9)	(31.7-46.1)	(39.8-54.8)	(34.9-47.9)	(38.5-51.0)
	ASMR	82.6	90.0	106.6	73.4	71.7
	(95% CI)	(59.0-106.3)	(70.1-109.9)	(87.0-126.2)	(60.1-86.8)	(60.6-82.7)
		1993-1997	**1998-2002**	**2003-2007**	**2008-2012**	**2013-2017**
Chinese	**No.**	6131	7404	7861	9237	10881
	CMR	105.2	116.9	118.2	130.2	146.6
	(95% CI)	(102.5-107.8)	(114.3-119.6)	(115.6-120.8)	(127.5-132.9)	(143.8-149.3)
	ASMR	91.9	91.5	80.2	74.9	72.4
	(95% CI)	(89.5-94.3)	(89.3-93.7)	(78.3-82.0)	(73.3-76.5)	(71.0-73.9)
Malay	**No.**	640	779	887	1165	1489
	CMR	61.3	68.8	73.9	92.3	113.7
	(95% CI)	(56.5-66.0)	(63.9-73.6)	(69.0-78.7)	(87.0-97.6)	(107.9-119.4)
	ASMR	75.9	78.4	75.4	81.0	84.2
	(95% CI)	(69.8-82.0)	(72.7-84.1)	(70.3-80.6)	(76.2-85.9)	(79.8-88.6)
Indian	**No.**	228	343	351	511	635
	CMR	43.7	55.4	49.7	61.7	73.5
	(95% CI)	(38.0-49.3)	(49.5-61.3)	(44.5-54.9)	(56.4-67.1)	(67.8-79.2)
	ASMR	62.4	68.1	53.7	61.3	59.8
	(95% CI)	(53.5-71.3)	(60.4-75.8)	(47.8-59.5)	(55.8-66.8)	(55.0-64.6)
		2018-2022	**2023**	**2019-2023**		
Chinese	**No.**	11412	**2237**	**11401**		
	CMR	148.6	141.3	147.3		
	(95% CI)	(145.9-151.3)	(135.4-147.1)	(144.6-150.0)		
	ASMR	62.4	52.1	59.4		
	(95% CI)	(61.1-63.6)	(49.7-54.5)	(58.2-60.6)		
Malay	**No.**	1754	347	1757		
	CMR	128.4	122.9	127.4		
	(95% CI)	(122.4-134.4)	(110.0-135.8)	(121.4-133.3)		
	ASMR	84.2	73.7	81.5		
	(95% CI)	(80.2-88.3)	(65.6-81.8)	(77.5-85.4)		
Indian	**No.**	765	**165**	**791**		
	CMR	86.8	89.7	89.0		
	(95% CI)	(80.7-93.0)	(76.0-103.4)	(82.8-95.2)		
	ASMR	56.1	53.6	55.6		
	(95% CI)	(52.0-60.1)	(45.3-62.0)	(51.7-59.5)		

Table 1.2.2(c) Mortality number, crude and age-standardised mortality rate (per 100,000 population) of cancer by ethnicity, 1968-2023

		1968-1972	1973-1977	1978-1982	1983-1987	1988-1992
Chinese	No.	5224	7594	9656	11144	13510
	CMR (95% CI)	67.3 (65.5-69.1)	92.0 (89.9-94.1)	108.0 (105.8-110.1)	115.1 (113.0-117.3)	127.5 (125.4-129.7)
	ASMR (95% CI)	100.9 (98.1-103.7)	129.0 (126.0-131.9)	140.2 (137.4-143.0)	136.1 (133.5-138.7)	136.6 (134.2-138.9)
Malay	No.	330	523	634	844	1183
	CMR (95% CI)	22.1 (19.7-24.5)	34.0 (31.1-36.9)	38.6 (35.6-41.6)	47.9 (44.6-51.1)	61.6 (58.1-65.1)
	ASMR (95% CI)	45.4 (39.8-50.9)	61.4 (55.6-67.1)	65.5 (60.0-71.0)	73.5 (68.3-78.7)	86.3 (81.2-91.4)
Indian	No.	241	350	430	468	557
	CMR (95% CI)	34.1 (29.8-38.5)	50.3 (45.0-55.6)	59.1 (53.5-64.7)	56.0 (51.0-61.1)	57.9 (53.1-62.7)
	ASMR (95% CI)	63.2 (52.4-74.0)	78.6 (69.0-88.2)	90.7 (80.9-100.5)	73.8 (66.4-81.1)	67.6 (61.6-73.7)
		1993-1997	**1998-2002**	**2003-2007**	**2008-2012**	**2013-2017**
Chinese	No.	14510	17455	17927	20657	24138
	CMR (95% CI)	124.4 (122.4-126.4)	138.7 (136.6-140.7)	136.4 (134.4-138.4)	148.3 (146.3-150.4)	166.5 (164.4-168.6)
	ASMR (95% CI)	122.3 (120.3-124.3)	122.7 (120.8-124.5)	103.3 (101.7-104.8)	93.6 (92.3-95.0)	87.7 (86.6-88.9)
Malay	No.	1370	1647	1891	2353	3114
	CMR (95% CI)	64.8 (61.4-68.2)	72.3 (68.8-75.8)	78.7 (75.2-82.3)	93.6 (89.8-97.3)	119.5 (115.3-123.6)
	ASMR (95% CI)	85.0 (80.4-89.6)	87.0 (82.7-91.4)	85.9 (81.8-89.9)	88.0 (84.3-91.7)	94.4 (91.0-97.8)
Indian	No.	574	739	856	1091	1357
	CMR (95% CI)	51.8 (47.6-56.1)	57.2 (53.1-61.3)	58.8 (54.9-62.8)	63.6 (59.9-67.4)	76.4 (72.4-80.5)
	ASMR (95% CI)	55.7 (51.0-60.4)	58.4 (54.0-62.8)	61.3 (57.0-65.5)	64.0 (60.0-67.9)	63.3 (59.8-66.8)
		2018-2022	**2023**	**2019-2023**		
Chinese	No.	25215	5006	**25187**		
	CMR (95% CI)	168.7 (166.6-170.8)	162.9 (158.4-167.5)	**167.3 (165.3-169.4)**		
	ASMR (95% CI)	74.0 (73.0-75.0)	64.0 (62.1-65.9)	**70.7 (69.8-71.7)**		
Malay	No.	3669	750	**3705**		
	CMR (95% CI)	134.9 (130.5-139.2)	133.6 (124.0-143.2)	**134.9 (130.6-139.3)**		
	ASMR (95% CI)	92.6 (89.5-95.6)	84.2 (78.0-90.4)	**90.1 (87.1-93.0)**		
Indian	No.	1550	293	**1540**		
	CMR (95% CI)	85.8 (81.5-90.1)	78.2 (69.2-87.1)	**84.6 (80.3-88.8)**		
	ASMR (95% CI)	58.3 (55.4-61.3)	48.1 (42.5-53.6)	**55.7 (52.9-58.5)**		

Ten most frequent incident cancers by sex and ethnicity, 2019-2023

A total of 37,126 Chinese males and 37,694 Chinese females were diagnosed with cancer in 2019-2023. During the same period, 4,379 Malay males and 5,114 Malay females, as well as 2,135 Indian males and 2,587 Indian females were diagnosed with cancer (Figure 1.2.3, Table 1.2.3).

Prostate, colorectal, and lung cancers were the three most common incident cancers among Chinese and Indian males, whereas lung and colorectal cancers, together with lymphoid neoplasms, were the three most common cancers among Malay males. These top three cancers accounted for approximately 40% of all cancer diagnoses within each ethnic group (Figure 1.2.3, Table 1.2.3).

Breast cancer was by far the most frequently diagnosed cancer among females across all three ethnic groups, accounting for about 30% of all cancer diagnoses among Chinese and Malay females and about 35% among Indian females (Figure 1.2.3, Table 1.2.3). While colorectal and lung cancers ranked second and third among Chinese females, colorectal and uterine cancers ranked among the top three cancers in both Malay and Indian females. Notably, although cervical cancer was the tenth most common cancer among the overall female resident population during 2019-2023 (Figure 1.1.2, Table 1.1.2), it ranked eighth among Malay females and was not among the ten most frequent cancers in either Chinese or Indian females during this period.

Figure 1.2.3 Ten most frequent incident cancers by sex and ethnicity, 2019-2023
(The male and female bar chats are plotted on different scales.)

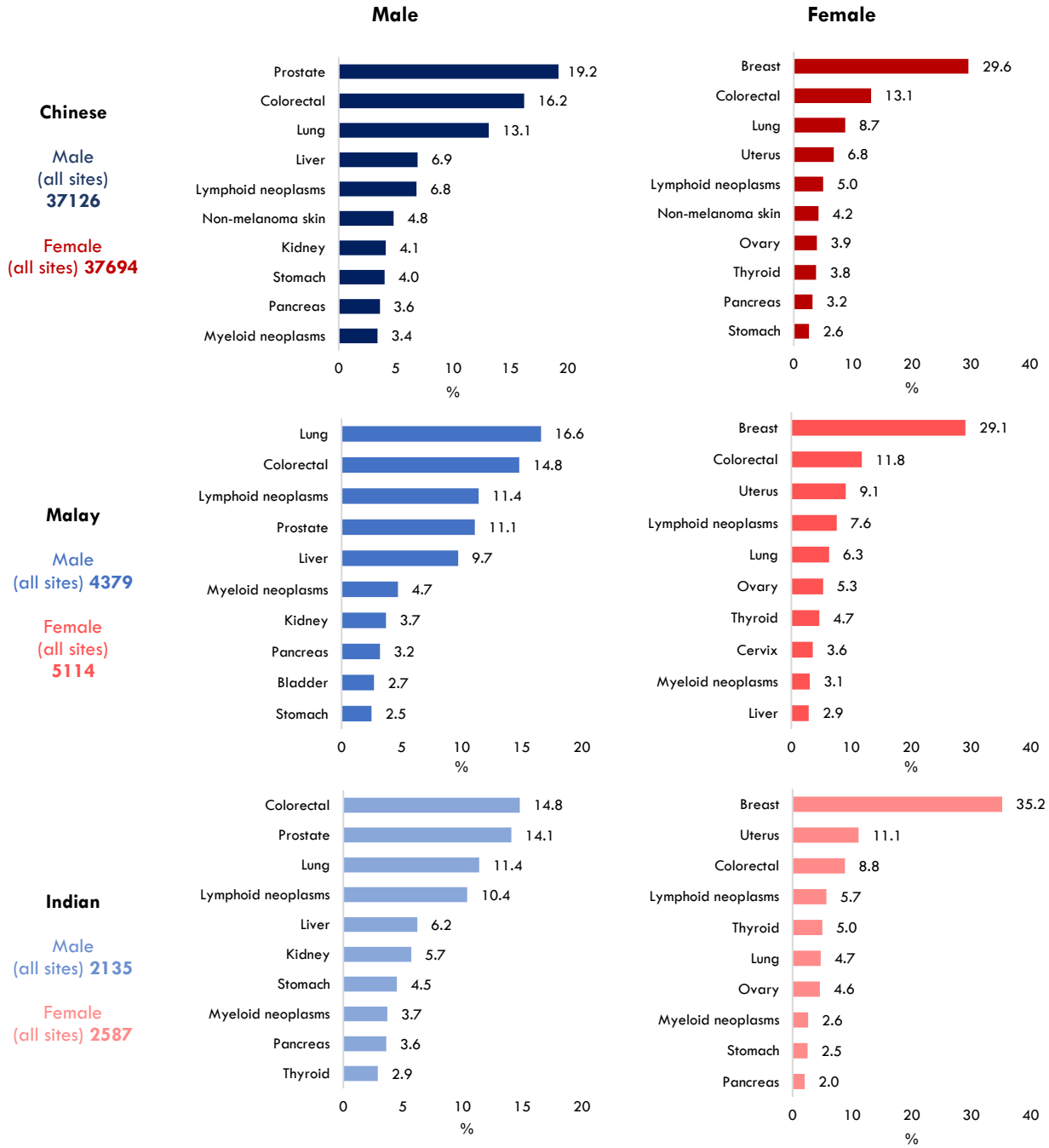


Table 1.2.3 Ten most frequent incident cancers by sex and ethnicity, 2019-2023

Ethnicity	Rank	Male			Female		
		Site	No.	%	Site	No.	%
Chinese	1	Prostate	7116	19.2	Breast	11165	29.6
	2	Colorectal	6005	16.2	Colorectal	4930	13.1
	3	Lung	4870	13.1	Lung	3286	8.7
	4	Liver	2553	6.9	Uterus	2570	6.8
	5	Lymphoid neoplasms	2518	6.8	Lymphoid neoplasms	1874	5.0
	6	Non-melanoma skin	1790	4.8	Non-melanoma skin	1595	4.2
	7	Kidney	1526	4.1	Ovary	1452	3.9
	8	Stomach	1479	4.0	Thyroid	1429	3.8
	9	Pancreas	1342	3.6	Pancreas	1195	3.2
	10	Myeloid neoplasms	1247	3.4	Stomach	972	2.6
		All sites	**37126**	**100.0**	**All sites**	**37694**	**100.0**
Malay	1	Lung	726	16.6	Breast	1490	29.1
	2	Colorectal	649	14.8	Colorectal	606	11.8
	3	Lymphoid neoplasms	498	11.4	Uterus	465	9.1
	4	Prostate	485	11.1	Lymphoid neoplasms	387	7.6
	5	Liver	424	9.7	Lung	322	6.3
	6	Myeloid neoplasms	208	4.7	Ovary	271	5.3
	7	Kidney	160	3.7	Thyroid	239	4.7
	8	Pancreas	141	3.2	Cervix	184	3.6
	9	Bladder	117	2.7	Myeloid neoplasms	159	3.1
	10	Stomach	108	2.5	Liver	146	2.9
		All sites	**4379**	**100.0**	**All sites**	**5114**	**100.0**
Indian	1	Colorectal	317	14.8	Breast	910	35.2
	2	Prostate	301	14.1	Uterus	286	11.1
	3	Lung	244	11.4	Colorectal	227	8.8
	4	Lymphoid neoplasms	223	10.4	Lymphoid neoplasms	147	5.7
	5	Liver	133	6.2	Thyroid	130	5.0
	6	Kidney	122	5.7	Lung	121	4.7
	7	Stomach	96	4.5	Ovary	119	4.6
	8	Myeloid neoplasms	79	3.7	Myeloid neoplasms	66	2.6
	9	Pancreas	76	3.6	Stomach	65	2.5
	10	Thyroid	61	2.9	Pancreas	52	2.0
		All sites	**2135**	**100.0**	**All sites**	**2587**	**100.0**

1.3 Trends by age group

Incidence and mortality of cancer by sex and age group, 1968-2023

Based on age-specific incidence rates (ASPIR) for cancer, the older the age group, the higher the incidence rate. A marked increase in incidence rates was noted to begin in the 40-49 age group, with incidence rates accelerating in subsequent age groups (Figure 1.3.1(a), Figure 1.3.1(b)).

For the period from 1968-1972 to 2019-2023, among males, ASPIRs increased the most (in relative terms) in the youngest (0-29 years) and oldest (80 years and above) age groups, rising from 13.9 to 24.7 and 1,438.6 to 2,889.7 per 100,000 population, respectively. Males in the 30-39 and 70-79 year age groups also experienced increases in ASPIRs, while those in the 40-69 age range showed varying degrees of decline in incidence rates (Figure 1.3.1(a), Table 1.3.1(a)).

Among females, over the same period, ASPIRs rose across all age groups. Similar to males, the greatest relative increases were observed in the youngest and oldest age groups. For females aged 0-29 years, the ASPIR rose approximately 2.5 times, from 11.9 to 30.6 per 100,000, while for those aged 80 years and above, it also rose about 2.5 times, from 748.1 to 1,821.1 per 100,000 (Figure 1.3.1(b), Table 1.3.1(b)).

Data from the Global Burden of Diseases (GBD) study similarly reflect an increasing trend of cancer among younger age groups, with a 79% increase in "early-onset" cancer (diagnosed before age 50) globally between 1990 and 2019 (25).

Despite this trend of increasing cancer incidence among younger age groups, cancer remains predominantly a disease of older age worldwide. Most cases continue to be diagnosed after the age of 50 (26) (27). This pattern has also held true in Singapore across the entire period from 1968-2023.

Figure 1.3.1(a) Age-specific incidence (per 100,000 population) of cancer in males, 1968-2023

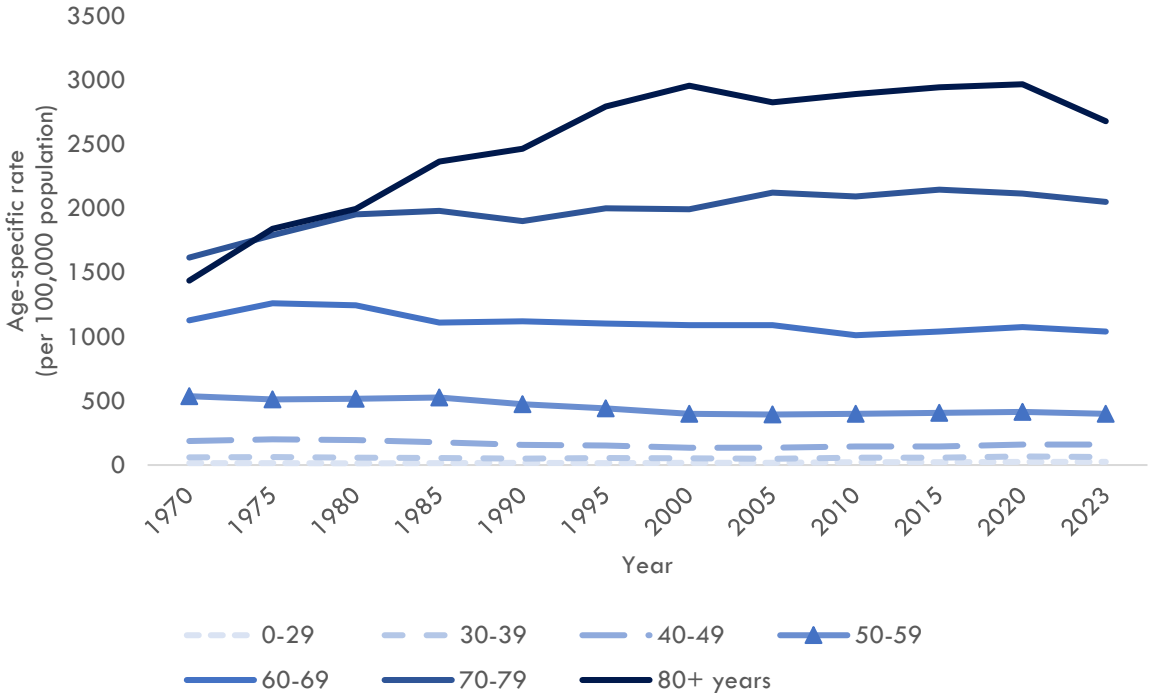


Figure 1.3.1(b) Age-specific incidence (per 100,000 population) of cancer in females, 1968-2023

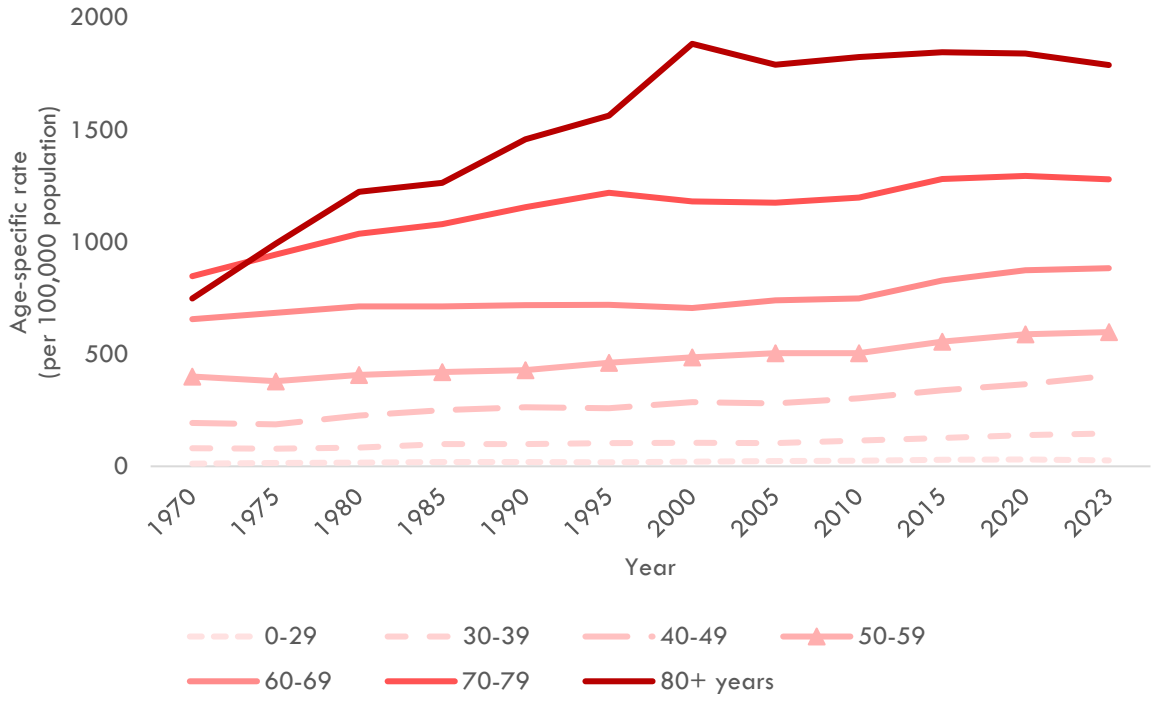


Table 1.3.1(a) Age-specific incidence (per 100,000 population) of cancer in males, 1968-2023

		0-29 years	30-39 years	40-49 years	50-59 years	60-69 years	70-79 years	80+ years
1968-1972	No.	478	369	888	1876	2296	961	139
	Age-specific rate (95% CI)	13.9 (12.7-15.2)	61.0 (54.8-67.2)	187.8 (175.5-200.2)	537.1 (512.8-561.5)	1129.9 (1083.7-1176.1)	1618.5 (1516.2-1720.8)	1438.6 (1199.5-1677.8)
1973-1977	No.	516	430	1032	1940	2912	1486	261
	Age-specific rate (95% CI)	14.8 (13.5-16.1)	62.0 (56.1-67.9)	200.6 (188.3-212.8)	512.2 (489.5-535.0)	1261.9 (1216.1-1307.7)	1792.9 (1701.7-1884.0)	1843.6 (1619.9-2067.3)
1978-1982	No.	477	477	1123	2139	3253	2251	415
	Age-specific rate (95% CI)	13.2 (12.1-14.4)	58.5 (53.2-63.7)	195.7 (184.3-207.1)	515.7 (493.9-537.6)	1247.0 (1204.2-1289.9)	1955.6 (1874.8-2036.4)	1998.5 (1806.2-2190.7)
1983-1987	No.	533	622	1130	2499	3238	2879	788
	Age-specific rate (95% CI)	14.8 (13.6-16.1)	55.8 (51.4-60.2)	176.8 (166.5-187.1)	526.4 (505.8-547.1)	1110.8 (1072.5-1149.1)	1983.8 (1911.4-2056.3)	2368.0 (2202.7-2533.3)
1988-1992	No.	586	714	1330	2591	3922	3237	1270
	Age-specific rate (95% CI)	16.6 (15.2-17.9)	51.0 (47.3-54.8)	157.2 (148.7-165.6)	475.6 (457.3-493.9)	1120.0 (1084.9-1155.0)	1903.8 (1838.3-1969.4)	2467.3 (2331.6-2603.0)
1993-1997	No.	544	843	1785	2763	4549	3882	1896
	Age-specific rate (95% CI)	15.3 (14.0-16.6)	54.5 (50.8-58.2)	151.5 (144.5-158.5)	442.1 (425.6-458.6)	1104.7 (1072.6-1136.8)	2003.1 (1940.1-2066.1)	2796.5 (2670.6-2922.3)
1998-2002	No.	629	806	1972	3328	5235	4843	2279
	Age-specific rate (95% CI)	17.6 (16.2-18.9)	52.9 (49.2-56.5)	136.0 (130.0-142.1)	400.3 (386.7-413.9)	1092.0 (1062.4-1121.6)	1994.6 (1938.5-2050.8)	2959.7 (2838.2-3081.3)
2003-2007	No.	657	704	2137	4435	5924	5953	2632
	Age-specific rate (95% CI)	18.5 (17.1-20.0)	48.6 (45.0-52.2)	135.2 (129.4-140.9)	394.0 (382.4-405.6)	1090.8 (1063.0-1118.6)	2126.1 (2072.1-2180.1)	2830.1 (2722.0-2938.2)
2008-2012	No.	793	840	2304	5532	7513	7412	3644
	Age-specific rate (95% CI)	22.1 (20.5-23.6)	56.9 (53.1-60.8)	145.8 (139.8-151.7)	398.8 (388.3-409.3)	1012.5 (989.6-1035.4)	2094.4 (2046.7-2142.1)	2893.1 (2799.2-2987.1)
2013-2017	No.	802	814	2206	6207	10779	9269	5097
	Age-specific rate (95% CI)	23.0 (21.4-24.6)	57.8 (53.8-61.8)	145.0 (139.0-151.1)	407.3 (397.1-417.4)	1042.3 (1022.6-1062.0)	2148.3 (2104.6-2192.1)	2947.1 (2866.2-3028.0)
2018-2022	No.	826	951	2325	6154	13589	12832	7002
	Age-specific rate (95% CI)	24.5 (22.8-26.1)	67.1 (62.8-71.3)	159.1 (152.6-165.5)	413.6 (403.3-423.9)	1077.2 (1059.1-1095.3)	2117.8 (2081.1-2154.4)	2970.6 (2901.0-3040.2)
2023	No.	160	189	467	1183	2844	3081	1451
	Age-specific rate (95% CI)	24.3 (20.5-28.0)	63.4 (54.4-72.5)	159.9 (145.4-174.5)	400.0 (377.2-422.8)	1041.9 (1003.6-1080.1)	2053.8 (1981.3-2126.3)	2682.3 (2544.3-2820.3)
2019-2023	No.	**825**	**945**	**2309**	**6099**	**13953**	**13654**	**7196**
	Age-specific rate (95% CI)	**24.7 (23.0-26.4)**	**65.7 (61.5-69.9)**	**158.4 (151.9-164.8)**	**412.9 (402.5-423.2)**	**1076.8 (1058.9-1094.7)**	**2098.6 (2063.4-2133.8)**	**2889.7 (2823.0-2956.5)**

Table 1.3.1(b) Age-specific incidence (per 100,000 population) of cancer in females, 1968-2023

		0-29 years	30-39 ears	40-49 years	50-59 years	60-69 ears	70-79 years	80+ years
1968-1972	No.	389	474	792	1264	1307	701	179
	Age-specific rate (95% CI)	11.9 (10.7-13.0)	80.9 (73.6-88.2)	193.0 (179.5-206.4)	400.2 (378.1-422.2)	656.0 (620.5-691.6)	847.6 (784.9-910.4)	748.1 (638.5-857.7)
1973-1977	No.	503	536	903	1325	1595	1022	315
	Age-specific rate (95% CI)	15.2 (13.9-16.5)	78.6 (71.9-85.2)	187.1 (174.9-199.3)	379.6 (359.2-400.1)	684.9 (651.3-718.5)	943.8 (885.9-1001.6)	992.2 (882.6-1101.7)
1978-1982	No.	561	673	1275	1591	1920	1466	515
	Age-specific rate (95% CI)	16.5 (15.1-17.8)	83.4 (77.1-89.7)	225.5 (213.1-237.9)	407.7 (387.6-427.7)	712.2 (680.4-744.1)	1036.8 (983.7-1089.9)	1223.7 (1118.0-1329.4)
1983-1987	No.	649	1079	1583	1948	2138	1936	750
	Age-specific rate (95% CI)	19.1 (17.7-20.6)	98.9 (93.0-104.8)	249.8 (237.5-262.1)	420.9 (402.2-439.6)	712.4 (682.2-742.6)	1080.0 (1031.9-1128.1)	1264.0 (1173.6-1354.5)
1988-1992	No.	651	1337	2182	2324	2591	2447	1243
	Age-specific rate (95% CI)	19.4 (18.0-20.9)	98.9 (93.6-104.2)	263.4 (252.3-274.4)	428.3 (410.9-445.7)	718.0 (690.4-745.7)	1155.1 (1109.3-1200.9)	1457.2 (1376.2-1538.2)
1993-1997	No.	623	1570	2985	2898	3122	2857	1732
	Age-specific rate (95% CI)	18.2 (16.8-19.7)	103.1 (98.0-108.2)	259.5 (250.2-268.8)	461.7 (444.9-478.5)	720.5 (695.2-745.8)	1218.9 (1174.2-1263.6)	1563.2 (1489.6-1636.8)
1998-2002	No.	697	1616	4073	4045	3612	3418	2441
	Age-specific rate (95% CI)	20.1 (18.6-21.6)	104.3 (99.2-109.3)	286.4 (277.6-295.2)	485.8 (470.8-500.7)	705.3 (682.3-728.3)	1180.7 (1141.1-1220.2)	1883.5 (1808.8-1958.2)
2003-2007	No.	791	1577	4356	5649	4309	4103	2883
	Age-specific rate (95% CI)	22.9 (21.3-24.5)	103.5 (98.3-108.6)	280.5 (272.2-288.8)	505.2 (492.1-518.4)	740.4 (718.3-762.5)	1174.6 (1138.7-1210.6)	1789.6 (1724.2-1854.9)
2008-2012	No.	889	1813	4798	6922	5832	5178	3998
	Age-specific rate (95% CI)	25.1 (23.5-26.8)	114.9 (109.6-120.2)	303.1 (294.5-311.6)	504.7 (492.8-516.6)	748.7 (729.4-767.9)	1198.6 (1166.0-1231.3)	1824.5 (1768.0-1881.1)
2013-2017	No.	994	1951	5369	8421	8832	6595	5335
	Age-specific rate (95% CI)	29.1 (27.3-30.9)	126.1 (120.5-131.7)	339.4 (330.3-348.5)	556.4 (544.5-568.3)	828.5 (811.2-845.8)	1281.1 (1250.2-1312.0)	1846.2 (1796.7-1895.8)
2018-2022	No.	1004	2175	5744	8909	11274	9002	6956
	Age-specific rate (95% CI)	30.7 (28.8-32.6)	139.7 (133.8-145.5)	365.8 (356.3-375.2)	588.9 (576.7-601.1)	873.7 (857.6-889.8)	1294.6 (1267.8-1321.3)	1840.5 (1797.2-1883.7)
2023	No.	167	477	1295	1839	2472	2161	1535
	Age-specific rate (95% CI)	26.1 (22.2-30.1)	146.5 (133.3-159.6)	403.8 (381.8-425.8)	598.4 (571.1-625.8)	883.3 (848.5-918.1)	1279.6 (1225.7-1333.6)	1788.8 (1699.3-1878.2)
2019-2023	**No.**	**990**	**2235**	**5983**	**8932**	**11666**	**9545**	**7242**
	Age-specific rate (95% CI)	**30.6 (28.6-32.5)**	**141.9 (136.0-147.8)**	**379.8 (370.2-389.4)**	**590.3 (578.0-602.5)**	**880.4 (864.4-896.3)**	**1288.7 (1262.8-1314.5)**	**1821.1 (1779.2-1863.1)**

The ASPIR of cancer among the elderly remains significantly higher than in younger age groups. Given the ageing population, the median age of cancer diagnosis has increased over the years for both males and females (Figure 1.3.2(a)-(b)).

In the most recent five-year period (2019-2023), the median age at diagnosis was 69 years for males and 65 years for females, and 77.4% of males and 61.0% of females diagnosed with cancer were 60 years and above (Table 1.3.2(a)-(b)). These proportions fell between the IARC estimates for Southeast Asia and high-income countries (58.5% and 82% for males, and 44.8% and 72.4% for females, respectively) (28).

Overall cancer incidence rate remains primarily driven by the older population due to much higher ASPIRs.

Figure 1.3.2(a) Distribution of age at diagnosis (%) of cancer in males, 1968-2023

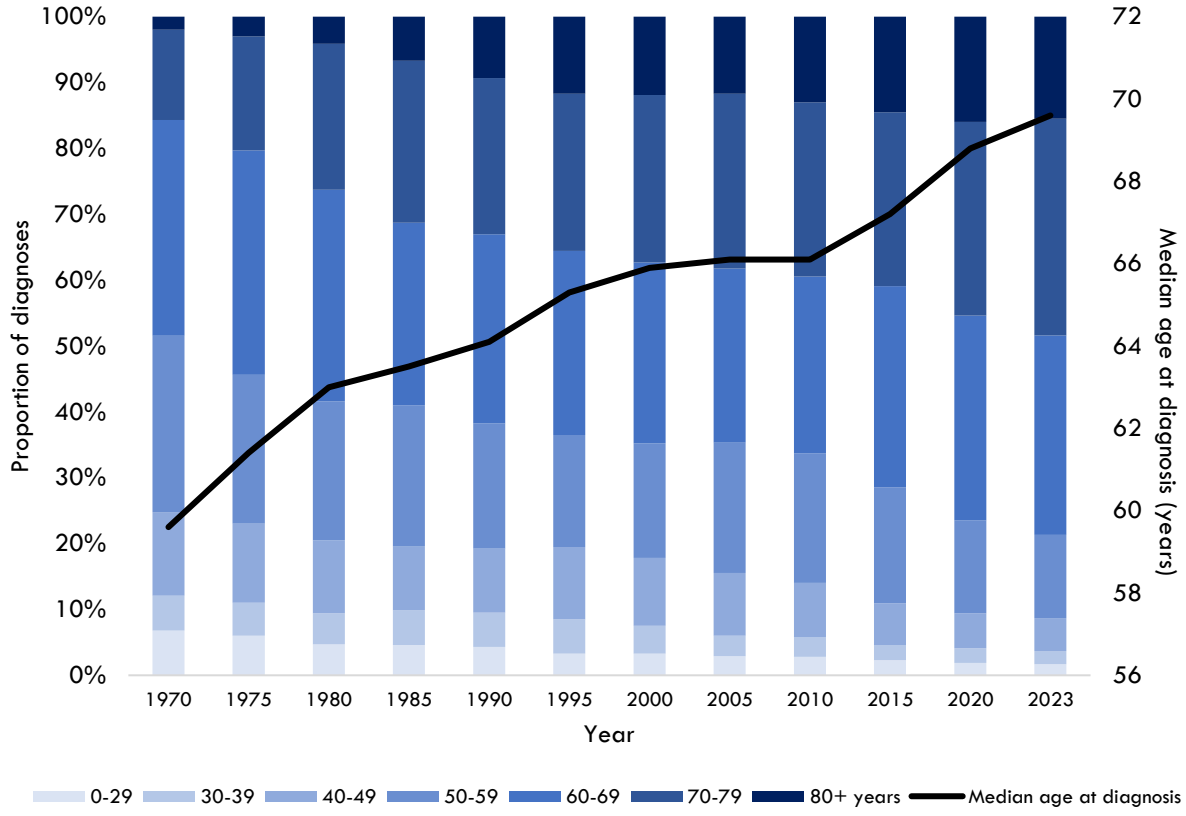


Table 1.3.2(a) Distribution of age at diagnosis (%) of cancer in males, 1968-2023

Age group	1968-1972	1973-1977	1978-1982	1983-1987	1988-1992
0-29 years	6.8	6.0	4.7	4.6	4.3
30-39 years	5.3	5.0	4.7	5.3	5.2
40-49 years	12.7	12.0	11.1	9.7	9.7
50-59 years	26.8	22.6	21.1	21.4	19.0
60-69 years	32.8	34.0	32.1	27.7	28.7
70-79 years	13.7	17.3	22.2	24.6	23.7
80+ years	2.0	3.0	4.1	6.7	9.3
Median age at diagnosis	**59.6**	**61.4**	**63.0**	**63.5**	**64.1**
Age group	**1993-1997**	**1998-2002**	**2003-2007**	**2008-2012**	**2013-2017**
0-29 years	3.3	3.3	2.9	2.8	2.3
30-39 years	5.2	4.2	3.1	3.0	2.3
40-49 years	11.0	10.3	9.5	8.2	6.3
50-59 years	17.0	17.4	19.8	19.7	17.6
60-69 years	28.0	27.4	26.4	26.8	30.6
70-79 years	23.9	25.4	26.5	26.4	26.4
80+ years	11.7	11.9	11.7	13.0	14.5
Median age at diagnosis	**65.3**	**65.9**	**66.1**	**66.1**	**67.2**

Age group	2018-2022	2023	2019-2023
0-29 years	1.9	1.7	1.8
30-39 years	2.2	2.0	2.1
40-49 years	5.3	5.0	5.1
50-59 years	14.1	12.6	13.6
60-69 years	31.1	30.3	31.0
70-79 years	29.4	32.9	30.4
80+ years	16.0	15.5	16.0
Median age at diagnosis	**68.8**	**69.6**	**69.1**

Figure 1.3.2(b) Distribution of age at diagnosis (%) of cancer in females, 1968-2023

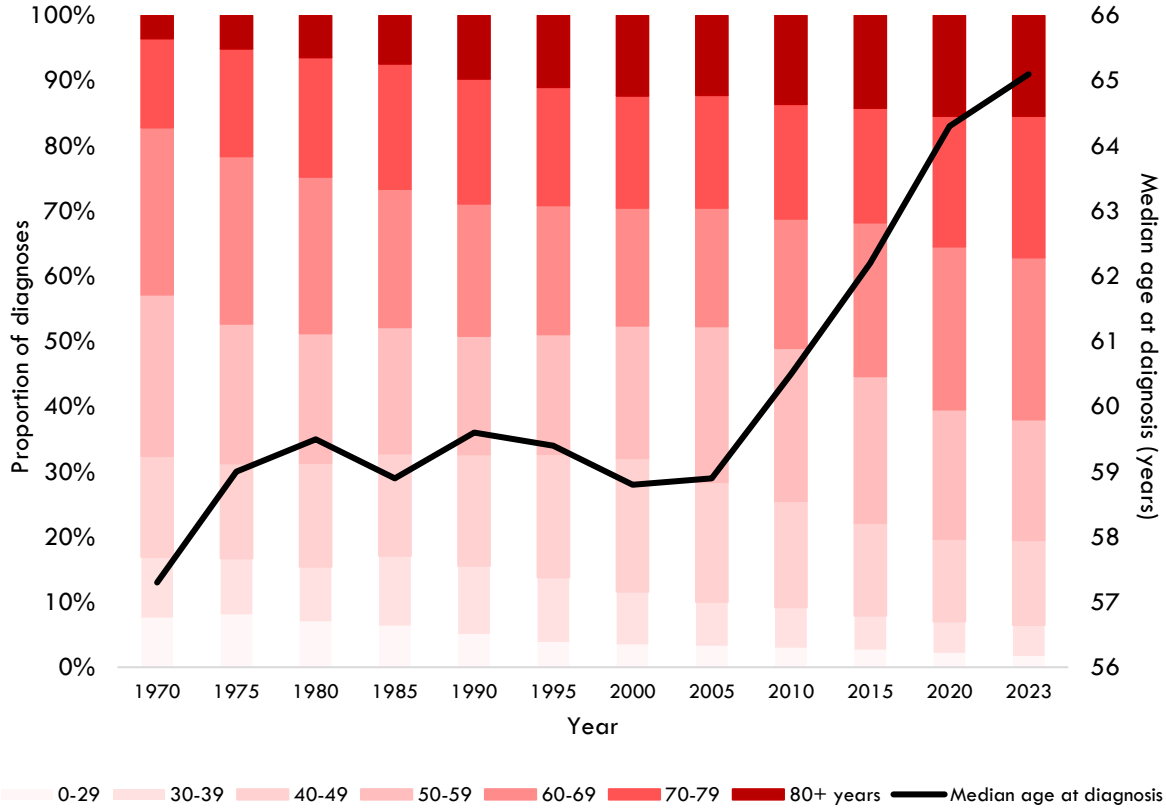


Table 1.3.2(b) Distribution of age at diagnosis (%) of cancer in females, 1968-2023

Age group	1968-1972	1973-1977	1978-1982	1983-1987	1988-1992
0-29 years	7.6	8.1	7.0	6.4	5.1
30-39 years	9.3	8.6	8.4	10.7	10.5
40-49 years	15.5	14.6	15.9	15.7	17.1
50-59 years	24.8	21.4	19.9	19.3	18.2
60-69 years	25.6	25.7	24.0	21.2	20.3
70-79 years	13.7	16.5	18.3	19.2	19.2
80+ years	3.5	5.1	6.4	7.4	9.7
Median age at diagnosis	**57.3**	**59.0**	**59.5**	**58.9**	**59.6**
Age group	**1993-1997**	**1998-2002**	**2003-2007**	**2008-2012**	**2013-2017**
0-29 years	3.9	3.5	3.3	3.0	2.7
30-39 years	9.9	8.1	6.7	6.2	5.2
40-49 years	18.9	20.5	18.4	16.3	14.3
50-59 years	18.4	20.3	23.9	23.5	22.5
60-69 years	19.8	18.1	18.2	19.8	23.6
70-79 years	18.1	17.2	17.3	17.6	17.6
80+ years	11.0	12.3	12.2	13.6	14.2
Median age at diagnosis	**59.4**	**58.8**	**58.9**	**60.5**	**62.2**

Age group	2018-2022	2023	2019-2023
0-29 years	2.2	1.7	2.1
30-39 years	4.8	4.8	4.8
40-49 years	12.7	13.0	12.8
50-59 years	19.8	18.5	19.2
60-69 years	25.0	24.9	25.0
70-79 years	20.0	21.7	20.5
80+ years	15.4	15.4	15.5
Median age at diagnosis	**64.3**	**65.1**	**64.6**

Trends in age-specific mortality rates (ASPMR) for cancer differ from those observed in incidence rates, as increases in cancer mortality over time were observed only among older individuals. For males aged 80 years and above, the ASPMR more than doubled, rising from 786.6 to 1,791.0 per 100,000 population between 1968-1972 and 2019-2023, while all other age groups recorded declines during this period (Table 1.3.3(a), Figure 1.3.3(a)).

Among females, ASPMR increased among those aged 70 and above. Females aged 70-79 years experienced a slight rise in ASPMR, from 442.6 to 473.9 per 100,000. For those aged 80 years and older, the ASPMR nearly tripled, from 405.4 to 1,128.6 per 100,000 over the same period (Table 1.3.3(b), Figure 1.3.3(b)). Similar to males, ASPMR declined among all other female age groups.

Nonetheless, ASPMRs declined across all age groups for both sexes over the last two decades (from 1998-2002 onwards), following earlier increases that peaked at varying points (Figure 1.3.3(a)-(b)). Additionally, similar to incidence trends, ASPMR was generally higher among females than males up to the age of 59, but became higher among males from the age of 60 onwards.

Figure 1.3.3(a) Age-specific mortality (per 100,000 population) of cancer in males, 1968-2023

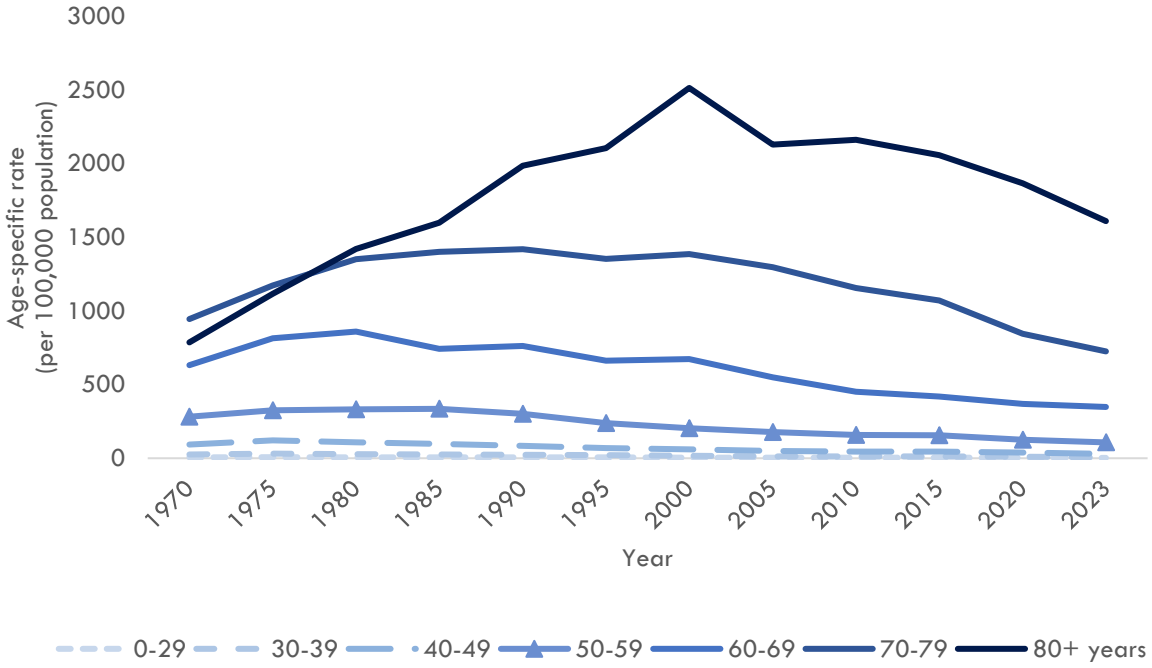


Figure 1.3.3(b) Age-specific mortality (per 100,000 population) of cancer in females, 1968-2023

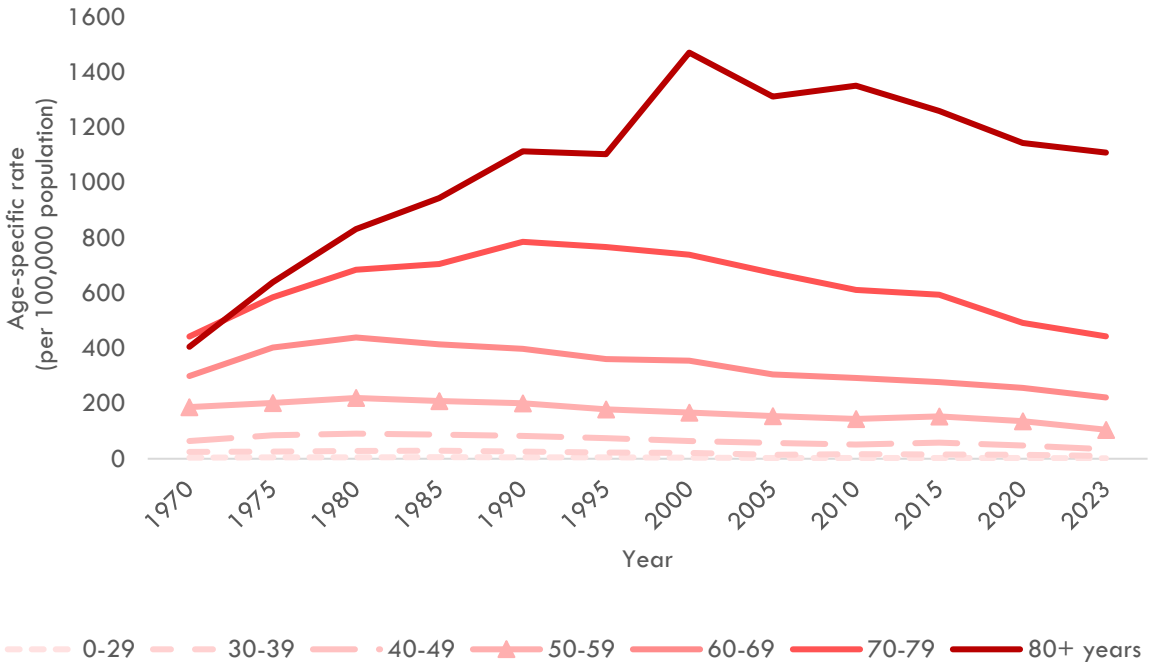


Table 1.3.3(a) Age-specific mortality (per 100,000 population) of cancer in males, 1968-2023

		0-29 years	30-39 years	40-49 years	50-59 years	60-69 years	70-79 years	80+ years
1968-1972	No.	180	148	438	984	1284	561	76
	Age-specific rate (95% CI)	5.2 (4.5-6.0)	24.5 (20.5-28.4)	92.6 (84.0-101.3)	281.7 (264.1-299.3)	631.9 (597.3-666.4)	944.8 (866.6-1023.0)	786.6 (609.7-963.4)
1973-1977	No.	251	217	624	1229	1879	972	158
	Age-specific rate (95% CI)	7.2 (6.3-8.1)	31.3 (27.1-35.5)	121.3 (111.8-130.8)	324.5 (306.4-342.7)	814.3 (777.4-851.1)	1172.7 (1099.0-1246.5)	1116.1 (942.0-1290.1)
1978-1982	No.	226	220	626	1377	2243	1556	295
	Age-specific rate (95% CI)	6.3 (5.5-7.1)	27.0 (23.4-30.5)	109.1 (100.5-117.6)	332.0 (314.5-349.6)	859.9 (824.3-895.4)	1351.8 (1284.6-1419.0)	1420.6 (1258.5-1582.7)
1983-1987	No.	214	291	623	1592	2162	2034	532
	Age-specific rate (95% CI)	6.0 (5.2-6.8)	26.1 (23.1-29.1)	97.5 (89.8-105.1)	335.4 (318.9-351.8)	741.7 (710.4-772.9)	1401.6 (1340.7-1462.5)	1598.7 (1462.8-1734.6)
1988-1992	No.	234	331	714	1646	2671	2413	1022
	Age-specific rate (95% CI)	6.6 (5.8-7.5)	23.7 (21.1-26.2)	84.4 (78.2-90.6)	302.1 (287.5-316.7)	762.7 (733.8-791.6)	1419.2 (1362.6-1475.8)	1985.5 (1863.8-2107.2)
1993-1997	No.	191	326	811	1485	2731	2625	1428
	Age-specific rate (95% CI)	5.4 (4.6-6.1)	21.1 (18.8-23.4)	68.8 (64.1-73.6)	237.6 (225.5-249.7)	663.2 (638.3-688.1)	1354.5 (1302.7-1406.3)	2106.2 (1997.0-2215.4)
1998-2002	No.	157	272	888	1701	3222	3363	1936
	Age-specific rate (95% CI)	4.4 (3.7-5.1)	17.8 (15.7-20.0)	61.3 (57.2-65.3)	204.6 (194.9-214.3)	672.1 (648.9-695.3)	1385.1 (1338.3-1431.9)	2514.3 (2402.3-2626.3)
2003-2007	No.	145	180	789	1989	2978	3629	1980
	Age-specific rate (95% CI)	4.1 (3.4-4.8)	12.4 (10.6-14.3)	49.9 (46.4-53.4)	176.7 (168.9-184.5)	548.3 (528.6-568.0)	1296.1 (1253.9-1338.2)	2129.0 (2035.3-2222.8)
2008-2012	No.	117	171	696	2199	3342	4088	2724
	Age-specific rate (95% CI)	3.3 (2.7-3.8)	11.6 (9.9-13.3)	44.0 (40.8-47.3)	158.5 (151.9-165.2)	450.4 (435.1-465.7)	1155.1 (1119.7-1190.5)	2162.7 (2081.5-2243.9)
2013-2017	No.	120	165	682	2388	4336	4618	3557
	Age-specific rate (95% CI)	3.4 (2.8-4.1)	11.7 (9.9-13.5)	44.8 (41.5-48.2)	156.7 (150.4-163.0)	419.3 (406.8-431.7)	1070.3 (1039.5-1101.2)	2056.7 (1989.1-2124.2)
2018-2022	No.	103	138	556	1863	4650	5118	4399
	Age-specific rate (95% CI)	3.1 (2.5-3.6)	9.7 (8.1-11.4)	38.0 (34.9-41.2)	125.2 (119.5-130.9)	368.6 (358.0-379.2)	844.7 (821.5-867.8)	1866.3 (1811.1-1921.4)
2023	No.	15	20	87	318	950	1088	871
	Age-specific rate (95% CI)	2.3 (1.1-3.4)	6.7 (3.8-9.7)	29.8 (23.5-36.1)	107.5 (95.7-119.3)	348.0 (325.9-370.1)	725.3 (682.2-768.4)	1610.1 (1503.2-1717.1)
2019-2023	**No.**	**96**	**125**	**514**	**1756**	**4645**	**5206**	**4460**
	Age-specific rate (95% CI)	**2.9 (2.3-3.4)**	**8.7 (7.2-10.2)**	**35.3 (32.2-38.3)**	**118.9 (113.3-124.4)**	**358.5 (348.2-368.8)**	**800.2 (778.4-821.9)**	**1791.0 (1738.5-1843.6)**

Table 1.3.3(b) Age-specific mortality (per 100,000 population) of cancer in females, 1968-2023

		0-29 years	30-39 years	40-49 years	50-59 years	60-69 years	70-79 years	80+ years
1968-1972	No.	127	148	262	590	597	366	97
	Age-specific rate (95% CI)	3.9 (3.2-4.5)	25.3 (21.2-29.3)	63.8 (56.1-71.6)	186.8 (171.7-201.9)	299.7 (275.6-323.7)	442.6 (397.2-487.9)	405.4 (324.7-486.1)
1973-1977	No.	159	176	410	706	937	633	203
	Age-specific rate (95% CI)	4.8 (4.1-5.5)	25.8 (22.0-29.6)	84.9 (76.7-93.2)	202.3 (187.4-217.2)	402.4 (376.6-428.1)	584.5 (539.0-630.1)	639.4 (551.4-727.3)
1978-1982	No.	174	231	514	859	1184	967	350
	Age-specific rate (95% CI)	5.1 (4.3-5.9)	28.6 (24.9-32.3)	90.9 (83.0-98.8)	220.1 (205.4-234.8)	439.2 (414.2-464.2)	683.9 (640.8-727.0)	831.7 (744.5-918.8)
1983-1987	No.	196	317	556	966	1244	1265	560
	Age-specific rate (95% CI)	5.8 (5.0-6.6)	29.1 (25.9-32.3)	87.7 (80.4-95.0)	208.7 (195.6-221.9)	414.5 (391.5-437.6)	705.7 (666.8-744.5)	943.8 (865.6-1022.0)
1988-1992	No.	187	354	683	1090	1435	1664	950
	Age-specific rate (95% CI)	5.6 (4.8-6.4)	26.2 (23.5-28.9)	82.4 (76.3-88.6)	200.9 (188.9-212.8)	397.7 (377.1-418.3)	785.5 (747.7-823.2)	1113.7 (1042.9-1184.5)
1993-1997	No.	155	338	854	1126	1562	1797	1222
	Age-specific rate (95% CI)	4.5 (3.8-5.3)	22.2 (19.8-24.6)	74.2 (69.3-79.2)	179.4 (168.9-189.9)	360.5 (342.6-378.4)	766.6 (731.2-802.1)	1102.9 (1041.1-1164.7)
1998-2002	No.	122	326	918	1390	1821	2138	1906
	Age-specific rate (95% CI)	3.5 (2.9-4.1)	21.0 (18.8-23.3)	64.6 (60.4-68.7)	166.9 (158.2-175.7)	355.6 (339.3-371.9)	738.5 (707.2-769.8)	1470.7 (1404.7-1536.7)
2003-2007	No.	105	227	882	1727	1777	2350	2113
	Age-specific rate (95% CI)	3.0 (2.5-3.6)	14.9 (13.0-16.8)	56.8 (53.0-60.5)	154.5 (147.2-161.7)	305.3 (291.1-319.5)	672.8 (645.6-700.0)	1311.6 (1255.7-1367.5)
2008-2012	No.	95	272	822	1977	2276	2639	2960
	Age-specific rate (95% CI)	2.7 (2.1-3.2)	17.2 (15.2-19.3)	51.9 (48.4-55.5)	144.1 (137.8-150.5)	292.2 (280.2-304.2)	610.9 (587.6-634.2)	1350.8 (1302.2-1399.5)
2013-2017	No.	87	240	914	2331	2958	3056	3638
	Age-specific rate (95% CI)	2.5 (2.0-3.1)	15.5 (13.5-17.5)	57.8 (54.0-61.5)	154.0 (147.8-160.3)	277.5 (267.5-287.5)	593.6 (572.6-614.7)	1259.0 (1218.1-1299.9)
2018-2022	No.	74	224	745	2065	3313	3419	4322
	Age-specific rate (95% CI)	2.3 (1.7-2.8)	14.4 (12.5-16.3)	47.4 (44.0-50.8)	136.5 (130.6-142.4)	256.7 (248.0-265.5)	491.7 (475.2-508.2)	1143.6 (1109.5-1177.7)
2023	No.	11	33	110	323	621	748	951
	Age-specific rate (95% CI)	1.7 (0.7-2.7)	10.1 (6.7-13.6)	34.3 (27.9-40.7)	105.1 (93.6-116.6)	221.9 (204.4-239.4)	442.9 (411.2-474.7)	1108.2 (1037.8-1178.6)
2019-2023	**No.**	**69**	**207**	**683**	**1933**	**3287**	**3510**	**4488**
	Age-specific rate (95% CI)	**2.1 (1.6-2.6)**	**13.1 (11.4-14.9)**	**43.4 (40.1-46.6)**	**127.7 (122.0-133.4)**	**248.0 (239.6-256.5)**	**473.9 (458.2-489.6)**	**1128.6 (1095.6-1161.6)**

Ten most frequent incident cancers by sex and age group, 2019-2023

The patterns of the ten most frequently diagnosed cancers among males and females varied by age group (Figure 1.3.4, Table 1.3.4). During the period 2019-2023, lymphoid neoplasms were the most common cancer diagnosed among males younger than 40 years.

While prostate cancer was rarely diagnosed in younger males, it emerged as the third most commonly diagnosed cancer for the 50-59 age group and became the most common cancer among males aged 60 years and above.

Colorectal cancer consistently ranked among the top three cancers in males aged 30 and older and was the most commonly diagnosed cancer in the 40-59 age group. Local studies have also highlighted an increasing trend of early-onset colorectal cancer, despite an overall decline in incidence among the elderly (23).

From the age of 50 onwards, lung cancer became increasingly common, ranking as the second or third most frequent cancer, alongside colorectal cancer.

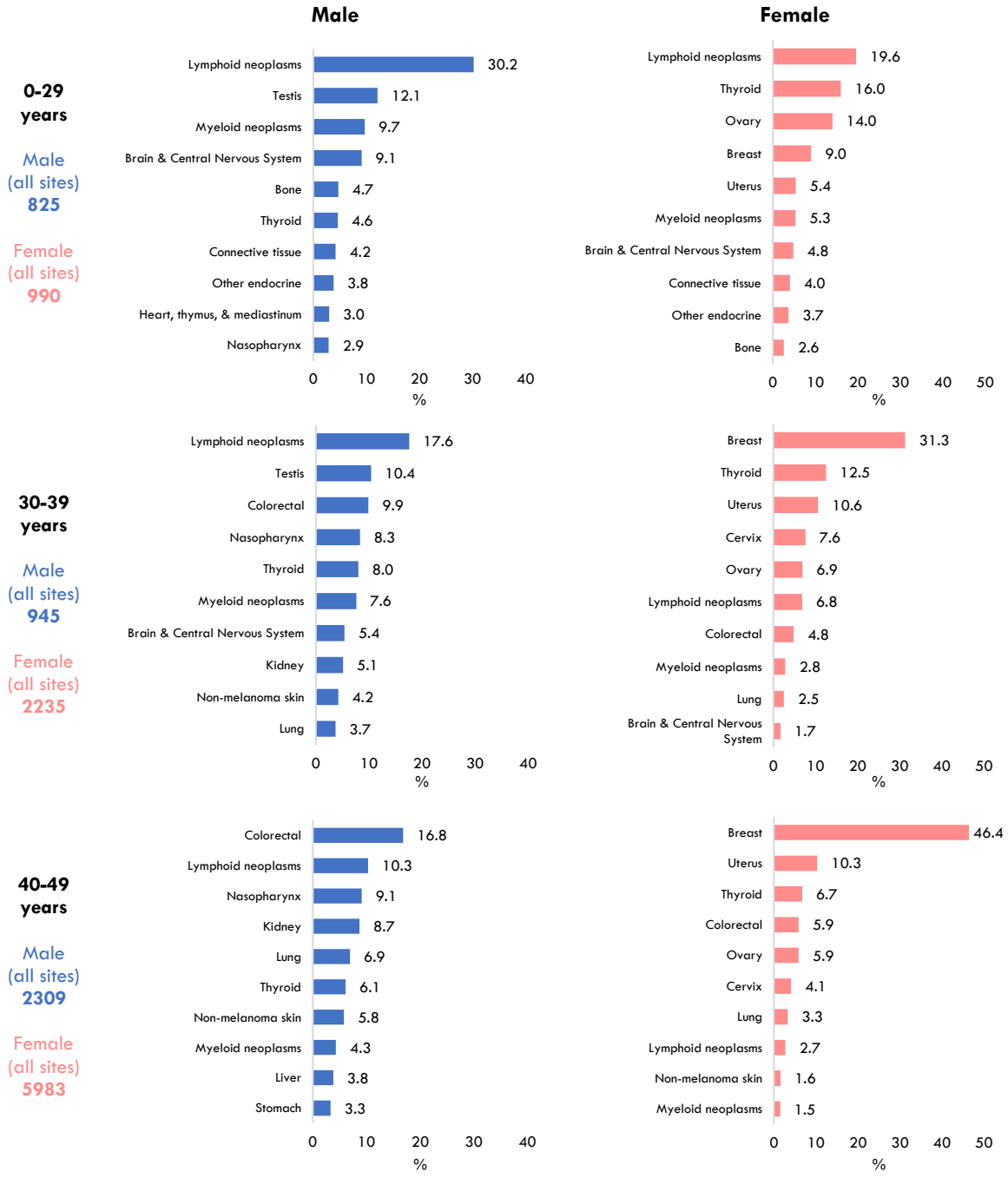
Among females, lymphoid neoplasms were likewise the most commonly diagnosed cancer among those younger than 30 years, accounting for approximately one-fifth of all incident cancer cases in that age group.

Between the ages of 30 and 79 years, breast cancer was the predominant diagnosis. It was especially prominent in the 40-49 age group, where it accounted for nearly half (46.4%) of all cancer diagnoses.

Similar to males, colorectal and lung cancers became more commonly diagnosed among females aged 50 years and above.

Notably, cervical cancer was more prevalent among females aged 30-49, ranking fourth and sixth among the top ten cancers in the 30-39 and 40-49 age groups, respectively. However, it dropped out of the top ten from the age of 60 onwards. Overall, cervical cancer ranked as the tenth most common cancer among females.

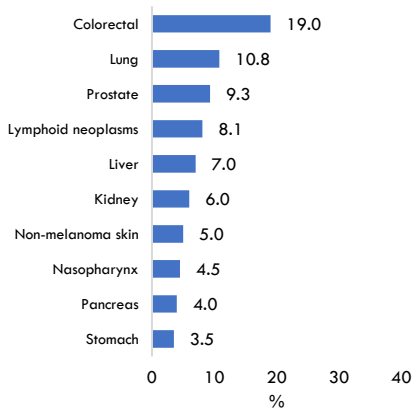
Figure 1.3.4 Ten most frequent incident cancers by sex and age group, 2019-2023
(The male and female bar chats are plotted on different scales.)

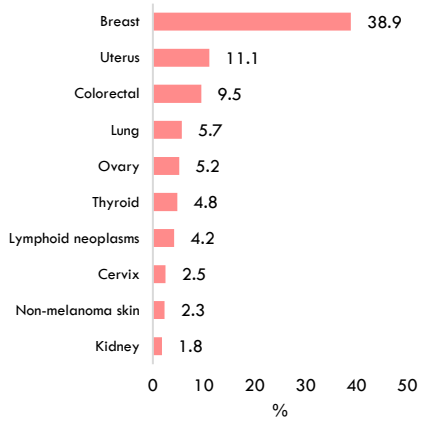


50-59 years

Male (all sites) **6099**

Female (all sites) **8932**

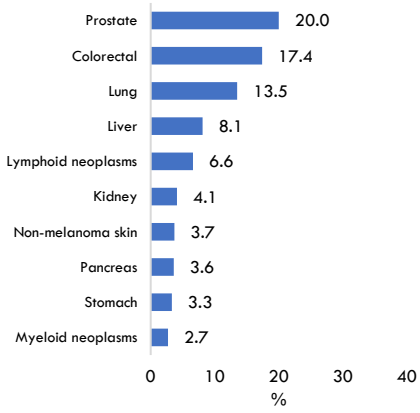


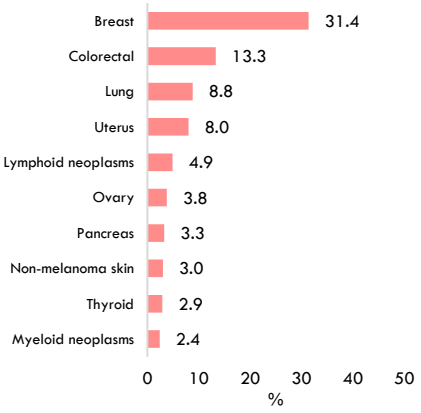


60-69 years

Male (all sites) **13953**

Female (all sites) **11666**

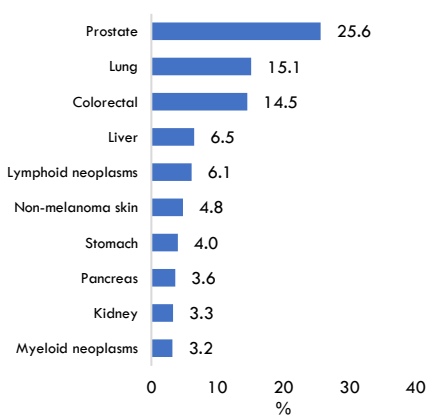


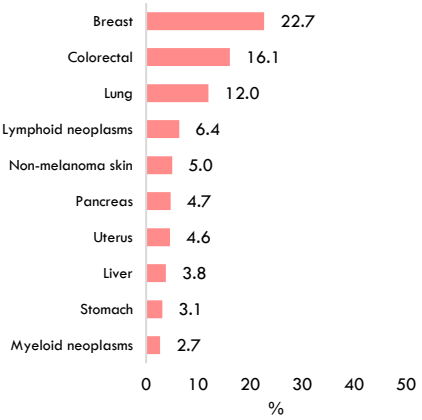


70-79 years

Male (all sites) **13654**

Female (all sites) **9545**

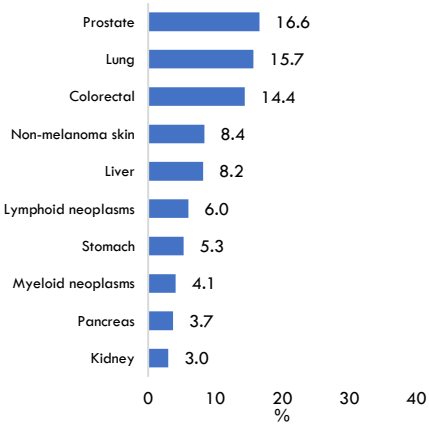




80+ years

Male (all sites) **7196**

Female (all sites) **7242**



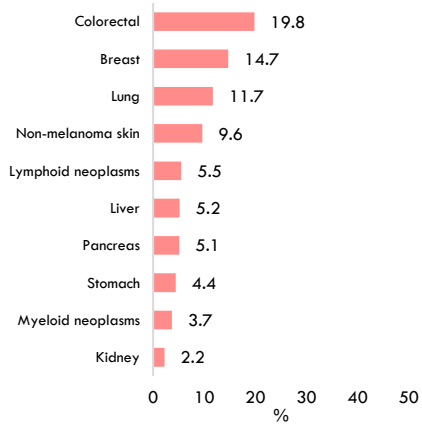


Table 1.3.4 Ten most frequent incident cancers by sex and age group, 2019-2023

Age group	Rank	Male			Female		
		Site	No.	%	Site	No.	%
0-29 years	1	Lymphoid neoplasms	249	30.2	Lymphoid neoplasms	194	19.6
	2	Testis	100	12.1	Thyroid	158	16.0
	3	Myeloid neoplasms	80	9.7	Ovary	139	14.0
	4	Brain & Central Nervous System	75	9.1	Breast	89	9.0
	5	Bone	39	4.7	Uterus	53	5.4
	6	Thyroid	38	4.6	Myeloid neoplasms	52	5.3
	7	Connective tissue	35	4.2	Brain & Central Nervous System	48	4.8
	8	Other endocrine	31	3.8	Connective tissue	40	4.0
	9	Heart, thymus, & mediastinum	25	3.0	Other endocrine	37	3.7
	10	Nasopharynx	24	2.9	Bone	26	2.6
		All sites	**825**	**100.0**	**All sites**	**990**	**100.0**
30-39 years	1	Lymphoid neoplasms	166	17.6	Breast	699	31.3
	2	Testis	98	10.4	Thyroid	280	12.5
	3	Colorectal	94	9.9	Uterus	238	10.6
	4	Nasopharynx	78	8.3	Cervix	170	7.6
	5	Thyroid	76	8.0	Ovary	155	6.9
	6	Myeloid neoplasms	72	7.6	Lymphoid neoplasms	153	6.8
	7	Brain & Central Nervous System	51	5.4	Colorectal	107	4.8
	8	Kidney	48	5.1	Myeloid neoplasms	62	2.8
	9	Non-melanoma skin	40	4.2	Lung	56	2.5
	10	Lung	35	3.7	Brain & Central Nervous System	37	1.7
		All sites	**945**	**100.0**	**All sites**	**2235**	**100.0**
40-49 years	1	Colorectal	388	16.8	Breast	2777	46.4
	2	Lymphoid neoplasms	238	10.3	Uterus	615	10.3
	3	Nasopharynx	209	9.1	Thyroid	400	6.7
	4	Kidney	202	8.7	Colorectal	355	5.9
	5	Lung	160	6.9	Ovary	353	5.9
	6	Thyroid	141	6.1	Cervix	247	4.1
	7	Non-melanoma skin	133	5.8	Lung	195	3.3
	8	Myeloid neoplasms	100	4.3	Lymphoid neoplasms	161	2.7
	9	Liver	87	3.8	Non-melanoma skin	95	1.6
	10	Stomach	77	3.3	Myeloid neoplasms	90	1.5
		All sites	**2309**	**100.0**	**All sites**	**5983**	**100.0**
50-59 years	1	Colorectal	1161	19.0	Breast	3473	38.9
	2	Lung	661	10.8	Uterus	987	11.1
	3	Prostate	565	9.3	Colorectal	847	9.5
	4	Lymphoid neoplasms	497	8.1	Lung	509	5.7
	5	Liver	424	7.0	Ovary	466	5.2
	6	Kidney	365	6.0	Thyroid	427	4.8
	7	Non-melanoma skin	305	5.0	Lymphoid neoplasms	378	4.2
	8	Nasopharynx	274	4.5	Cervix	223	2.5
	9	Pancreas	243	4.0	Non-melanoma skin	201	2.3
	10	Stomach	214	3.5	Kidney	162	1.8
		All sites	**6099**	**100.0**	**All sites**	**8932**	**100.0**
60-69 years	1	Prostate	2789	20.0	Breast	3667	31.4
	2	Colorectal	2422	17.4	Colorectal	1546	13.3
	3	Lung	1884	13.5	Lung	1031	8.8
	4	Liver	1130	8.1	Uterus	933	8.0
	5	Lymphoid neoplasms	915	6.6	Lymphoid neoplasms	569	4.9
	6	Kidney	574	4.1	Ovary	449	3.8
	7	Non-melanoma skin	515	3.7	Pancreas	382	3.3
	8	Pancreas	507	3.6	Non-melanoma skin	348	3.0
	9	Stomach	466	3.3	Thyroid	344	2.9
	10	Myeloid neoplasms	374	2.7	Myeloid neoplasms	282	2.4
		All sites	**13953**	**100.0**	**All sites**	**11666**	**100.0**

70-79 years	1	Prostate	3501	25.6	Breast	2168	22.7
	2	Lung	2060	15.1	Colorectal	1539	16.1
	3	Colorectal	1984	14.5	Lung	1150	12.0
	4	Liver	894	6.5	Lymphoid neoplasms	607	6.4
	5	Lymphoid neoplasms	836	6.1	Non-melanoma skin	473	5.0
	6	Non-melanoma skin	655	4.8	Pancreas	444	4.7
	7	Stomach	548	4.0	Uterus	442	4.6
	8	Pancreas	489	3.6	Liver	361	3.8
	9	Kidney	449	3.3	Stomach	292	3.1
	10	Myeloid neoplasms	439	3.2	Myeloid neoplasms	260	2.7
		All sites	**13654**	**100.0**	**All sites**	**9545**	**100.0**
80+ years	1	Prostate	1196	16.6	Colorectal	1434	19.8
	2	Lung	1127	15.7	Breast	1062	14.7
	3	Colorectal	1036	14.4	Lung	844	11.7
	4	Non-melanoma skin	606	8.4	Non-melanoma skin	693	9.6
	5	Liver	589	8.2	Lymphoid neoplasms	401	5.5
	6	Lymphoid neoplasms	435	6.0	Liver	380	5.2
	7	Stomach	383	5.3	Pancreas	371	5.1
	8	Myeloid neoplasms	295	4.1	Stomach	319	4.4
	9	Pancreas	269	3.7	Myeloid neoplasms	267	3.7
	10	Kidney	213	3.0	Kidney	157	2.2
		All sites	**7196**	**100.0**	**All sites**	**7242**	**100.0**

Highlights

Chapter 1 presented an overview of long-term trends in cancer incidence and mortality in Singapore from 1968 to 2023, with breakdowns by sex, ethnicity, and age group.

- Although the overall crude incidence rate (CIR) of cancer has increased over time (largely due to population ageing), the age-standardised incidence rate (ASIR) has remained relatively stable.
- Historically, males had a higher ASIR than females. Over the past decades, this gap has narrowed, and since 2018–2022, the female ASIR has surpassed that of males.
- Among the ethnic groups, the Chinese consistently recorded the highest ASIR. The Malay population showed a steeper rise and overtook the Indian population as the group with the second-highest ASIR.
- While cancer remains primarily a disease of older adults, there is a growing trend of cancer incidence in younger age groups.
- In contrast to incidence, the overall age-standardised mortality rate (ASMR) has declined over time for both sexes. However, the Malay population exhibited a rising trend in ASMR.

(2) TRENDS IN CANCER SURVIVAL, 1968-2023

2.1 Five-year age-standardised relative survival (ASRS) of cancer, 1968-2023

2.1.1 Trends by sex

The five-year age-standardised relative survival (ASRS) rates for all cancers improved for both males and females over the years. Between 1973-1977 and 2019-2023, the five-year ASRS increased from 13.2% to 57.8% among males and from 28.0% to 64.7% among females. Notably, in every five-year interval examined, females consistently exhibited higher five-year ASRS than males (Figure 2.1.1, Table 2.1.1).

Figure 2.1.1 Five-year age-standardised relative survival rate (%) of cancer by sex, 1968-2023

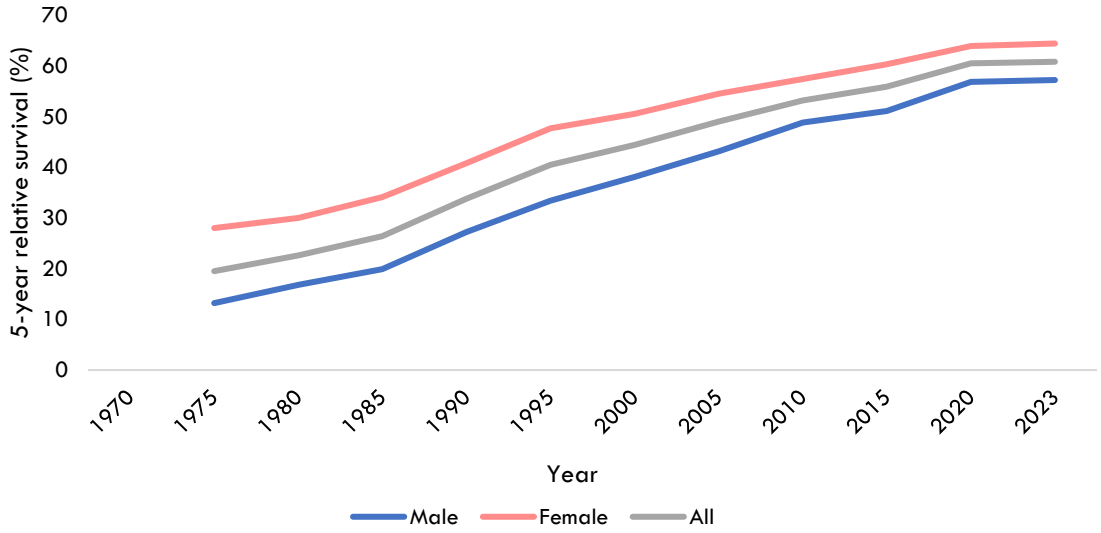


Table 2.1.1 Five-year age-standardised relative survival rate (%) of cancer by sex, 1968-2023

		1968-1972	1973-1977	1978-1982	1983-1987	1988-1992
Male	5-year ASRS	-	13.2	16.8	19.9	27.2
	(95% CI)	-	(12.3-14.1)	(15.9-17.7)	(19.0-20.8)	(26.2-28.1)
Female	5-year ASRS	-	28.0	30.0	34.1	40.8
	(95% CI)	-	(26.6-29.5)	(28.7-31.3)	(32.9-35.3)	(39.8-41.9)
All	5-year ASRS	-	19.5	22.6	26.4	33.8
	(95% CI)	-	(18.7-20.3)	(21.8-23.4)	(25.7-27.2)	(33.1-34.5)
		1993-1997	1998-2002	2003-2007	2008-2012	2013-2017
Male	5-year ASRS	33.4	38.1	43.1	48.8	51.1
	(95% CI)	(32.5-34.4)	(37.2-38.9)	(42.3-43.9)	(48.1-49.5)	(50.5-51.8)
Female	5-year ASRS	47.7	50.5	54.5	57.4	60.3
	(95% CI)	(46.8-48.7)	(49.7-51.3)	(53.8-55.3)	(56.8-58.1)	(59.8-60.9)
All	5-year ASRS	40.5	44.4	49.0	53.2	55.9
	(95% CI)	(39.8-41.2)	(43.8-45.0)	(48.4-49.5)	(52.7-53.7)	(55.5-56.3)
		2018-2022	2023	2019-2023		
Male	5-year ASRS	56.8	57.2	**57.8**		
	(95% CI)	(56.2-57.4)	(56.0-58.4)	**(57.3-58.4)**		
Female	5-year ASRS	63.9	64.4	**64.7**		
	(95% CI)	(63.4-64.4)	(63.4-65.5)	**(64.2-65.2)**		
All	5-year ASRS	60.5	60.8	**61.4**		
	(95% CI)	(60.1-60.9)	(60.0-61.6)	**(61.0-61.8)**		

2.1.2 Trends by ethnicity

From 1973-1977 onwards, the five-year ASRS improved across all three ethnic groups. Between 1973-1977 and 2019-2023, the five-year ASRS rose from 19.6% to 62.7% among the Chinese, from 17.0% to 46.9% among Malays, and from 24.4% to 58.8% among Indians (Figure 2.1.2, Table 2.1.2).

Despite some fluctuations in earlier years, the Chinese and Indian populations exhibited relatively similar survival trends. The five-year ASRS remained relatively similar throughout the period. In contrast, the Malay population consistently recorded the lowest five-year ASRS across all time periods.

A regional study on ethnic differences in breast cancer survival in Southeast Asia reflected similar trends. Compared with Chinese and Indian patients, Malay patients were more likely to present with breast cancer at a younger age, with larger tumours and more advanced stage disease (29).

Figure 2.1.2 Five-year age-standardised relative survival rate (%) of cancer by ethnicity, 1968-2023

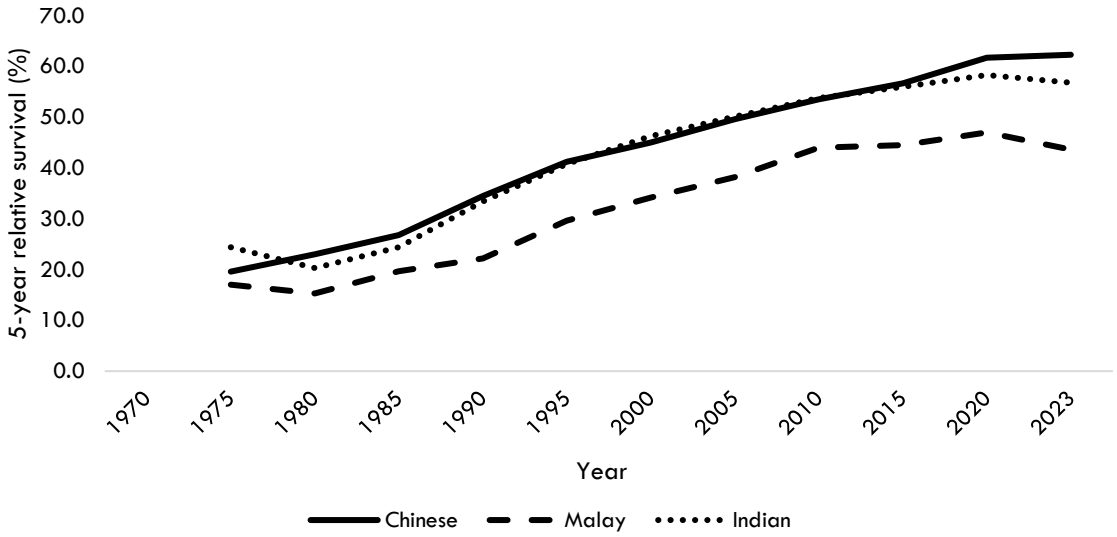


Table 2.1.2 Five-year age-standardised relative survival rate (%) of cancer by ethnicity, 1968-2023

		1968-1972	1973-1977	1978-1982	1983-1987	1988-1992
Chinese	**5-year ASRS**	-	19.6	23.0	26.8	34.5
	(95% CI)	-	(18.7-20.5)	(22.2-23.8)	(26.0-27.6)	(33.7-35.2)
Malay	**5-year ASRS**	-	17.0	15.3	19.7	22.2
	(95% CI)	-	(13.8-20.6)	(12.8-18.1)	(17.3-22.3)	(19.8-24.6)
Indian	**5-year ASRS**	-	24.4	20.3	24.4	33.4
	(95% CI)	-	(19.8-29.4)	(17.0-24.0)	(20.7-28.2)	(29.7-37.2)
		1993-1997	**1998-2002**	**2003-2007**	**2008-2012**	**2013-2017**
Chinese	**5-year ASRS**	41.2	45.0	49.6	53.5	56.7
	(95% CI)	(40.5-41.9)	(44.3-45.6)	(49.0-50.1)	(53.0-54.1)	(56.2-57.2)
Malay	**5-year ASRS**	29.6	34.2	38.2	44.0	44.5
	(95% CI)	(27.5-31.8)	(32.3-36.1)	(36.5-39.9)	(42.5-45.6)	(43.2-45.8)
Indian	**5-year ASRS**	40.8	46.3	50.1	53.8	56.0
	(95% CI)	(37.4-44.3)	(43.4-49.2)	(47.5-52.7)	(51.6-56.0)	(54.0-57.8)
		2018-2022	**2023**	**2019-2023**		
Chinese	**5-year ASRS**	61.7	62.3	**62.7**		
	(95% CI)	(61.3-62.2)	(61.4-63.2)	**(62.3-63.2)**		
Malay	**5-year ASRS**	47.0	43.6	**46.9**		
	(95% CI)	(45.8-48.1)	(41.4-45.9)	**(45.8-48.0)**		
Indian	**5-year ASRS**	58.3	56.8	**58.8**		
	(95% CI)	(56.6-59.9)	(53.5-60.1)	**(57.2-60.4)**		

2.1.3 Trends by age group

The five-year ASRS for cancer increased across all age groups over the years, even in the oldest age band. Specifically, survival rates for individuals aged 70-79 years rose from 13.3% in 1973-1977 to 58.3% in 2019-2023, while those aged 80 and above saw an increase from 22.4% to 40.4% during the same period (Figure 2.1.3(a), Table 2.1.3).

In general, the five-year ASRS declined with increasing age. Since 2018, the ASRS for younger age groups (below 50 years) has consistently remained above 80%. In the 2019-2023 period, the relative survival rate was 88.9% among individuals younger than 30 years. It dropped to 73.1% among those aged 50-59 years, and declined further to 40.4% among those aged 80 and above (Figure 2.1.3(b), Table 2.1.3).

Figure 2.1.3(a) Five-year age-specific relative survival rate (%) of cancer by age group, 1968-2023

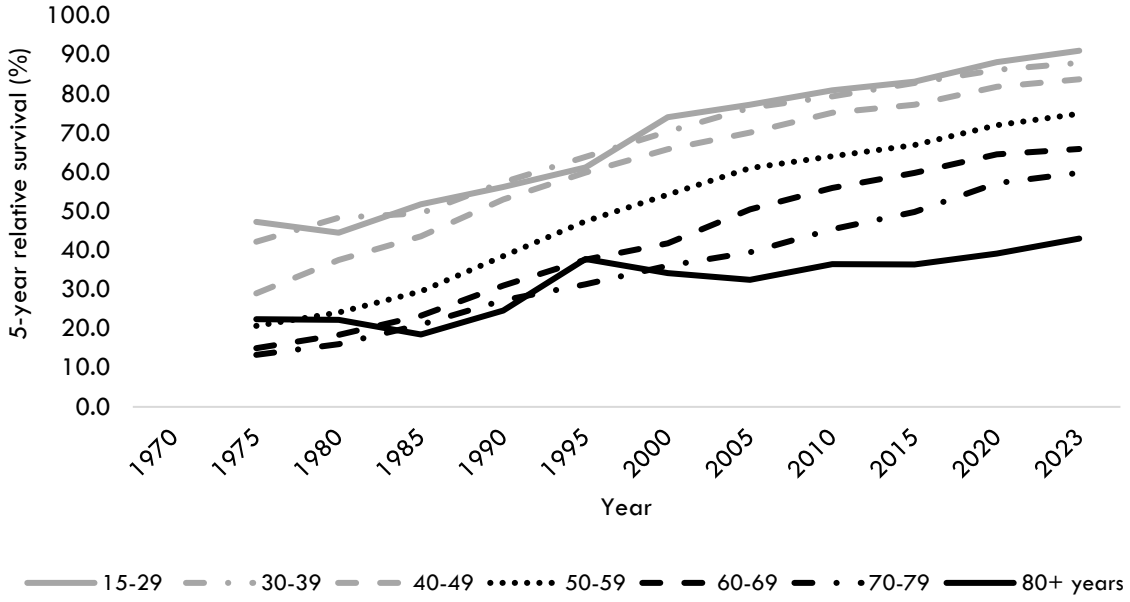


Figure 2.1.3(b) Five-year age-specific relative survival rate (%) of cancer by age group, 2019-2023

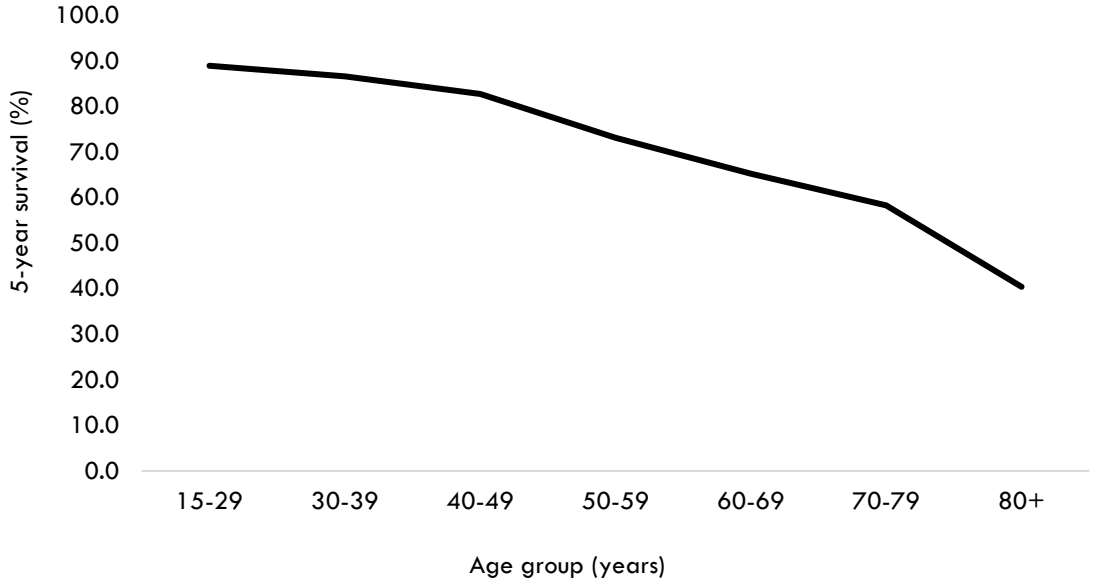


Table 2.1.3 Five-year age-specific relative survival rate (%) of cancer by age group, 1968-2023

		15-29 years	30-39 years	40-49 years	50-59 years	60-69 years	70-79 years	80+ years
1968-1972	5-year ASRS	-	-	-	-	-	-	-
	(95% CI)	-	-	-	-	-	-	-
1973-1977	5-year ASRS	47.3	42.2	29.0	20.7	15.0	13.3	22.4
	(95% CI)	(42.7-51.6)	(38.6-45.8)	(26.8-31.4)	(19.1-22.3)	(13.8-16.3)	(11.5-15.3)	(15.0-31.7)
1978-1982	5-year ASRS	44.5	48.3	37.5	24.1	18.4	16.0	22.2
	(95% CI)	(40.6-48.3)	(45.0-51.5)	(35.3-39.7)	(22.5-25.7)	(17.1-19.7)	(14.3-17.8)	(16.9-28.5)
1983-1987	5-year ASRS	51.8	49.5	43.6	29.5	23.3	21.0	18.5
	(95% CI)	(47.8-55.7)	(46.6-52.3)	(41.5-45.7)	(27.9-31.0)	(21.9-24.7)	(19.4-22.7)	(15.0-22.5)
1988-1992	5-year ASRS	56.2	57.4	53.0	38.5	31.0	27.2	24.6
	(95% CI)	(52.4-59.9)	(55.0-59.8)	(51.1-54.9)	(36.9-40.1)	(29.6-32.4)	(25.6-28.8)	(21.2-28.3)
1993-1997	5-year ASRS	61.2	63.9	59.9	47.4	37.6	31.3	37.8
	(95% CI)	(57.2-64.8)	(61.7-65.9)	(58.3-61.4)	(45.9-48.9)	(36.3-38.9)	(29.8-32.8)	(34.6-41.2)
1998-2002	5-year ASRS	74.0	70.3	65.8	54.2	41.8	36.1	34.2
	(95% CI)	(70.7-77.1)	(68.3-72.1)	(64.5-67.1)	(52.9-55.5)	(40.6-42.9)	(34.8-37.4)	(32.0-36.5)
2003-2007	5-year ASRS	77.2	76.4	70.1	61.0	50.5	39.5	32.5
	(95% CI)	(74.2-80.0)	(74.6-78.1)	(68.9-71.3)	(59.9-62.0)	(49.3-51.6)	(38.3-40.7)	(30.6-34.5)
2008-2012	5-year ASRS	80.9	79.3	75.2	64.0	55.9	45.4	36.5
	(95% CI)	(78.2-83.3)	(77.5-80.9)	(74.1-76.3)	(63.0-64.9)	(54.9-56.9)	(44.3-46.5)	(34.8-38.3)
2013-2017	5-year ASRS	83.1	82.8	77.2	66.9	59.8	49.8	36.4
	(95% CI)	(80.7-85.2)	(81.2-84.2)	(76.1-78.2)	(66.1-67.7)	(59.0-60.6)	(48.8-50.8)	(35.0-37.8)
2018-2022	5-year ASRS	88.1	86.1	81.8	72.0	64.5	57.2	39.2
	(95% CI)	(86.1-89.8)	(84.7-87.3)	(80.9-82.6)	(71.2-72.8)	(63.8-65.1)	(56.3-58.0)	(38.0-40.5)
2023	5-year ASRS	91.0	87.9	83.7	74.9	65.9	59.8	43.0
	(95% CI)	(86.6-94.0)	(85.0-90.3)	(81.7-85.4)	(73.2-76.5)	(64.5-67.3)	(58.1-61.5)	(40.2-45.8)
2019-2023	**5-year ASRS**	**88.9**	**86.6**	**82.7**	**73.1**	**65.2**	**58.3**	**40.4**
	(95% CI)	**(86.9-90.5)**	**(85.3-87.8)**	**(81.8-83.5)**	**(72.4-73.9)**	**(64.6-65.9)**	**(57.5-59.1)**	**(39.1-41.6)**

2.2 Five-year age-standardised relative survival rate (%) for ten most frequent incident cancers by sex, 2019-2023

Among the ten most frequently diagnosed cancers for both males and females during the period 2019-2023, non-melanoma skin cancer had the highest five-year ASRS—93.8% for males and 97.3% for females. Prostate cancer in males, as well as thyroid and breast cancers in females, also showed high relative survival rates, all exceeding 80% (Figure 2.2.1, Figure 2.2.2).

In contrast, cancers of the stomach, liver, lung, and pancreas had poorer survival outcomes overall. Lung cancer had the second lowest five-year ASRS, with rates of 24.2% for males and 40.7% for females. Among the ten most frequently diagnosed cancers in both sexes, pancreatic cancer had the lowest five-year ASRS—12.9% for males and 15.2% for females. According to statistics from the United States National Cancer Institute (NCI), the five-year relative survival for pancreatic cancer was similarly low, at 13.3% for the period 2015-2021 (30).

Figure 2.2.1 Five-year age-standardised relative survival rate (%) for ten most frequent incident cancers in males, 2019-2023

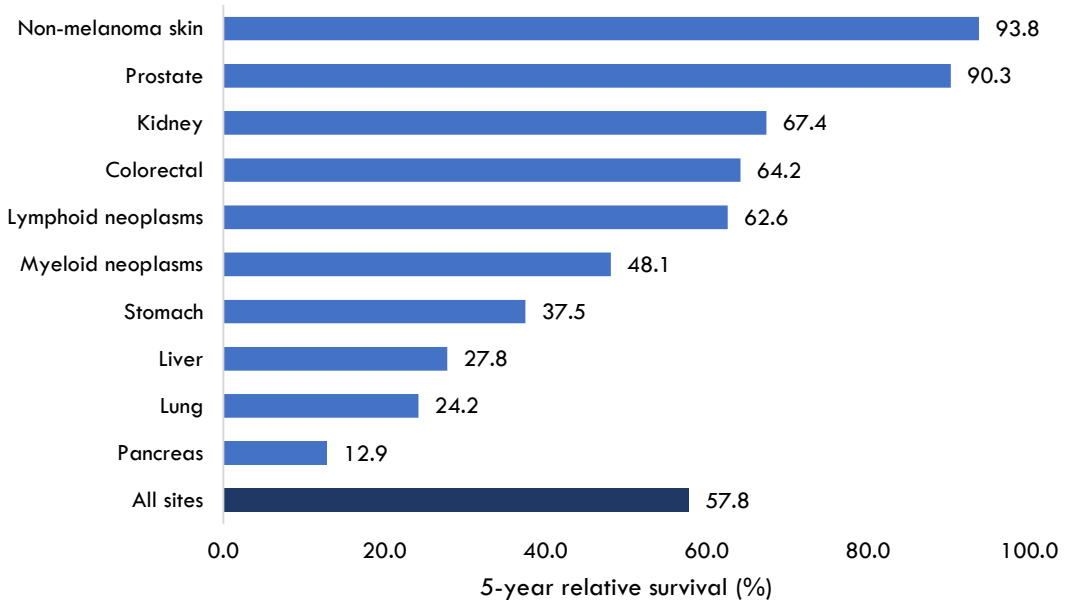
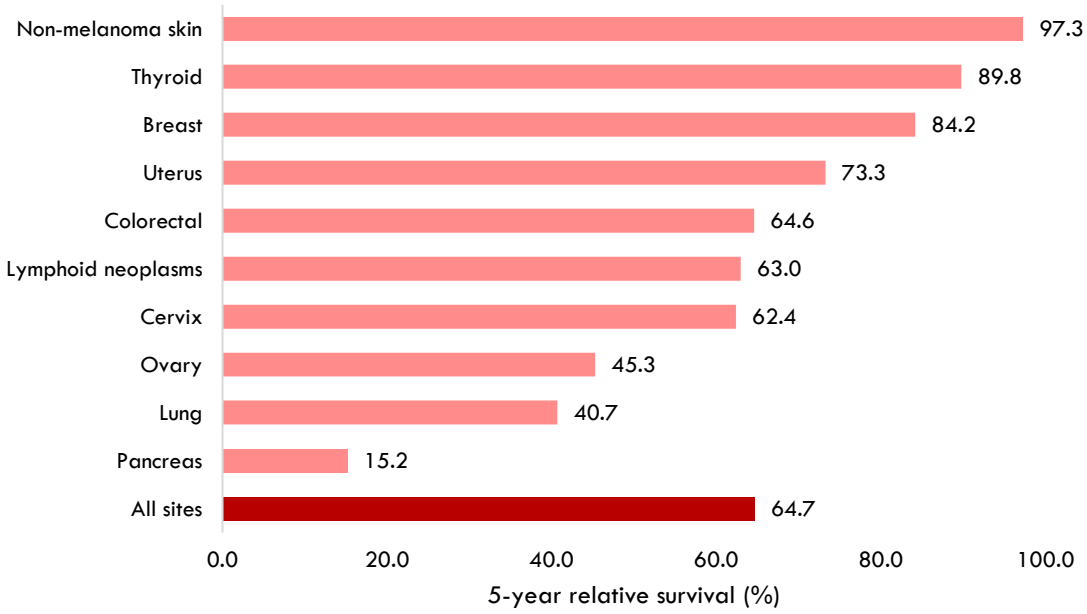


Figure 2.2.2 Five-year age-standardised relative survival rate (%) for ten most frequent incident cancers in females, 2019-2023



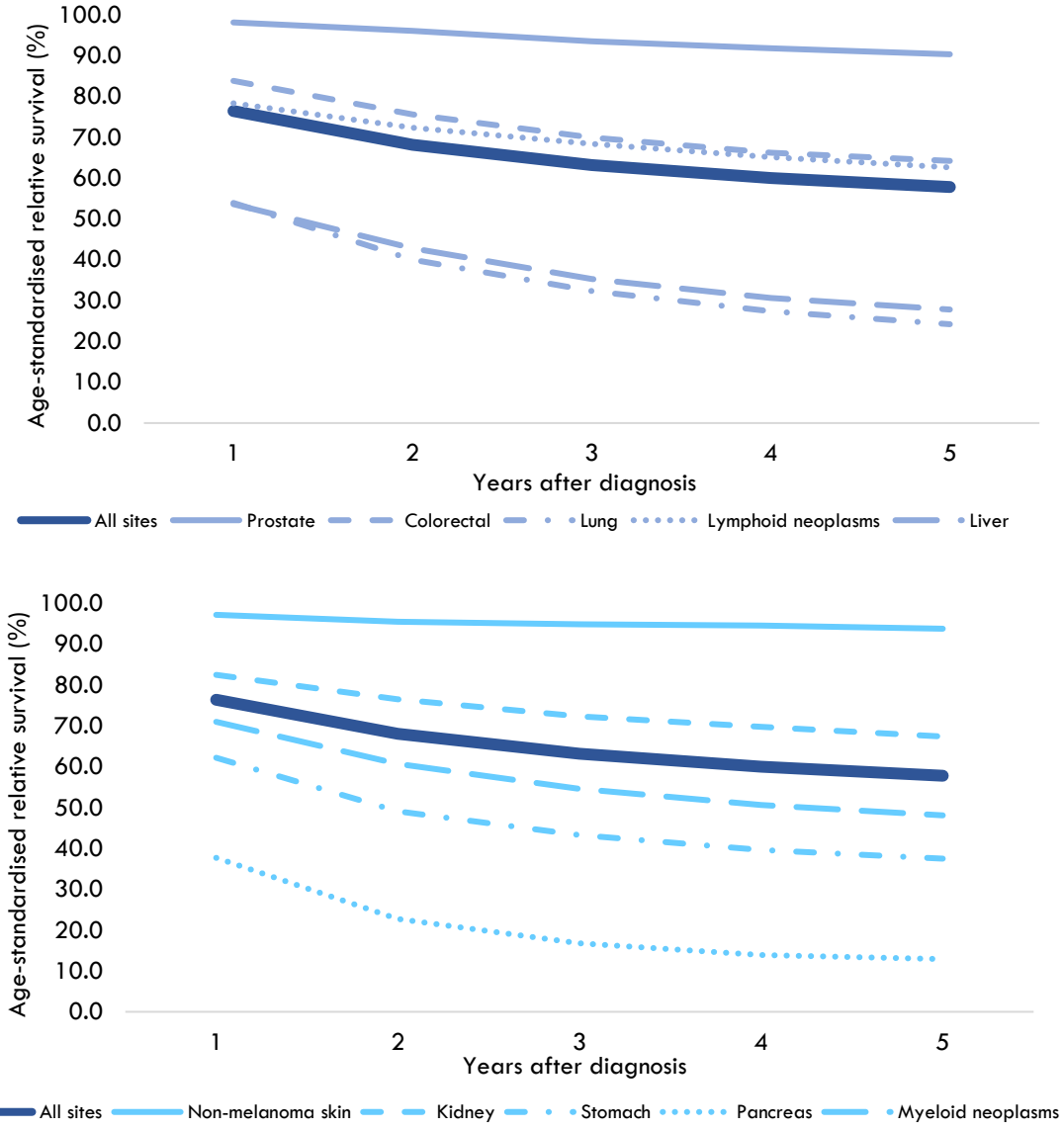
2.3 Age-standardised relative survival rate (%) five years following diagnosis for ten most frequent incident cancers by sex, 2019-2023

While the ASRS for all cancers declined with each successive year following diagnosis, the rate of decline varied across cancer types. Some cancers demonstrated steeper reductions in survival than others. Overall, females consistently had higher year-on-year cancer survival rates than males (Figure 2.3.1, Table 2.3.2).

Among males, the one-year ASRS for all cancers was 76.4%, declining progressively to 57.8% at five years post-diagnosis. Prostate and non-melanoma skin cancers had the highest survival rates at each one-year interval, with one-year survival rates of 98.1% and 97.2%, and five-year survival rates of 90.3% and 93.8%, respectively (Figure 2.3.1, Table 2.3.1).

Conversely, pancreatic, liver, and lung cancers had the poorest survival outcomes among males across the five years following diagnosis. Their one-year survival rates were 37.7%, 53.6%, and 53.9%, respectively, which declined to 12.9%, 27.8%, and 24.2% by the fifth year. These represented the steepest declines in survival among the top ten cancers in males.

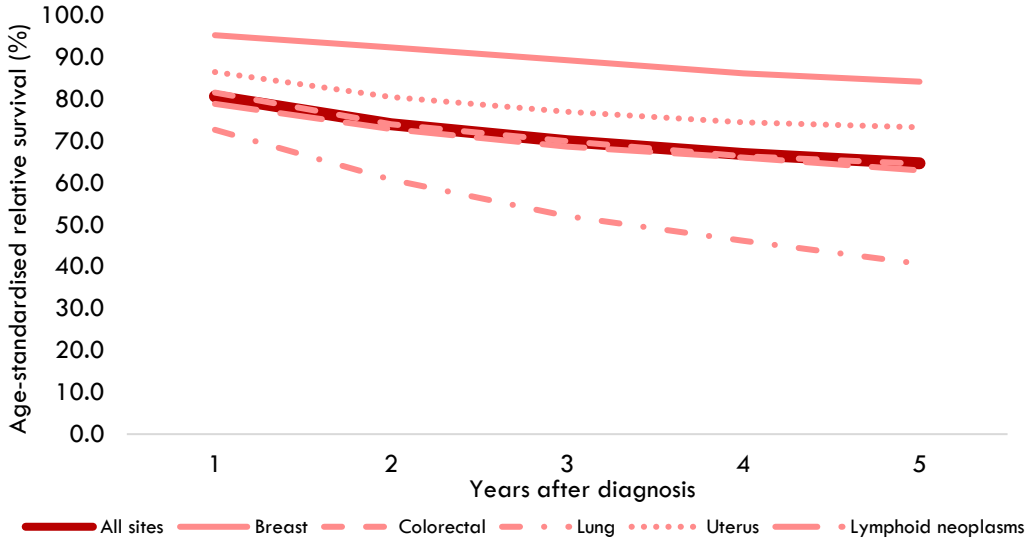
Figure 2.3.1 Age-standardised relative survival rate (%) five years following diagnosis for ten most frequent incident cancers in males, 2019-2023 (split into two graphs)



For females, the ASRS for all cancers declined gradually from 80.7% at one year post-diagnosis to 64.7% at five years. Among the most frequently diagnosed cancers in females, non-melanoma skin, breast, and thyroid cancers had the highest survival rates. At one year, their survival rates were 99.0%, 95.3%, and 93.3%, respectively, while at five years, survival rates remained high at 97.3%, 84.2%, and 89.8%. Non-melanoma skin cancer consistently had the highest survival over the five-year period (Figure 2.3.2, Table 2.3.2).

In contrast, pancreatic and lung cancers had the lowest survival rates among females. Their one-year survival rates were 42.4% and 72.7%, respectively, declining to 15.2% and 40.7% at five years. These two cancers also exhibited the sharpest year-on-year declines in survival among the top ten most common cancers in females.

Figure 2.3.2 Age-standardised relative survival rate (%) five years following diagnosis for ten most frequent incident cancers in females, 2019-2023 (split into two graphs)



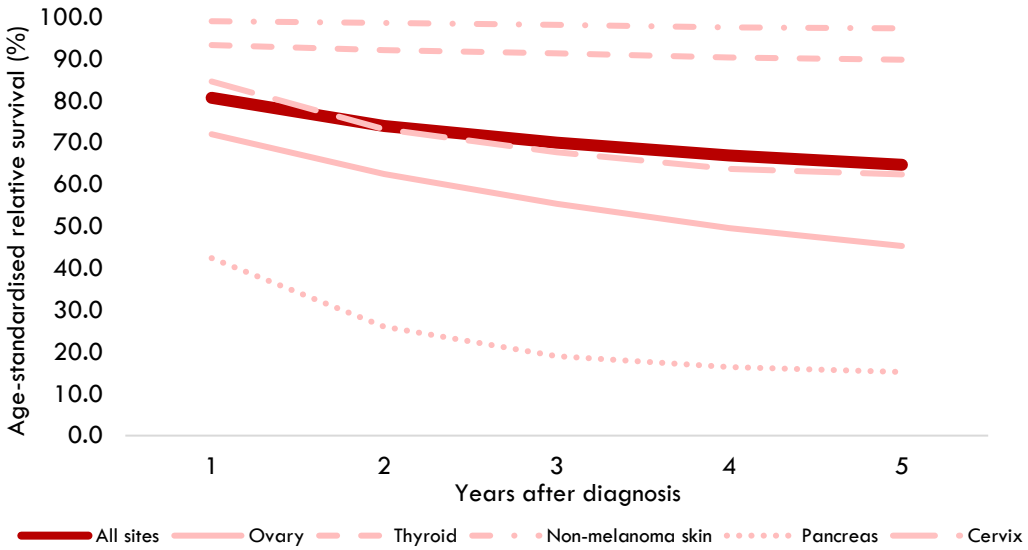


Table 2.3.1 Age-standardised relative survival rate (%) five years following diagnosis for ten most frequent incident cancers in males, 2019-2023

		Years after diagnosis				
		1	2	3	4	5
Male	Prostate	98.1 (97.6-98.6)	96.0 (95.2-96.7)	93.5 (92.5-94.4)	91.8 (90.8-92.9)	90.3 (89.0-91.5)
	Colorectal	83.8 (82.8-84.7)	75.6 (74.4-76.7)	69.9 (68.6-71.1)	66.2 (64.9-67.5)	64.2 (62.8-65.6)
	Lung	53.9 (52.5-55.2)	40.0 (38.7-41.4)	32.3 (31.0-33.6)	27.4 (26.1-28.7)	24.2 (23.0-25.5)
	Lymphoid neoplasms	78.3 (76.7-79.9)	72.3 (70.6-74.1)	68.4 (66.5-70.3)	65.1 (63.1-67.1)	62.6 (60.5-64.7)
	Liver	53.6 (51.8-55.5)	42.8 (40.9-44.6)	35.3 (33.5-37.1)	30.6 (28.8-32.4)	27.8 (26.0-29.6)
	Non-melanoma skin	97.2 (96.0-98.2)	95.5 (94.0-96.9)	94.9 (93.1-96.6)	94.6 (92.5-96.4)	93.8 (91.5-95.9)
	Kidney	82.5 (80.6-84.3)	76.5 (74.3-78.5)	72.3 (70.0-74.6)	69.8 (67.3-72.2)	67.4 (64.8-70.0)
	Stomach	62.2 (59.7-64.6)	49.1 (46.5-51.6)	43.3 (40.7-45.8)	39.6 (37.0-42.2)	37.5 (34.9-40.2)
	Pancreas	37.7 (35.2-40.1)	22.7 (20.6-24.9)	16.8 (14.9-18.8)	13.9 (12.1-15.8)	12.9 (11.2-14.8)
	Myeloid neoplasms	71.0 (68.6-73.3)	60.7 (58.0-63.2)	54.6 (51.9-57.3)	50.6 (47.8-53.4)	48.1 (45.2-50.9)
	All sites	**76.4 (76.0-76.9)**	**68.1 (67.6-68.6)**	**63.2 (62.6-63.7)**	**60.0 (59.4-60.5)**	**57.8 (57.3-58.4)**

Table 2.3.2 Age-standardised relative survival rate (%) five years following diagnosis for ten most frequent incident cancers in females, 2019-2023

		Years after diagnosis				
		1	2	3	4	5
Female	Breast	95.3 (94.9-95.6)	92.4 (91.9-92.9)	89.3 (88.6-89.9)	86.2 (85.5-86.9)	84.2 (83.4-84.9)
	Colorectal	81.6 (80.4-82.6)	74.0 (72.7-75.2)	70.0 (68.7-71.3)	66.4 (65.0-67.8)	64.6 (63.1-66.1)
	Lung	72.7 (71.2-74.2)	60.8 (59.0-62.4)	52.1 (50.3-53.9)	46.2 (44.4-48.0)	40.7 (38.9-42.6)
	Uterus	86.5 (85.3-87.6)	80.5 (79.1-81.8)	77.0 (75.6-78.5)	74.5 (72.9-76.1)	73.3 (71.6-74.9)
	Lymphoid neoplasms	78.9 (77.1-80.6)	72.9 (70.9-74.8)	68.7 (66.6-70.7)	66.1 (63.9-68.3)	63.0 (60.7-65.3)
	Ovary	72.0 (70.1-73.8)	62.5 (60.5-64.5)	55.4 (53.2-57.5)	49.6 (47.4-51.8)	45.3 (43.1-47.6)
	Thyroid	93.3 (92.1-94.4)	92.1 (90.8-93.4)	91.3 (89.8-92.6)	90.3 (88.6-91.8)	89.8 (88.0-91.4)
	Non-melanoma skin	99.0 (97.8-99.8)	98.6 (97.1-99.8)	98.1 (96.3-99.7)	97.5 (95.4-99.4)	97.3 (95.0-99.5)
	Pancreas	42.4 (39.7-45.1)	26.0 (23.6-28.5)	19.0 (16.9-21.3)	16.4 (14.3-18.7)	15.2 (13.2-17.4)
	Cervix	84.6 (82.5-86.6)	73.2 (70.6-75.7)	67.7 (64.9-70.3)	63.7 (60.9-66.5)	62.4 (59.5-65.2)
	All sites	**80.7 (80.3-81.0)**	**74.0 (73.6-74.5)**	**70.0 (69.5-70.4)**	**66.9 (66.4-67.4)**	**64.7 (64.2-65.2)**

Highlights

Chapter 2 presented the long-term trends for five-year age-standardised relative survival (ASRS) for cancer in Singapore from 1968 to 2023. The information was stratified by sex, ethnicity, age group, and the ten most commonly diagnosed cancers.

- Females consistently exhibited higher five-year ASRS than males throughout the years.
- The Chinese and Indian populations showed relatively similar survival trends, while the Malay population consistently recorded lower five-year ASRS.
- Five-year ASRS generally declined with increasing age, reflecting poorer prognosis and a higher comorbidity burden among older patients.
- Across both sexes, non-melanoma skin cancer had the highest five-year ASRS, while pancreatic cancer had the lowest survival among the ten most frequently diagnosed cancers.

(3) TRENDS IN INCIDENCE, MORTALITY AND SURVIVAL OF SELECTED CANCERS, 1968-2023

3.1 Age-standardised incidence, age-standardised mortality, and five-year age-standardised relative survival for selected cancers in males and females, 1968-2023

Males

Among the most commonly diagnosed cancers in males, increases in both CIR and CMR were observed for nearly all cancer types, with the exception of stomach cancer, which showed declines in both measures over the years. Despite a rising CIR, the CMR for non-melanoma skin cancer remained consistently low, owing to its high survival rate (Figure 3.1.1, Table 3.1.1).

While there was an overall increase in five-year ASRS across all major cancers from 1968 to 2023, divergent trends were observed in the ASIR and ASMR for these cancers (Figure 3.1.1, Table 3.1.1). Between 1968-1972 and 2019-2023, the ASIR of the two most common cancers in males—prostate and colorectal cancers—increased substantially, from 4.0 to 39.3 per 100,000 population and from 19.4 to 37.3 per 100,000, respectively. This is possibly due to better education and increased health literacy, which may influence health-seeking behaviours such as screening and follow-up for symptoms. This mirrors a global increase in prostate cancer prevalence in developed countries with higher human development indices and longer life expectancy (31) (32). Notably, over the last three decades (1988-1992 to 2019-2023), while the ASIR of prostate cancer almost quadrupled, the ASIR for male colorectal cancer plateaued. For comparison, GBD data over the most recent 30 years (1994-2023) show that in the high-income Asia-Pacific region[5], the ASIR of prostate cancer increased nearly five-fold, from 17.1 to 82.3 per 100,000 (20).

Conversely, the ASIR for several other cancers declined significantly during the same period. The ASIR of lung and liver cancers fell from 47.3 to 29.7 per 100,000 and from 28.8 to 16.1 per 100,000, respectively. Globally, although lung cancer incidence and mortality vary, industrialised nations have seen rising or plateauing rates in women, but decreasing smoking and lung cancer rates in men (33). For stomach cancer, the ASIR in 2019-2023 was 8.7 per 100,000, less than one-quarter of its rate in 1968-1972 (37.9 per 100,000).

Corresponding mortality trends were also observed. The ASMR for stomach cancer declined from 26.2 to 4.4 per 100,000 between 1968-1972 and 2019-2023. In contrast, the ASMRs for prostate and colorectal cancers rose alongside their incidence rates, increasing from 1.2 to 5.3 per 100,000 and from 8.9 to 12.3 per 100,000, respectively. Pancreatic cancer, which has one of the poorest survival rates, also showed a rising ASMR in line with its increasing incidence—climbing more than threefold from 1.7 to 6.3 per 100,000, although its overall mortality burden remained lower than that of more common cancers such as lung, colorectal, and liver cancers.

Despite differing trends in incidence and mortality, improvements in survival were observed across all ten most commonly diagnosed cancers. For prostate cancer, the most common cancer in males, the five-year ASRS increased from 47.3% in 1973-1977 to 90.3% in 2019-2023. Similarly, the five-year ASRS for colorectal cancer rose from 24.4% to 64.2% over the same period. Even among cancers traditionally associated with poor survival, such as lung and liver cancers, survival improved markedly, from 2.9% and 0.2% in 1973-1977 to 24.2% and 27.8% in 2019-2023, respectively.

[5] GBD High-income Asia-Pacific region: Brunei Darussalam, Japan, South Korea, Singapore

Figure 3.1.1 Crude and age-standardised incidence rate (per 100,000 population), crude and age-standardised mortality rate (per 100,000 population) and five-year age-standardised relative survival rate (%) of selected cancers in males, 1968-2023

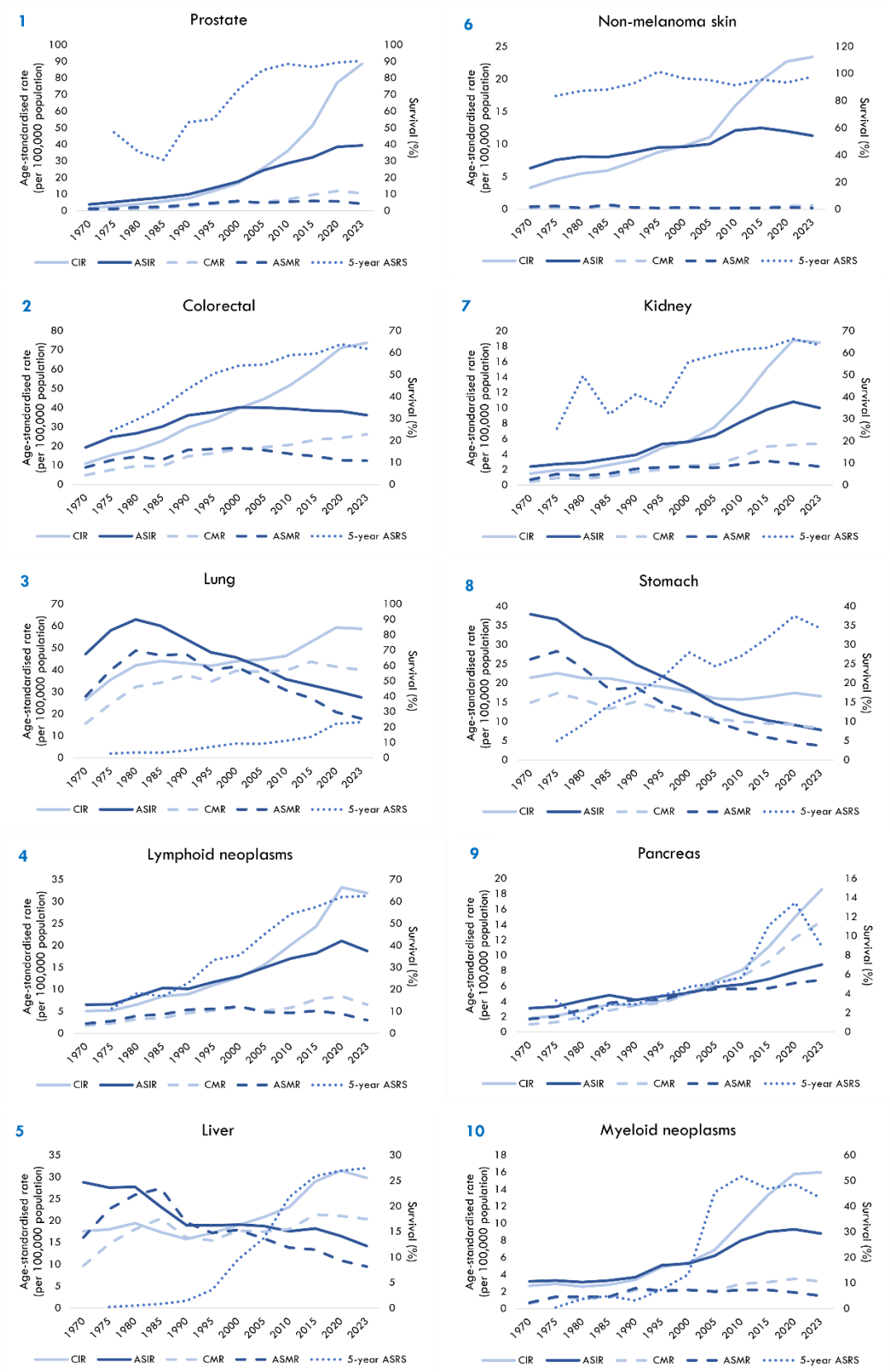


Table 3.1.1 Incidence number, crude and age-standardised incidence rate (per 100,000 population), crude and age-standardised mortality rate (per 100,000 population) and five-year age-standardised relative survival rate (%) of selected cancers in males, 1968-2023

Site	Year	Number	CIR (95% CI)*	ASIR (95% CI)*	CMR (95% CI)*	ASMR (95% CI)*	ASRS (95% CI)
Prostate	1968-1972	95	1.8 (1.5-2.2)	4.0 (3.1-4.9)	0.6 (0.4-0.8)	1.2 (0.8-1.7)	
	1973-1977	144	2.7 (2.2-3.1)	5.2 (4.3-6.0)	0.7 (0.5-0.9)	1.3 (0.9-1.7)	47.3 (33.6-61.6)
	1978-1982	240	4.1 (3.6-4.7)	6.8 (5.9-7.7)	1.3 (1.0-1.6)	2.2 (1.7-2.7)	35.4 (25.5-46.2)
	1983-1987	356	5.7 (5.1-6.2)	8.2 (7.4-9.1)	1.8 (1.4-2.1)	2.5 (2.1-3.0)	30.8 (24.0-38.1)
	1988-1992	529	7.7 (7.0-8.3)	9.9 (9.1-10.8)	2.9 (2.5-3.3)	3.7 (3.2-4.2)	53.4 (46.0-60.7)
	1993-1997	902	11.9 (11.1-12.7)	13.8 (12.9-14.7)	4.1 (3.7-4.6)	4.8 (4.3-5.4)	55.3 (49.9-60.7)
	1998-2002	1360	16.6 (15.7-17.5)	17.6 (16.7-18.6)	5.5 (5.0-6.0)	5.9 (5.4-6.5)	73.0 (68.9-76.9)
	2003-2007	2214	25.7 (24.6-26.8)	24.3 (23.2-25.3)	5.1 (4.6-5.5)	4.8 (4.3-5.2)	84.8 (81.9-87.5)
	2008-2012	3341	36.1 (34.9-37.3)	28.7 (27.7-29.6)	7.0 (6.5-7.6)	5.6 (5.2-6.0)	88.5 (86.6-90.4)
	2013-2017	4930	51.4 (50.0-52.9)	32.3 (31.3-33.2)	9.6 (9.0-10.2)	5.9 (5.5-6.3)	86.6 (85.0-88.1)
	2018-2022	7611	77.3 (75.6-79.0)	38.6 (37.7-39.5)	11.9 (11.3-12.6)	5.7 (5.4-6.0)	89.3 (88.0-90.6)
	2023	1790	88.5 (84.4-92.6)	39.4 (37.5-41.2)	10.6 (9.2-12.0)	4.3 (3.8-4.9)	90.4 (87.6-92.9)
	2019-2023	**8114**	**81.9 (80.1-83.6)**	**39.3 (38.4-40.2)**	**11.7 (11.0-12.3)**	**5.3 (5.0-5.6)**	**90.3 (89.0-91.5)**
Colorectal	1968-1972	563	11.0 (10.1-11.9)	19.4 (17.6-21.2)	4.9 (4.3-5.5)	8.9 (7.7-10.1)	
	1973-1977	825	15.3 (14.2-16.3)	24.7 (22.9-26.4)	7.6 (6.9-8.4)	12.6 (11.3-13.9)	24.4 (20.2-28.9)
	1978-1982	1057	18.2 (17.1-19.3)	26.7 (25.0-28.4)	9.7 (8.9-10.5)	14.6 (13.3-15.8)	29.6 (25.9-33.5)
	1983-1987	1435	22.8 (21.6-24.0)	30.2 (28.6-31.8)	9.6 (8.9-10.4)	12.9 (11.9-14.0)	35.2 (31.7-38.8)
	1988-1992	2053	29.8 (28.5-31.1)	36.0 (34.4-37.6)	14.7 (13.8-15.7)	18.0 (16.9-19.2)	43.5 (40.5-46.6)
	1993-1997	2552	33.7 (32.4-35.0)	37.7 (36.2-39.2)	16.3 (15.3-17.2)	18.5 (17.5-19.6)	50.4 (47.7-53.1)
	1998-2002	3252	39.7 (38.4-41.1)	40.1 (38.7-41.5)	18.4 (17.5-19.4)	19.1 (18.1-20.0)	54.1 (51.8-56.4)
	2003-2007	3850	44.7 (43.3-46.1)	40.0 (38.7-41.3)	19.5 (18.6-20.4)	17.9 (17.0-18.7)	54.7 (52.6-56.6)
	2008-2012	4797	51.8 (50.4-53.3)	39.4 (38.2-40.5)	20.6 (19.7-21.6)	16.0 (15.3-16.7)	59.0 (57.2-60.7)
	2013-2017	5832	60.9 (59.3-62.4)	38.4 (37.4-39.4)	23.4 (22.5-24.4)	14.7 (14.1-15.3)	59.6 (58.1-61.2)
	2018-2022	6996	71.1 (69.4-72.7)	38.1 (37.2-39.0)	24.3 (23.3-25.3)	12.6 (12.1-13.2)	63.9 (62.5-65.3)
	2023	1492	73.8 (70.0-77.5)	36.1 (34.2-38.0)	26.2 (24.0-28.4)	12.4 (11.3-13.4)	61.8 (58.8-64.7)
	2019-2023	**7101**	**71.6 (70.0-73.3)**	**37.3 (36.4-38.2)**	**24.5 (23.5-25.5)**	**12.3 (11.8-12.8)**	**64.2 (62.8-65.6)**
Lung	1968-1972	1362	26.5 (25.1-27.9)	47.3 (44.6-50.0)	15.7 (14.6-16.8)	28.0 (25.9-30.0)	
	1973-1977	1924	35.6 (34.0-37.2)	58.1 (55.4-60.8)	24.7 (23.4-26.1)	39.9 (37.7-42.2)	2.9 (2.1-3.9)
	1978-1982	2441	42.1 (40.4-43.7)	63.0 (60.4-65.5)	32.4 (31.0-33.9)	48.8 (46.5-51.0)	3.5 (2.7-4.4)
	1983-1987	2771	44.1 (42.4-45.7)	60.1 (57.9-62.4)	34.3 (32.8-35.7)	46.6 (44.6-48.6)	3.3 (2.7-4.1)
	1988-1992	2972	43.1 (41.5-44.6)	54.1 (52.1-56.0)	37.8 (36.3-39.2)	47.3 (45.4-49.1)	4.9 (4.1-5.9)
	1993-1997	3168	41.8 (40.4-43.3)	48.1 (46.4-49.8)	34.6 (33.3-35.9)	40.0 (38.4-41.5)	7.1 (6.0-8.2)
	1998-2002	3600	44.0 (42.5-45.4)	45.8 (44.3-47.3)	39.7 (38.3-41.0)	41.6 (40.1-43.0)	9.4 (8.4-10.5)
	2003-2007	3863	44.8 (43.4-46.3)	41.3 (39.9-42.6)	39.2 (37.9-40.5)	36.2 (34.9-37.4)	9.2 (8.3-10.3)
	2008-2012	4295	46.4 (45.0-47.8)	35.8 (34.7-36.9)	39.8 (38.5-41.1)	30.9 (29.9-31.9)	11.1 (10.1-12.2)
	2013-2017	5069	52.9 (51.4-54.3)	33.1 (32.1-34.0)	43.8 (42.5-45.2)	27.2 (26.4-28.1)	13.7 (12.6-14.8)
	2018-2022	5835	59.3 (57.7-60.8)	30.4 (29.6-31.2)	41.5 (40.2-42.7)	20.8 (20.1-21.4)	22.1 (20.9-23.4)
	2023	1189	58.8 (55.5-62.1)	27.5 (25.9-29.1)	40.1 (37.3-42.8)	18.0 (16.7-19.2)	23.2 (20.7-25.9)
	2019-2023	**5938**	**59.9 (58.4-61.4)**	**29.7 (29.0-30.5)**	**40.7 (39.4-41.9)**	**19.6 (19.0-20.2)**	**24.2 (23.0-25.5)**

Site	Year	Number	CIR (95% CI)*	ASIR (95% CI)*	CMR (95% CI)*	ASMR (95% CI)*	ASRS (95% CI)
Lymphoid neoplasms	1968-1972	261	5.1 (4.5-5.7)	6.5 (5.6-7.4)	1.8 (1.4-2.2)	2.2 (1.7-2.7)	
	1973-1977	279	5.2 (4.6-5.8)	6.6 (5.8-7.5)	2.3 (1.9-2.7)	2.8 (2.3-3.4)	11.3 (6.9-16.9)
	1978-1982	382	6.6 (5.9-7.2)	8.4 (7.5-9.3)	3.2 (2.7-3.6)	4.0 (3.4-4.7)	18.3 (13.1-24.2)
	1983-1987	527	8.4 (7.7-9.1)	10.3 (9.4-11.2)	3.5 (3.1-4.0)	4.3 (3.7-4.8)	16.8 (12.5-21.7)
	1988-1992	611	8.9 (8.2-9.6)	10.1 (9.3-11.0)	4.6 (4.1-5.1)	5.4 (4.8-6.0)	22.9 (18.9-27.2)
	1993-1997	835	11.0 (10.3-11.8)	11.7 (10.9-12.6)	5.2 (4.7-5.7)	5.6 (5.0-6.2)	33.4 (29.1-37.9)
	1998-2002	1050	12.8 (12.1-13.6)	13.0 (12.2-13.8)	6.0 (5.5-6.6)	6.1 (5.5-6.6)	35.5 (31.9-39.1)
	2003-2007	1356	15.7 (14.9-16.6)	15.0 (14.1-15.8)	5.1 (4.6-5.6)	4.8 (4.3-5.2)	45.3 (42.0-48.6)
	2008-2012	1859	20.1 (19.2-21.0)	17.0 (16.2-17.8)	5.8 (5.3-6.3)	4.6 (4.2-5.0)	54.3 (51.4-57.0)
	2013-2017	2332	24.3 (23.3-25.3)	18.2 (17.4-19.1)	7.7 (7.2-8.3)	5.1 (4.7-5.5)	57.5 (55.0-59.9)
	2018-2022	3273	33.2 (32.1-34.4)	21.0 (20.2-21.9)	8.4 (7.8-8.9)	4.4 (4.1-4.7)	62.0 (59.8-64.1)
	2023	645	31.9 (29.4-34.4)	18.7 (17.0-20.4)	6.5 (5.4-7.6)	3.0 (2.5-3.6)	62.5 (58.0-66.9)
	2019-2023	**3336**	**33.7 (32.5-34.8)**	**20.8 (20.0-21.6)**	**8.3 (7.7-8.8)**	**4.2 (3.9-4.5)**	**62.6 (60.5-64.7)**
Liver	1968-1972	902	17.6 (16.4-18.7)	28.8 (26.8-30.8)	9.7 (8.9-10.6)	16.2 (14.7-17.7)	
	1973-1977	971	18.0 (16.8-19.1)	27.6 (25.8-29.5)	14.8 (13.8-15.8)	22.7 (21.0-24.3)	0.2 (0.1-0.4)
	1978-1982	1128	19.4 (18.3-20.6)	27.8 (26.1-29.5)	18.0 (17.0-19.1)	25.9 (24.3-27.5)	0.5 (0.3-1.0)
	1983-1987	1095	17.4 (16.4-18.4)	23.2 (21.8-24.5)	20.5 (19.4-21.7)	27.4 (25.9-29.0)	0.8 (0.4-1.3)
	1988-1992	1089	15.8 (14.9-16.7)	19.0 (17.8-20.1)	16.2 (15.3-17.2)	19.6 (18.4-20.7)	1.4 (0.7-2.4)
	1993-1997	1303	17.2 (16.3-18.1)	18.9 (17.9-20.0)	15.5 (14.6-16.4)	17.2 (16.2-18.2)	3.6 (2.5-5.0)
	1998-2002	1555	19.0 (18.1-19.9)	19.1 (18.1-20.1)	17.7 (16.8-18.6)	17.9 (16.9-18.8)	9.5 (7.9-11.3)
	2003-2007	1792	20.8 (19.8-21.8)	18.8 (17.9-19.7)	17.5 (16.6-18.4)	15.9 (15.1-16.7)	13.7 (11.8-15.7)
	2008-2012	2141	23.1 (22.1-24.1)	17.6 (16.9-18.4)	18.1 (17.2-18.9)	13.8 (13.1-14.5)	21.8 (19.8-24.0)
	2013-2017	2777	29.0 (27.9-30.1)	18.2 (17.5-18.9)	21.4 (20.5-22.3)	13.4 (12.8-14.0)	25.9 (24.0-27.8)
	2018-2022	3102	31.5 (30.4-32.6)	16.5 (15.9-17.1)	21.1 (20.2-22.0)	10.9 (10.4-11.3)	27.0 (25.3-28.8)
	2023	602	29.8 (27.4-32.2)	14.2 (13.0-15.4)	20.4 (18.4-22.3)	9.5 (8.5-10.4)	27.5 (23.7-31.4)
	2019-2023	**3148**	**31.8 (30.6-32.9)**	**16.1 (15.6-16.7)**	**20.6 (19.7-21.5)**	**10.2 (9.7-10.6)**	**27.8 (26.0-29.6)**
Non-melanoma skin	1968-1972	167	3.3 (2.8-3.7)	6.3 (5.2-7.4)	0.2 (0.1-0.4)	0.4 (0.2-0.6)	
	1973-1977	247	4.6 (4.0-5.1)	7.6 (6.6-8.6)	0.3 (0.1-0.4)	0.5 (0.2-0.9)	83.5 (70.7-95.1)
	1978-1982	319	5.5 (4.9-6.1)	8.1 (7.1-9.0)	0.1 (0.0-0.2)	0.2 (0.1-0.3)	87.3 (78.7-95.0)
	1983-1987	371	5.9 (5.3-6.5)	8.0 (7.1-8.8)	0.5 (0.3-0.7)	0.7 (0.5-1.0)	88.2 (79.6-96.0)
	1988-1992	501	7.3 (6.6-7.9)	8.7 (7.9-9.5)	0.3 (0.1-0.4)	0.3 (0.2-0.5)	92.6 (85.8-98.8)
	1993-1997	667	8.8 (8.1-9.5)	9.5 (8.8-10.3)	0.2 (0.1-0.3)	0.2 (0.1-0.3)	101.4 (95.7-106.4)
	1998-2002	791	9.7 (9.0-10.3)	9.6 (8.9-10.3)	0.2 (0.1-0.3)	0.3 (0.1-0.4)	96.5 (91.8-100.8)
	2003-2007	958	11.1 (10.4-11.8)	10.0 (9.4-10.7)	0.2 (0.1-0.3)	0.2 (0.1-0.3)	95.2 (91.4-98.6)
	2008-2012	1476	15.9 (15.1-16.8)	12.1 (11.5-12.7)	0.3 (0.2-0.4)	0.2 (0.1-0.3)	91.3 (88.1-94.2)
	2013-2017	1893	19.8 (18.9-20.6)	12.5 (11.9-13.0)	0.3 (0.2-0.4)	0.2 (0.1-0.3)	95.6 (93.2-97.9)
	2018-2022	2232	22.7 (21.7-23.6)	12.0 (11.5-12.5)	0.5 (0.4-0.7)	0.3 (0.2-0.4)	93.3 (91.0-95.4)
	2023	473	23.4 (21.3-25.5)	11.3 (10.2-12.4)	0.6 (0.3-0.9)	0.2 (0.1-0.4)	97.7 (92.5-102.3)
	2019-2023	**2268**	**22.9 (21.9-23.8)**	**11.7 (11.2-12.2)**	**0.6 (0.4-0.7)**	**0.3 (0.2-0.4)**	**93.8 (91.5-95.9)**

Site	Year	Number	CIR (95% CI)*	ASIR (95% CI)*	CMR (95% CI)*	ASMR (95% CI)*	ASRS (95% CI)
	1968-1972	77	1.5 (1.2-1.8)	2.4 (1.8-3.0)	0.4 (0.2-0.6)	0.7 (0.4-1.0)	
	1973-1977	100	1.9 (1.5-2.2)	2.7 (2.2-3.3)	0.9 (0.6-1.1)	1.4 (1.0-1.8)	25.7 (15.5-37.7)
	1978-1982	118	2.0 (1.7-2.4)	2.9 (2.3-3.4)	0.8 (0.6-1.1)	1.2 (0.9-1.6)	49.6 (33.8-65.7)
	1983-1987	161	2.6 (2.2-3.0)	3.4 (2.8-3.9)	1.1 (0.9-1.4)	1.5 (1.2-1.9)	32.1 (22.5-42.8)
	1988-1992	223	3.2 (2.8-3.7)	3.9 (3.4-4.4)	1.7 (1.4-2.1)	2.1 (1.7-2.5)	41.2 (32.6-50.1)
	1993-1997	366	4.8 (4.3-5.3)	5.3 (4.7-5.9)	2.0 (1.7-2.4)	2.3 (1.9-2.7)	35.7 (29.2-42.5)
Kidney	1998-2002	470	5.7 (5.2-6.3)	5.6 (5.1-6.1)	2.5 (2.1-2.8)	2.4 (2.1-2.8)	55.9 (50.1-61.6)
	2003-2007	645	7.5 (6.9-8.1)	6.4 (5.9-6.9)	2.6 (2.2-2.9)	2.2 (1.9-2.5)	59.0 (53.9-63.9)
	2008-2012	1010	10.9 (10.2-11.6)	8.2 (7.7-8.7)	3.7 (3.3-4.1)	2.7 (2.4-3.0)	61.5 (57.4-65.4)
	2013-2017	1453	15.2 (14.4-15.9)	9.8 (9.3-10.4)	5.0 (4.6-5.5)	3.1 (2.8-3.4)	62.3 (59.0-65.4)
	2018-2022	1848	18.8 (17.9-19.6)	10.8 (10.3-11.3)	5.2 (4.8-5.7)	2.8 (2.5-3.0)	66.3 (63.6-69.0)
	2023	375	18.5 (16.7-20.4)	10.0 (8.9-11.1)	5.4 (4.4-6.5)	2.4 (2.0-2.9)	63.6 (58.0-69.0)
	2019-2023	**1867**	**18.8 (18.0-19.7)**	**10.6 (10.1-11.1)**	**5.2 (4.8-5.7)**	**2.6 (2.4-2.9)**	**67.4 (64.8-70.0)**
	1968-1972	1099	21.4 (20.1-22.7)	37.9 (35.5-40.3)	14.9 (13.9-16.0)	26.2 (24.2-28.2)	
	1973-1977	1218	22.6 (21.3-23.8)	36.5 (34.4-38.7)	17.4 (16.3-18.5)	28.3 (26.4-30.2)	4.9 (3.6-6.4)
	1978-1982	1234	21.3 (20.1-22.5)	31.8 (30.0-33.6)	15.7 (14.7-16.7)	23.8 (22.2-25.4)	9.3 (7.5-11.4)
	1983-1987	1334	21.2 (20.1-22.4)	29.3 (27.7-30.9)	13.3 (12.4-14.2)	18.3 (17.1-19.6)	14.4 (12.3-16.8)
	1988-1992	1374	19.9 (18.9-21.0)	24.8 (23.5-26.1)	15.2 (14.3-16.1)	18.9 (17.8-20.1)	17.3 (15.0-19.8)
	1993-1997	1442	19.0 (18.1-20.0)	21.7 (20.5-22.8)	13.1 (12.3-13.9)	14.8 (13.9-15.8)	21.5 (18.9-24.2)
Stomach	1998-2002	1453	17.8 (16.8-18.7)	18.5 (17.5-19.4)	12.1 (11.3-12.8)	12.6 (11.8-13.4)	28.0 (25.4-30.6)
	2003-2007	1381	16.0 (15.2-16.9)	14.6 (13.8-15.4)	10.7 (10.0-11.4)	9.9 (9.2-10.5)	24.4 (21.9-27.1)
	2008-2012	1453	15.7 (14.9-16.5)	12.0 (11.4-12.7)	10.0 (9.3-10.6)	7.7 (7.2-8.3)	27.1 (24.5-29.8)
	2013-2017	1570	16.4 (15.6-17.2)	10.3 (9.8-10.8)	9.5 (8.8-10.1)	5.9 (5.5-6.3)	31.8 (29.1-34.5)
	2018-2022	1714	17.4 (16.6-18.2)	9.1 (8.6-9.5)	9.2 (8.6-9.8)	4.6 (4.3-4.9)	37.5 (34.8-40.1)
	2023	335	16.6 (14.8-18.3)	7.8 (7.0-8.7)	8.2 (6.9-9.4)	3.7 (3.1-4.2)	34.2 (28.7-39.9)
	2019-2023	**1713**	**17.3 (16.5-18.1)**	**8.7 (8.3-9.1)**	**9.0 (8.4-9.6)**	**4.4 (4.1-4.7)**	**37.5 (34.9-40.2)**
	1968-1972	93	1.8 (1.4-2.2)	3.1 (2.4-3.7)	1.0 (0.7-1.2)	1.7 (1.2-2.2)	
	1973-1977	112	2.1 (1.7-2.5)	3.3 (2.7-3.9)	1.3 (1.0-1.6)	2.0 (1.5-2.5)	3.3 (0.9-8.5)
	1978-1982	162	2.8 (2.4-3.2)	4.1 (3.4-4.7)	2.0 (1.7-2.4)	3.0 (2.5-3.6)	1.1 (0.3-3.1)
	1983-1987	224	3.6 (3.1-4.0)	4.8 (4.1-5.4)	2.8 (2.4-3.2)	3.8 (3.2-4.4)	2.9 (1.0-6.6)
	1988-1992	239	3.5 (3.0-3.9)	4.2 (3.7-4.7)	3.5 (3.0-3.9)	4.2 (3.6-4.7)	2.9 (1.1-6.2)
	1993-1997	310	4.1 (3.6-4.5)	4.7 (4.1-5.2)	3.8 (3.3-4.2)	4.2 (3.7-4.7)	3.8 (1.7-7.2)
Pancreas	1998-2002	410	5.0 (4.5-5.5)	5.1 (4.6-5.6)	5.0 (4.5-5.5)	5.2 (4.7-5.7)	4.7 (2.9-7.0)
	2003-2007	579	6.7 (6.2-7.3)	5.9 (5.4-6.4)	6.2 (5.7-6.7)	5.6 (5.1-6.0)	5.1 (3.4-7.5)
	2008-2012	748	8.1 (7.5-8.7)	6.2 (5.7-6.6)	7.3 (6.7-7.8)	5.6 (5.1-6.0)	5.7 (4.0-7.9)
	2013-2017	1068	11.1 (10.5-11.8)	6.9 (6.5-7.4)	9.2 (8.6-9.8)	5.7 (5.3-6.1)	11.1 (9.1-13.3)
	2018-2022	1481	15.0 (14.3-15.8)	7.9 (7.5-8.3)	12.3 (11.6-13.0)	6.4 (6.0-6.7)	13.5 (11.6-15.5)
	2023	376	18.6 (16.7-20.5)	8.8 (7.8-9.7)	14.4 (12.7-16.0)	6.8 (6.0-7.6)	8.9 (6.3-12.2)
	2019-2023	**1585**	**16.0 (15.2-16.8)**	**8.1 (7.7-8.5)**	**12.8 (12.0-13.5)**	**6.3 (6.0-6.7)**	**12.9 (11.2-14.8)**
	1968-1972	138	2.7 (2.2-3.1)	3.2 (2.6-3.8)	0.6 (0.4-0.8)	0.7 (0.5-1.0)	
	1973-1977	156	2.9 (2.4-3.3)	3.3 (2.8-3.9)	1.3 (1.0-1.6)	1.4 (1.0-1.7)	0.5 (0.1-2.2)
	1978-1982	151	2.6 (2.2-3.0)	3.1 (2.5-3.6)	1.2 (0.9-1.5)	1.4 (1.0-1.7)	3.8 (1.4-8.5)
	1983-1987	177	2.8 (2.4-3.2)	3.3 (2.8-3.8)	1.3 (1.0-1.5)	1.4 (1.1-1.8)	4.9 (1.8-10.5)
	1988-1992	232	3.4 (2.9-3.8)	3.7 (3.2-4.1)	2.2 (1.9-2.6)	2.4 (2.0-2.8)	3.2 (1.4-6.1)
	1993-1997	370	4.9 (4.4-5.4)	5.1 (4.6-5.7)	2.0 (1.7-2.3)	2.1 (1.7-2.4)	7.5 (4.4-11.8)
Myeloid neoplasms	1998-2002	439	5.4 (4.9-5.9)	5.3 (4.8-5.8)	2.2 (1.9-2.5)	2.2 (1.9-2.5)	13.4 (9.4-18.2)
	2003-2007	594	6.9 (6.3-7.5)	6.2 (5.7-6.7)	2.1 (1.8-2.5)	2.0 (1.7-2.3)	45.6 (40.0-51.2)
	2008-2012	933	10.1 (9.4-10.7)	8.0 (7.4-8.5)	2.9 (2.5-3.2)	2.2 (1.9-2.5)	51.7 (47.5-55.8)
	2013-2017	1270	13.3 (12.5-14.0)	9.0 (8.5-9.5)	3.1 (2.8-3.5)	2.2 (1.9-2.5)	46.9 (43.6-50.2)
	2018-2022	1558	15.8 (15.0-16.6)	9.3 (8.8-9.9)	3.5 (3.1-3.8)	1.9 (1.7-2.1)	48.6 (45.7-51.5)
	2023	323	16.0 (14.2-17.7)	8.8 (7.7-9.9)	3.2 (2.4-4.0)	1.5 (1.1-1.9)	43.3 (37.5-49.1)
	2019-2023	**1573**	**15.9 (15.1-16.7)**	**9.2 (8.7-9.7)**	**3.4 (3.1-3.8)**	**1.8 (1.6-2.0)**	**48.1 (45.2-50.9)**

* per 100,000 resident population

Females

Similar to trends observed in males, the most frequently diagnosed cancers among females also exhibited different patterns in ASIR and ASMR from 1968 to 2023. Nevertheless, there was a consistent overall increase in survival rates across all ten common cancers (Figure 3.1.2, Table 3.1.2).

There was an increase in the CIR and CMR of common cancers in females, with the exception of cervical cancer. Both its CIR and CMR declined from 1998-2002 onwards, maintaining a gradual downward trend. This aligns with the global pattern of decreasing cervical cancer incidence, particularly in countries with high development indices and low mortality (34). The CMRs for thyroid and non-melanoma skin cancers also remained low (within 1 per 100,000) and showed little change over the years.

For the most commonly diagnosed cancer in females, the ASIR for breast cancer rose nearly fourfold, from 20.1 per 100,000 in 1968-1972 to 78.7 per 100,000 in 2019-2023. Within the first three decades (1968-1972 to 1993-1997), the ASIR of breast cancer doubled to 43.6 per 100,000. In the more recent 20 years, the increase was less steep but remained on an upward trend. Similarly, GBD data reflect a rising ASIR for breast cancer in the high-income Asia-Pacific region[6], which more than doubled from 45.0 to 99.8 per 100,000 over the past 30 years (1994-2023) (20).

Other top ten cancers in females, such as uterine and ovarian cancers, also showed upward trends. In recent years, the ASIR of uterine cancer more than doubled, rising from 9.5 per 100,000 in 1998-2002 to 20.0 per 100,000 in 2019-2023. During the same period, the ASIR for ovarian cancer increased modestly, from 10.8 to 12.2 per 100,000.

In contrast to ASIR trends, ASMRs for most cancers either decreased or remained stable. The steepest declines in ASMR were observed in thyroid, lung, and cervical cancers. Since 2008-2012, ASMR for breast cancer declined from 14.2 to 11.7 per 100,000 in 2019-2023. However, both uterine and pancreatic cancers showed a notable increase in ASMR during this period. In 2019-2023, the ASMR was 1.9 per 100,000 for uterine cancer and 4.4 per 100,000 for pancreatic cancer.

As mortality rates are influenced by both incidence and survival, they should not be interpreted in isolation. Significant improvements were observed in survival outcomes for many common cancers. For instance, the five-year ASRS for breast cancer improved from 49.9% in 1973-1977 to 84.2% in 2019-2023. Similarly, the five-year ASRS for uterine cancer increased from 48.3% to 73.3% over the same period.

As with males, gains in survival were also noted for cancers with historically poorer outcomes. The five-year ASRS for lung cancer improved from 5.3% to 40.7%, while pancreatic cancer survival rose significantly from 0.7% to 15.2% between 1973-1977 and 2019-2023.

[6] GBD High-income Asia-Pacific region: Brunei Darussalam, Japan, South Korea, Singapore

Figure 3.1.2 Crude and age-standardised incidence rate (per 100,000 population), crude and age-standardised mortality rate (per 100,000 population) and five-year age-standardised relative survival rate (%) of selected cancers in females, 1968-2023

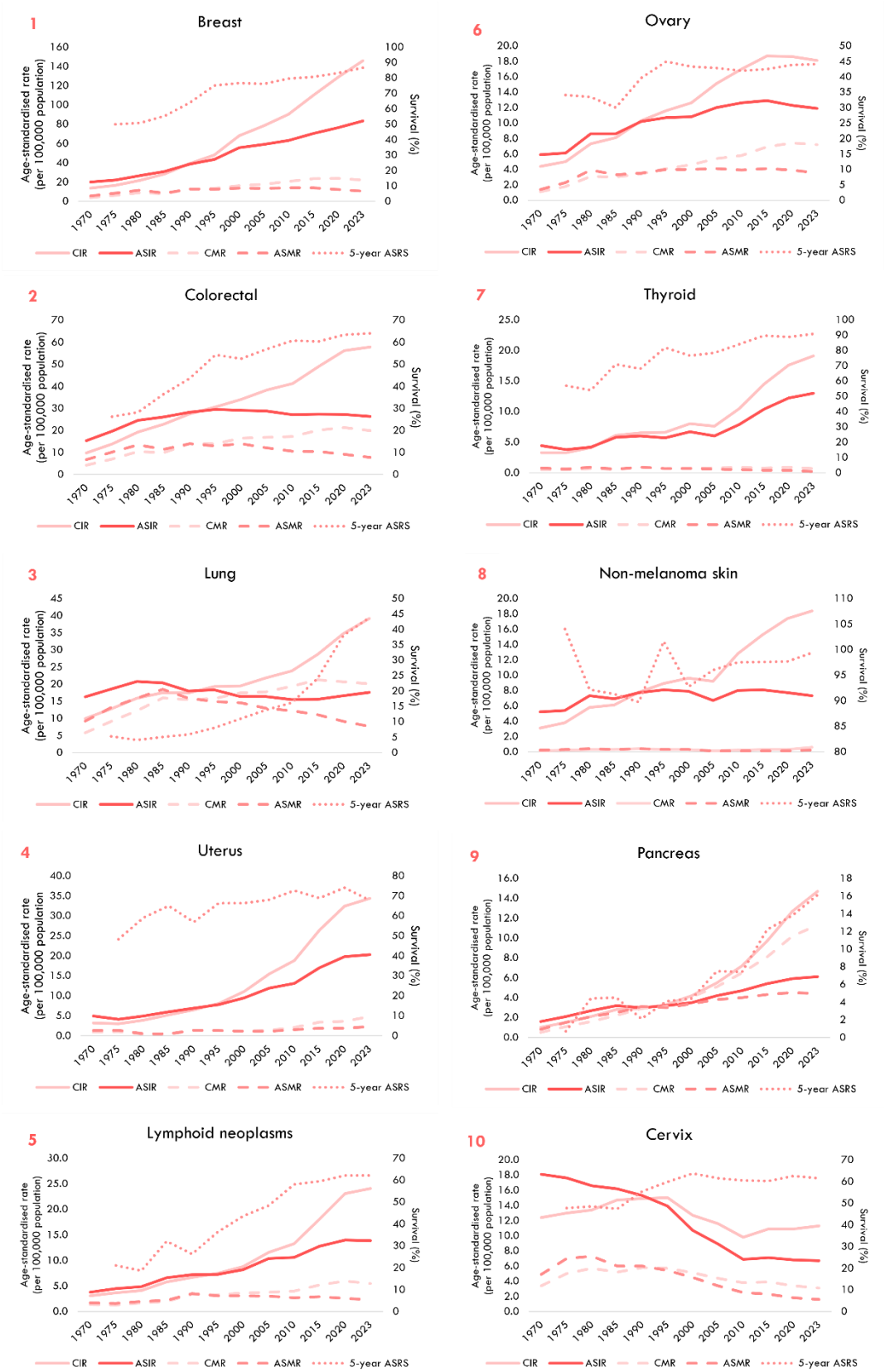


Table 3.1.2 Incidence number, crude and age-standardised incidence rate (per 100,000 population), crude and age-standardised mortality rate (per 100,000 population) and five-year age-standardised relative survival rate (%) of selected cancers in females, 1968-2023

Site	Year	Number	CIR (95% CI)*	ASIR (95% CI)*	CMR (95% CI)*	ASMR (95% CI)*	ASRS (95% CI)
Breast	1968-1972	673	13.7 (12.7-14.8)	20.1 (18.5-21.6)	3.9 (3.4-4.5)	5.7 (4.9-6.6)	
	1973-1977	863	16.6 (15.5-17.7)	22.1 (20.6-23.6)	6.2 (5.5-6.8)	8.5 (7.5-9.4)	49.9 (45.2-54.6)
	1978-1982	1239	22.0 (20.8-23.3)	26.9 (25.4-28.4)	9.2 (8.4-10.0)	11.6 (10.6-12.6)	50.8 (46.7-54.9)
	1983-1987	1740	28.5 (27.1-29.8)	31.2 (29.7-32.7)	7.9 (7.2-8.6)	8.6 (7.8-9.4)	55.4 (52.0-58.8)
	1988-1992	2637	39.2 (37.7-40.7)	38.6 (37.1-40.2)	12.6 (11.8-13.4)	12.9 (12.0-13.8)	63.8 (61.2-66.3)
	1993-1997	3612	48.2 (46.6-49.8)	43.6 (42.2-45.1)	13.5 (12.6-14.3)	12.6 (11.8-13.3)	75.0 (72.9-77.0)
	1998-2002	5588	68.1 (66.3-69.9)	55.7 (54.2-57.2)	16.4 (15.5-17.3)	13.9 (13.1-14.7)	76.6 (75.0-78.1)
	2003-2007	6869	78.6 (76.7-80.4)	59.0 (57.6-60.5)	17.9 (17.0-18.8)	13.6 (12.9-14.3)	76.1 (74.8-77.4)
	2008-2012	8577	90.3 (88.4-92.2)	63.1 (61.7-64.4)	20.8 (19.9-21.8)	14.2 (13.6-14.9)	79.5 (78.3-80.5)
	2013-2017	10936	110.1 (108.0-112.2)	70.5 (69.2-71.9)	23.5 (22.6-24.5)	14.0 (13.5-14.6)	80.7 (79.8-81.6)
	2018-2022	13242	128.8 (126.6-131.0)	76.5 (75.2-77.9)	23.8 (22.9-24.8)	12.4 (11.8-12.9)	83.2 (82.4-84.0)
	2023	3104	145.9 (140.8-151.0)	83.3 (80.2-86.3)	22.1 (20.1-24.1)	10.5 (9.5-11.5)	86.6 (84.9-88.2)
	2019-2023	**13935**	**134.4 (132.2-136.6)**	**78.7 (77.4-80.1)**	**23.4 (22.5-24.3)**	**11.7 (11.3-12.2)**	**84.2 (83.4-84.9)**
Colorectal	1968-1972	479	9.8 (8.9-10.7)	15.4 (14.0-16.8)	4.2 (3.7-4.8)	6.7 (5.7-7.6)	
	1973-1977	715	13.8 (12.7-14.8)	19.6 (18.1-21.1)	7.0 (6.3-7.7)	10.1 (9.0-11.1)	26.2 (21.9-30.8)
	1978-1982	1085	19.3 (18.1-20.4)	24.6 (23.2-26.1)	10.4 (9.6-11.3)	13.4 (12.3-14.5)	28.3 (24.8-32.0)
	1983-1987	1392	22.8 (21.6-24.0)	26.1 (24.7-27.5)	9.9 (9.1-10.7)	11.4 (10.4-12.3)	36.4 (33.1-39.8)
	1988-1992	1848	27.5 (26.2-28.7)	28.2 (26.9-29.5)	14.0 (13.1-14.9)	14.0 (13.1-14.9)	43.6 (40.6-46.6)
	1993-1997	2302	30.7 (29.5-32.0)	29.5 (28.3-30.7)	14.0 (13.2-14.9)	13.0 (12.2-13.8)	54.3 (51.6-57.0)
	1998-2002	2796	34.1 (32.8-35.3)	29.1 (28.0-30.3)	16.5 (15.6-17.4)	13.9 (13.1-14.6)	52.5 (50.3-54.8)
	2003-2007	3351	38.3 (37.0-39.6)	28.8 (27.8-29.8)	16.8 (15.9-17.6)	12.0 (11.4-12.7)	57.0 (54.9-59.0)
	2008-2012	3923	41.3 (40.0-42.6)	27.1 (26.2-27.9)	17.2 (16.4-18.0)	10.5 (10.0-11.1)	60.7 (58.8-62.5)
	2013-2017	4863	49.0 (47.6-50.3)	27.4 (26.6-28.2)	20.2 (19.3-21.1)	10.4 (9.9-10.9)	60.4 (58.7-62.0)
	2018-2022	5772	56.2 (54.7-57.6)	27.2 (26.4-27.9)	21.3 (20.4-22.2)	9.2 (8.8-9.6)	63.4 (61.9-64.9)
	2023	1231	57.9 (54.6-61.1)	26.3 (24.7-27.9)	19.9 (18.0-21.8)	7.8 (7.0-8.6)	64.0 (60.7-67.2)
	2019-2023	**5849**	**56.4 (55.0-57.9)**	**26.6 (25.9-27.4)**	**20.9 (20.0-21.7)**	**8.7 (8.3-9.1)**	**64.6 (63.1-66.1)**
Lung	1968-1972	492	10.0 (9.2-10.9)	16.3 (14.8-17.8)	5.8 (5.1-6.4)	9.2 (8.1-10.2)	
	1973-1977	664	12.8 (11.8-13.7)	18.6 (17.1-20.0)	9.1 (8.3-9.9)	13.2 (12.0-14.4)	5.3 (3.6-7.4)
	1978-1982	893	15.9 (14.8-16.9)	20.8 (19.4-22.2)	12.2 (11.3-13.1)	15.9 (14.7-17.1)	4.1 (2.8-5.8)
	1983-1987	1072	17.5 (16.5-18.6)	20.4 (19.2-21.6)	16.0 (15.0-17.0)	18.5 (17.3-19.7)	5.1 (3.7-6.7)
	1988-1992	1174	17.4 (16.4-18.4)	18.0 (16.9-19.1)	15.5 (14.6-16.5)	15.9 (14.9-16.9)	5.9 (4.5-7.6)
	1993-1997	1444	19.3 (18.3-20.3)	18.3 (17.3-19.2)	15.8 (14.9-16.7)	14.9 (14.0-15.7)	8.1 (6.5-9.9)
	1998-2002	1602	19.5 (18.6-20.5)	16.4 (15.6-17.2)	17.4 (16.5-18.3)	14.6 (13.8-15.4)	11.0 (9.4-12.7)
	2003-2007	1907	21.8 (20.8-22.8)	16.4 (15.6-17.1)	17.8 (16.9-18.7)	13.0 (12.3-13.7)	13.9 (12.1-15.8)
	2008-2012	2266	23.9 (22.9-24.8)	15.5 (14.8-16.1)	19.4 (18.5-20.3)	12.2 (11.7-12.8)	16.2 (14.5-18.0)
	2013-2017	2847	28.7 (27.6-29.7)	15.6 (15.0-16.2)	21.3 (20.4-22.2)	11.1 (10.6-11.6)	24.1 (22.2-26.0)
	2018-2022	3574	34.8 (33.6-35.9)	16.6 (16.0-17.2)	20.7 (19.8-21.6)	9.1 (8.7-9.5)	38.0 (36.1-39.9)
	2023	833	39.2 (36.5-41.8)	17.6 (16.3-18.9)	20.1 (18.2-22.0)	7.7 (6.9-8.5)	43.8 (39.9-47.8)
	2019-2023	**3794**	**36.6 (35.4-37.8)**	**17.1 (16.5-17.7)**	**20.8 (19.9-21.7)**	**8.8 (8.4-9.2)**	**40.7 (38.9-42.6)**

Site	Year	Number	CIR (95% CI)*	ASIR (95% CI)*	CMR (95% CI)*	ASMR (95% CI)*	ASRS (95% CI)
Uterus	1968-1972	159	3.2 (2.7-3.8)	4.9 (4.1-5.7)	0.9 (0.6-1.1)	1.3 (0.9-1.7)	
	1973-1977	154	3.0 (2.5-3.4)	4.1 (3.5-4.8)	1.0 (0.7-1.2)	1.4 (1.0-1.8)	48.3 (37.8-58.7)
	1978-1982	217	3.9 (3.3-4.4)	4.9 (4.3-5.6)	0.4 (0.3-0.6)	0.5 (0.3-0.8)	59.1 (49.7-68.1)
	1983-1987	315	5.2 (4.6-5.7)	6.0 (5.3-6.7)	0.4 (0.3-0.6)	0.5 (0.3-0.7)	64.9 (57.2-72.1)
	1988-1992	438	6.5 (5.9-7.1)	6.9 (6.2-7.5)	1.3 (1.0-1.5)	1.4 (1.1-1.6)	56.9 (51.3-62.3)
	1993-1997	609	8.1 (7.5-8.8)	7.8 (7.2-8.4)	1.3 (1.0-1.6)	1.3 (1.1-1.6)	66.3 (61.3-71.0)
	1998-2002	909	11.1 (10.4-11.8)	9.5 (8.9-10.1)	1.2 (1.0-1.5)	1.1 (0.9-1.3)	66.4 (62.6-70.0)
	2003-2007	1359	15.5 (14.7-16.4)	11.9 (11.3-12.6)	1.4 (1.1-1.6)	1.1 (0.9-1.3)	68.0 (64.9-70.9)
	2008-2012	1788	18.8 (18.0-19.7)	13.1 (12.5-13.7)	2.1 (1.8-2.4)	1.5 (1.3-1.7)	72.7 (70.2-75.1)
	2013-2017	2624	26.4 (25.4-27.4)	17.0 (16.3-17.7)	3.4 (3.0-3.7)	1.9 (1.7-2.1)	68.9 (66.8-70.8)
	2018-2022	3327	32.4 (31.3-33.5)	19.8 (19.1-20.5)	3.6 (3.3-4.0)	1.9 (1.7-2.1)	74.0 (72.3-75.6)
	2023	732	34.4 (31.9-36.9)	20.3 (18.8-21.8)	4.8 (3.9-5.8)	2.3 (1.8-2.8)	67.7 (64.3-70.9)
	2019-2023	**3424**	**33.0 (31.9-34.1)**	**20.0 (19.3-20.7)**	**3.8 (3.5-4.2)**	**1.9 (1.7-2.1)**	**73.3 (71.6-74.9)**
Lymphoid neoplasms	1968-1972	153	3.1 (2.6-3.6)	3.8 (3.1-4.4)	1.4 (1.1-1.8)	1.7 (1.3-2.2)	
	1973-1977	191	3.7 (3.2-4.2)	4.5 (3.8-5.2)	1.3 (1.0-1.6)	1.6 (1.2-2.0)	21.0 (12.1-32.0)
	1978-1982	232	4.1 (3.6-4.7)	4.9 (4.3-5.6)	1.7 (1.3-2.0)	2.0 (1.6-2.4)	18.6 (12.5-25.8)
	1983-1987	355	5.8 (5.2-6.4)	6.6 (5.9-7.3)	2.0 (1.7-2.4)	2.2 (1.8-2.6)	32.1 (25.6-39.0)
	1988-1992	453	6.7 (6.1-7.4)	7.2 (6.5-7.9)	3.4 (2.9-3.8)	3.5 (3.0-4.0)	26.3 (21.5-31.5)
	1993-1997	559	7.5 (6.8-8.1)	7.3 (6.6-7.9)	3.3 (2.8-3.7)	3.1 (2.7-3.5)	36.3 (31.3-41.3)
	1998-2002	724	8.8 (8.2-9.5)	8.2 (7.6-8.9)	3.6 (3.2-4.0)	3.1 (2.7-3.5)	43.6 (39.3-47.8)
	2003-2007	1014	11.6 (10.9-12.3)	10.4 (9.7-11.0)	3.8 (3.4-4.2)	3.0 (2.7-3.4)	48.4 (44.6-52.1)
	2008-2012	1262	13.3 (12.6-14.0)	10.6 (9.9-11.2)	4.0 (3.6-4.4)	2.7 (2.4-3.0)	58.1 (54.9-61.2)
	2013-2017	1802	18.1 (17.3-19.0)	12.8 (12.1-13.5)	5.2 (4.8-5.7)	2.9 (2.6-3.1)	59.5 (56.7-62.2)
	2018-2022	2370	23.1 (22.1-24.0)	14.0 (13.4-14.7)	6.0 (5.5-6.4)	2.6 (2.4-2.9)	62.1 (59.7-64.4)
	2023	513	24.1 (22.0-26.2)	13.9 (12.4-15.4)	5.5 (4.5-6.5)	2.3 (1.7-2.9)	62.2 (57.4-66.8)
	2019-2023	**2463**	**23.8 (22.8-24.7)**	**14.3 (13.6-14.9)**	**5.8 (5.4-6.3)**	**2.5 (2.2-2.7)**	**63.0 (60.7-65.3)**
Ovary	1968-1972	217	4.4 (3.8-5.0)	5.9 (5.1-6.7)	1.1 (0.8-1.4)	1.4 (1.0-1.8)	
	1973-1977	258	5.0 (4.4-5.6)	6.1 (5.4-6.9)	1.8 (1.4-2.1)	2.3 (1.8-2.7)	34.1 (26.8-41.6)
	1978-1982	410	7.3 (6.6-8.0)	8.6 (7.7-9.4)	3.1 (2.6-3.5)	3.9 (3.3-4.4)	33.4 (27.6-39.4)
	1983-1987	497	8.1 (7.4-8.8)	8.6 (7.9-9.4)	3.0 (2.5-3.4)	3.3 (2.8-3.8)	30.0 (25.0-35.2)
	1988-1992	692	10.3 (9.5-11.0)	10.2 (9.4-11.0)	3.4 (3.0-3.9)	3.5 (3.1-4.0)	39.6 (34.9-44.2)
	1993-1997	867	11.6 (10.8-12.3)	10.7 (9.9-11.4)	4.1 (3.6-4.5)	4.0 (3.6-4.5)	44.9 (40.9-48.9)
	1998-2002	1036	12.6 (11.9-13.4)	10.8 (10.1-11.5)	4.6 (4.2-5.1)	4.0 (3.6-4.5)	43.3 (40.1-46.5)
	2003-2007	1321	15.1 (14.3-15.9)	12.0 (11.3-12.6)	5.4 (4.9-5.9)	4.1 (3.7-4.5)	42.8 (39.9-45.7)
	2008-2012	1615	17.0 (16.2-17.8)	12.6 (12.0-13.2)	5.8 (5.4-6.3)	3.9 (3.5-4.2)	41.9 (39.3-44.5)
	2013-2017	1853	18.7 (17.8-19.5)	12.9 (12.3-13.5)	6.9 (6.4-7.4)	4.1 (3.8-4.4)	42.5 (40.1-44.8)
	2018-2022	1907	18.6 (17.7-19.4)	12.3 (11.7-12.9)	7.4 (6.9-8.0)	3.9 (3.6-4.2)	43.8 (41.6-46.0)
	2023	386	18.1 (16.3-20.0)	11.9 (10.5-13.2)	7.2 (6.1-8.4)	3.5 (3.0-4.1)	44.1 (39.8-48.3)
	2019-2023	**1899**	**18.3 (17.5-19.1)**	**12.2 (11.6-12.8)**	**7.6 (7.0-8.1)**	**3.9 (3.6-4.2)**	**45.3 (43.1-47.6)**

Site	Year	Number	CIR (95% CI)*	ASIR (95% CI)*	CMR (95% CI)*	ASMR (95% CI)*	ASRS (95% CI)
	1968-1972	164	3.3 (2.8-3.9)	4.4 (3.7-5.1)	0.5 (0.3-0.7)	0.8 (0.5-1.1)	
	1973-1977	170	3.3 (2.8-3.8)	3.8 (3.2-4.4)	0.5 (0.3-0.6)	0.6 (0.4-0.9)	56.9 (46.8-66.3)
	1978-1982	228	4.1 (3.5-4.6)	4.2 (3.6-4.8)	0.7 (0.5-0.9)	0.9 (0.6-1.2)	53.9 (45.9-61.6)
	1983-1987	372	6.1 (5.5-6.7)	5.8 (5.2-6.4)	0.5 (0.3-0.7)	0.6 (0.4-0.8)	70.9 (64.8-76.5)
	1988-1992	438	6.5 (5.9-7.1)	6.0 (5.4-6.6)	0.9 (0.7-1.1)	0.9 (0.7-1.2)	67.9 (62.9-72.5)
	1993-1997	494	6.6 (6.0-7.2)	5.7 (5.2-6.3)	0.7 (0.5-0.9)	0.7 (0.5-0.9)	81.9 (77.5-85.8)
Thyroid	1998-2002	658	8.0 (7.4-8.6)	6.7 (6.2-7.2)	0.8 (0.6-1.0)	0.7 (0.6-0.9)	76.6 (72.8-80.1)
	2003-2007	666	7.6 (7.0-8.2)	6.0 (5.5-6.5)	0.8 (0.6-1.0)	0.6 (0.5-0.8)	78.4 (75.0-81.6)
	2008-2012	995	10.5 (9.8-11.1)	7.9 (7.4-8.4)	0.9 (0.7-1.0)	0.5 (0.4-0.6)	84.0 (81.3-86.4)
	2013-2017	1444	14.5 (13.8-15.3)	10.4 (9.9-11.0)	0.8 (0.6-1.0)	0.4 (0.3-0.5)	89.7 (87.6-91.5)
	2018-2022	1805	17.6 (16.8-18.4)	12.2 (11.6-12.8)	0.9 (0.7-1.1)	0.4 (0.3-0.5)	88.8 (86.9-90.4)
	2023	406	19.1 (17.2-20.9)	13.0 (11.7-14.4)	0.7 (0.3-1.0)	0.2 (0.1-0.4)	90.7 (86.8-93.8)
	2019-2023	**1886**	**18.2 (17.4-19.0)**	**12.6 (12.0-13.2)**	**0.9 (0.7-1.1)**	**0.4 (0.3-0.4)**	**89.8 (88.0-91.4)**
	1968-1972	154	3.1 (2.6-3.6)	5.2 (4.4-6.0)	0.1 (0.0-0.2)	0.2 (0.1-0.4)	
	1973-1977	198	3.8 (3.3-4.3)	5.4 (4.7-6.2)	0.2 (0.1-0.3)	0.3 (0.1-0.5)	104.0 (93.6-112.1)
	1978-1982	328	5.8 (5.2-6.5)	7.3 (6.5-8.1)	0.3 (0.1-0.4)	0.4 (0.2-0.5)	92.2 (83.3-99.9)
	1983-1987	375	6.1 (5.5-6.8)	6.9 (6.2-7.6)	0.3 (0.2-0.4)	0.3 (0.2-0.4)	91.3 (83.7-98.0)
	1988-1992	526	7.8 (7.1-8.5)	7.7 (7.0-8.3)	0.4 (0.2-0.5)	0.4 (0.2-0.5)	89.7 (83.7-94.9)
	1993-1997	666	8.9 (8.2-9.6)	8.1 (7.5-8.7)	0.3 (0.2-0.5)	0.3 (0.2-0.4)	101.6 (96.8-105.8)
Non-melanoma skin	1998-2002	790	9.6 (9.0-10.3)	7.9 (7.4-8.5)	0.3 (0.2-0.5)	0.3 (0.2-0.4)	92.7 (88.7-96.2)
	2003-2007	803	9.2 (8.6-9.8)	6.7 (6.2-7.2)	0.1 (0.1-0.2)	0.1 (0.0-0.1)	96.0 (92.2-99.5)
	2008-2012	1219	12.8 (12.1-13.6)	8.0 (7.5-8.5)	0.2 (0.1-0.3)	0.1 (0.1-0.1)	97.5 (94.4-100.3)
	2013-2017	1522	15.3 (14.6-16.1)	8.1 (7.6-8.5)	0.3 (0.2-0.4)	0.1 (0.1-0.2)	97.6 (95.0-100.0)
	2018-2022	1784	17.4 (16.6-18.2)	7.7 (7.3-8.0)	0.3 (0.2-0.4)	0.1 (0.1-0.1)	97.7 (95.3-99.8)
	2023	392	18.4 (16.6-20.3)	7.3 (6.5-8.0)	0.6 (0.3-0.9)	0.2 (0.1-0.3)	99.4 (93.7-104.1)
	2019-2023	**1842**	**17.8 (17.0-18.6)**	**7.6 (7.2-8.0)**	**0.3 (0.2-0.4)**	**0.1 (0.1-0.2)**	**97.3 (95.0-99.5)**
	1968-1972	50	1.0 (0.7-1.3)	1.6 (1.2-2.1)	0.5 (0.3-0.7)	0.8 (0.4-1.1)	
	1973-1977	78	1.5 (1.2-1.8)	2.1 (1.6-2.6)	1.1 (0.8-1.3)	1.5 (1.1-1.9)	0.7 (0.1-3.7)
	1978-1982	116	2.1 (1.7-2.4)	2.7 (2.2-3.2)	1.6 (1.3-1.9)	2.1 (1.6-2.5)	4.4 (1.8-9.0)
	1983-1987	174	2.8 (2.4-3.3)	3.2 (2.7-3.7)	2.2 (1.9-2.6)	2.5 (2.1-2.9)	4.5 (1.9-8.9)
	1988-1992	193	2.9 (2.5-3.3)	3.0 (2.6-3.4)	2.9 (2.5-3.4)	3.1 (2.6-3.5)	2.1 (0.8-4.7)
	1993-1997	244	3.3 (2.8-3.7)	3.2 (2.8-3.6)	3.1 (2.7-3.5)	3.0 (2.6-3.4)	4.1 (2.1-7.1)
Pancreas	1998-2002	345	4.2 (3.8-4.6)	3.5 (3.2-3.9)	4.1 (3.7-4.6)	3.4 (3.1-3.8)	4.4 (2.5-7.0)
	2003-2007	484	5.5 (5.0-6.0)	4.2 (3.8-4.5)	5.1 (4.6-5.6)	3.8 (3.4-4.2)	7.5 (5.1-10.5)
	2008-2012	680	7.2 (6.6-7.7)	4.7 (4.3-5.0)	6.5 (5.9-7.0)	4.0 (3.7-4.3)	7.4 (5.3-9.9)
	2013-2017	965	9.7 (9.1-10.3)	5.4 (5.1-5.8)	8.1 (7.5-8.6)	4.3 (4.0-4.7)	12.2 (9.9-14.8)
	2018-2022	1304	12.7 (12.0-13.4)	5.9 (5.6-6.2)	10.2 (9.6-10.8)	4.5 (4.2-4.8)	13.8 (11.7-15.9)
	2023	313	14.7 (13.1-16.3)	6.1 (5.4-6.8)	11.3 (9.9-12.8)	4.4 (3.8-5.0)	16.1 (11.9-21.0)
	2019-2023	**1398**	**13.5 (12.8-14.2)**	**6.0 (5.7-6.4)**	**10.6 (9.9-11.2)**	**4.4 (4.2-4.7)**	**15.2 (13.2-17.4)**
	1968-1972	605	12.4 (11.4-13.3)	18.1 (16.6-19.5)	3.4 (2.9-3.9)	4.9 (4.2-5.7)	
	1973-1977	676	13.0 (12.0-14.0)	17.6 (16.3-18.9)	5.0 (4.4-5.6)	7.0 (6.2-7.9)	47.8 (43.2-52.3)
	1978-1982	752	13.4 (12.4-14.3)	16.6 (15.4-17.8)	5.7 (5.1-6.3)	7.3 (6.5-8.1)	48.5 (44.2-52.7)
	1983-1987	899	14.7 (13.7-15.7)	16.2 (15.2-17.3)	5.2 (4.6-5.7)	6.0 (5.4-6.7)	47.4 (43.4-51.3)
	1988-1992	1002	14.9 (14.0-15.8)	15.3 (14.3-16.2)	5.8 (5.3-6.4)	6.0 (5.4-6.6)	55.5 (52.0-58.9)
	1993-1997	1128	15.0 (14.2-15.9)	13.9 (13.0-14.7)	5.7 (5.1-6.2)	5.4 (4.9-6.0)	59.9 (56.6-63.0)
Cervix	1998-2002	1041	12.7 (11.9-13.5)	10.7 (10.1-11.4)	5.1 (4.6-5.6)	4.5 (4.0-4.9)	63.7 (60.6-66.7)
	2003-2007	1015	11.6 (10.9-12.3)	8.9 (8.3-9.5)	4.4 (3.9-4.8)	3.4 (3.1-3.8)	61.5 (58.3-64.5)
	2008-2012	929	9.8 (9.2-10.4)	6.9 (6.4-7.3)	3.8 (3.4-4.2)	2.5 (2.2-2.8)	60.5 (57.3-63.6)
	2013-2017	1087	10.9 (10.3-11.6)	7.1 (6.7-7.6)	3.9 (3.5-4.3)	2.3 (2.1-2.6)	60.3 (57.3-63.3)
	2018-2022	1124	10.9 (10.3-11.6)	6.8 (6.4-7.3)	3.4 (3.0-3.7)	1.8 (1.6-2.0)	62.5 (59.6-65.3)
	2023	240	11.3 (9.9-12.7)	6.7 (5.8-7.6)	3.1 (2.4-3.9)	1.6 (1.2-2.0)	61.5 (55.2-67.4)
	2019-2023	**1146**	**11.1 (10.4-11.7)**	**6.9 (6.5-7.3)**	**3.3 (3.0-3.7)**	**1.8 (1.6-1.9)**	**62.4 (59.5-65.2)**

* per 100,000 resident population

3.2 Stage distribution for selected cancers, 2003-2023

The SCR began comprehensive collection of cancer staging information in 2003. According to the AJCC 6th and 7th editions, from 2003-2007 to 2013-2017, many commonly diagnosed cancers showed a shift towards earlier-stage diagnoses (Stages I-II)[7]. The shift was more prominent among males compared to females (Table 3.2.1, Table 3.2.2).

Males

Between 2003 and 2017, liver, pancreatic, and prostate cancers showed the largest changes in the proportion of early-stage (stages I and II) compared with late-stage (stages III and IV) diagnoses among males. The proportion of early-stage liver cancer increased from 23.8% in 2003-2007 to 44.6% in 2013-2017, while early-stage pancreatic cancer diagnoses rose from 16.5% to 30.8%. This was comparable to 45.1% of liver cancer diagnoses in men in China in 2017 that were early stage, but lower than the 53.7% recorded in the USA (35). In contrast, prostate cancer saw a decline in early-stage diagnoses, from 63.5% to 51.7% over the same period (Table 3.2.1).

In the most recent five-year period (2019-2023), prostate (45.2%), liver (51.5%), and kidney (54.4%) cancers had the highest proportions of early-stage diagnoses among the most commonly diagnosed cancers in males. Conversely, lung (77.7%), pancreatic (74.1%), and stomach (62.2%) continued to have the highest proportions of late-stage diagnoses in males (Figure 3.2.1). This pattern was also observed across earlier years. The proportion of late-stage lung cancer diagnoses was similar to that in men in the USA (77% in 2015-2019) (35) and in China (72.7% in 2016-2017) (35), where late-stage diagnoses have been linked to smoking.

Females

Among females, the most significant shifts in the proportion of early- and late-stage diagnoses occurred in lung and pancreatic cancers. The proportion of lung cancers diagnosed at Stages I and II increased from 13.8% in 2003-2007 to 23.2% in 2013-2017. This mirrors trends in the USA, where detection of localised-stage lung cancer increased more for women than in men during the same period—likely due to higher screening adherence in women (36). Similarly, early-stage pancreatic cancer diagnoses nearly doubled, rising from 16.4% to 31.2%. In contrast, cervical cancer saw a decline in early-stage diagnoses, from 72.0% in 2003-2007 to 64.8% in 2013-2017 (Table 3.2.2).

While the proportion of early-stage diagnoses for pancreatic and lung cancers in females increased, these cancers still had the highest proportions of late-stage diagnoses in both 2013-2017 (AJCC 7) and 2019-2023 (AJCC 8). In 2019-2023, 71.8% of pancreatic cancers and 68.9% of lung cancers in females were diagnosed at late stage—similar to patterns observed in males.

In contrast, thyroid (8.4%), breast (23.4%), and uterine (27.5%) cancers had the lowest proportions of late-stage diagnoses. The higher proportion of early-stage diagnoses in thyroid cancer may partly explain its consistently low mortality rate among the top cancers (Table 3.1.2).

In 2019-2023, for cancers common to both sexes, such as colorectal, lung, and pancreatic cancers, females were slightly more likely to be diagnosed at earlier stages compared to males.

[7] The AJCC 6 & 7 are based on anatomic staging and are thus relatively comparable. In contrast, AJCC 8 is based on prognostic staging and is therefore not comparable to the AJCC 6 & 7 systems.

Table 3.2.1 Stage distribution (%) of selected cancers in males, 2003-2023^
The highest proportion is in bold.

	2003-2007 (AJCC 6)				2008-2012 (AJCC 6 & 7)				2013-2017 (AJCC 7)			
	Stage I	Stage II	Stage III	Stage IV	Stage I	Stage II	Stage III	Stage IV	Stage I	Stage II	Stage III	Stage IV
Prostate	1.0	**62.5**	11.4	25.0	10.0	**53.6**	9.8	26.7	15.4	**36.3**	16.6	31.7
Colorectal	12.5	27.9	**36.6**	23.0	16.0	27.0	**33.1**	23.9	18.1	24.7	**32.8**	24.4
Lung	9.7	4.6	26.8	**58.9**	9.2	4.9	24.0	**61.9**	11.0	4.9	18.4	**65.7**
Liver	11.4	12.4	32.5	**43.7**	22.7	19.4	**30.4**	27.4	26.8	17.8	**28.6**	26.8
Non-melanoma skin	**81.3**	7.5	7.5	3.8	**76.7**	18.2	2.3	2.8	**75.7**	21.2	1.2	1.9
Kidney	**38.9**	10.1	19.2	31.7	**43.4**	11.2	16.4	28.9	**50.4**	8.1	16.5	25.1
Stomach	17.3	11.0	17.9	**53.8**	17.2	11.3	24.8	**46.8**	22.0	12.3	23.2	**42.5**
Pancreas	2.9	13.6	8.9	**74.5**	5.7	15.4	14.0	**64.9**	8.3	22.5	11.7	**57.5**

	2018-2022 (AJCC 8)				2019-2023 (AJCC 8)			
	Stage I	Stage II	Stage III	Stage IV	Stage I	Stage II	Stage III	Stage IV
Prostate	14.9	29.2	25.7	**30.2**	14.6	**30.6**	25.4	29.4
Colorectal	19.6	21.5	**33.3**	25.6	20.1	21.3	**33.0**	25.6
Lung	16.1	5.3	17.3	**61.3**	17.2	5.2	17.4	**60.3**
Liver	**36.2**	14.7	24.5	24.6	**36.0**	15.5	24.1	24.4
Non-melanoma skin*								
Kidney	**48.3**	6.1	18.1	27.5	**48.1**	6.3	17.6	28.0
Stomach	26.8	10.4	20.3	**42.6**	27.1	10.8	18.9	**43.3**
Pancreas	12.6	13.4	16.5	**57.5**	12.8	13.0	17.0	**57.1**

Table 3.2.2 Stage distribution (%) of selected cancers in females, 2003-2023^
The highest proportion is in bold.

	2003-2007 (AJCC 6)				2008-2012 (AJCC 6 & 7)				2013-2017 (AJCC 7)			
	Stage I	Stage II	Stage III	Stage IV	Stage I	Stage II	Stage III	Stage IV	Stage I	Stage II	Stage III	Stage IV
Breast	33.0	**37.9**	20.4	8.6	33.0	**38.3**	19.0	9.7	33.6	**39.0**	16.8	10.7
Colorectal	12.5	29.4	**36.2**	21.9	14.5	26.0	**34.7**	24.7	16.9	23.8	**34.0**	25.3
Lung	10.6	3.2	23.2	**63.0**	13.2	3.0	15.5	**68.3**	18.1	5.1	10.1	**66.7**
Uterus	**66.4**	9.1	16.2	8.2	**67.2**	8.5	14.5	9.8	**68.3**	6.6	14.4	10.7
Ovary	**41.9**	10.3	31.5	16.3	**36.6**	9.5	35.6	18.4	**40.8**	9.6	31.8	17.8
Thyroid	**46.3**	15.6	12.6	25.5	**62.3**	8.9	13.8	15.1	**57.6**	6.0	21.8	14.6
Non-melanoma skin	**84.2**	11.3	4.5	0.0	**82.6**	16.1	0.9	0.4	**81.1**	16.5	0.4	2.0
Pancreas	4.8	11.6	12.9	**70.7**	7.5	17.6	14.6	**60.4**	8.8	22.4	14.0	**54.7**
Cervix	**46.0**	26.0	18.6	9.4	**44.6**	25.8	15.1	14.6	**41.9**	22.9	18.9	16.4

	2018-2022 (AJCC 8)				2019-2023 (AJCC 8 & Version 9)			
	Stage I	Stage II	Stage III	Stage IV	Stage I	Stage II	Stage III	Stage IV
Breast	**55.8**	20.6	12.7	10.8	**56.3**	20.3	12.6	10.8
Colorectal	19.2	23.7	**30.6**	26.5	19.4	23.8	**30.9**	25.9
Lung	24.9	4.6	9.6	**60.8**	26.7	4.4	9.3	**59.6**
Uterus	**66.0**	6.4	14.9	12.7	**65.9**	6.6	14.5	13.0
Ovary	**48.2**	7.6	24.5	19.7	**46.7**	8.6	23.8	20.9
Thyroid	**77.8**	13.7	2.4	6.1	**78.8**	12.8	2.1	6.3
Non-melanoma skin*								
Pancreas	13.6	15.6	17.6	**53.2**	14.2	14.0	17.3	**54.5**
Cervix#	**35.9**	24.6	20.7	18.8	**34.8**	21.6	22.9	20.7

^ TNM staging is only available for some lymphoid and myeloid neoplasms
* Under the AJCC 8 staging system, only non-melanoma of the head & neck and trunk are staged; therefore, staging information for non-melanoma skin in 2018-2022 is omitted
# Cervical cancer staging has been based on the AJCC Version 9 staging system since 2021.

Figure 3.2.1 Stage distribution (%) of selected cancers in males, 2019-2023

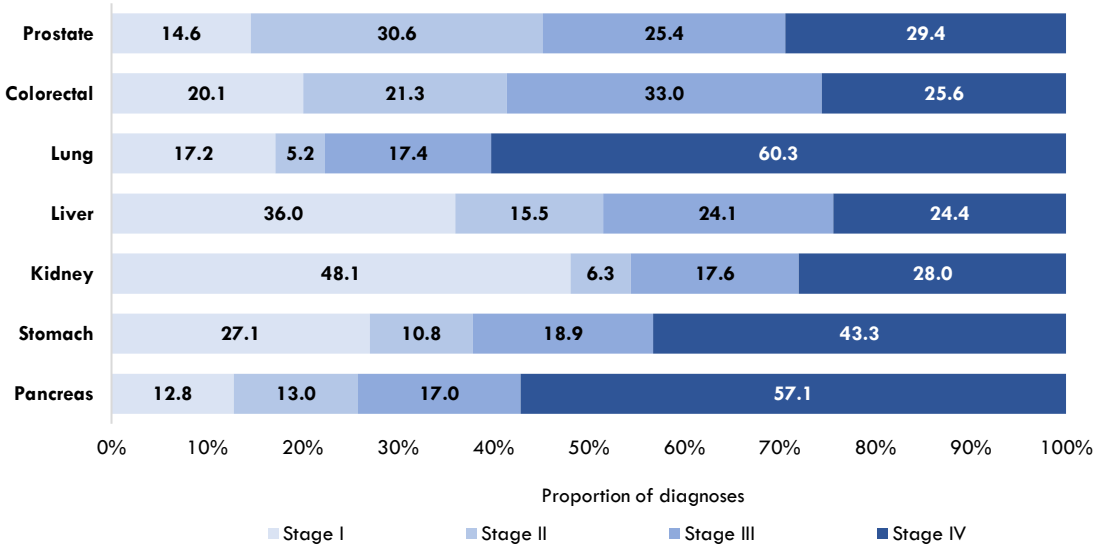
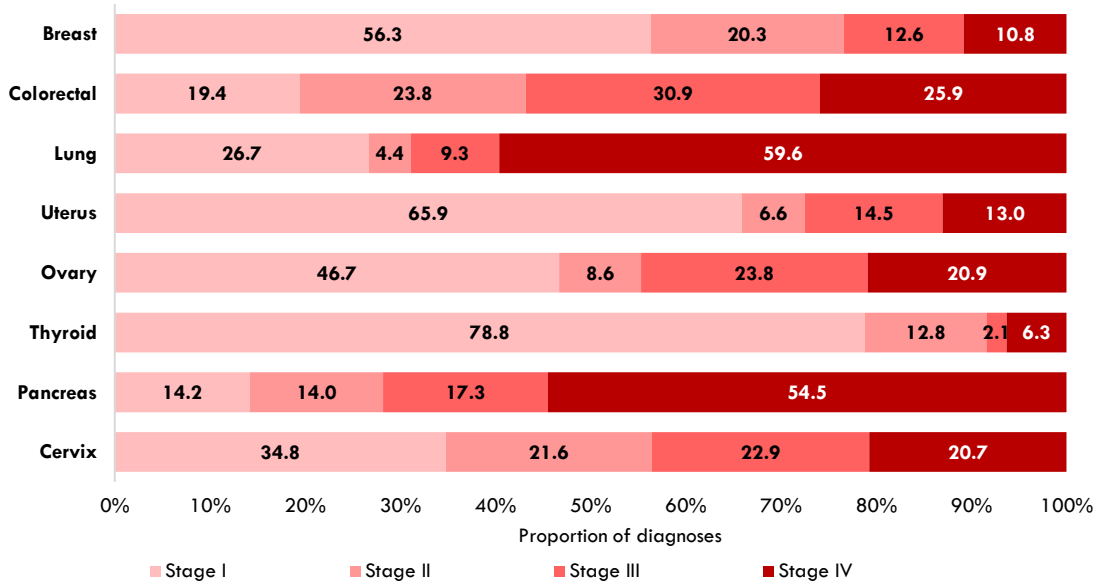


Figure 3.2.2 Stage distribution (%) of selected cancers in females, 2019-2023



Highlights

Chapter 3 examined the ten most common cancers in Singapore and their stage distribution by sex. Colorectal and lung cancers were common to both males and females, consistently ranking among the top three.

Among males, the top three cancers were prostate, colorectal, and lung:

- Prostate cancer incidence rose significantly in recent decades. In 2019-2023, about 45% of prostate cancers were diagnosed at early stages (Stages I-II).
- Colorectal cancer incidence stabilised in the recent decades. In 2019-2023, about 41% of cases were diagnosed at early stages.
- Lung cancer incidence has consistently declined with decreasing smoking prevalence (37). Nevertheless, the vast majority of cases continued to be diagnosed at late stages (Stages III-IV).

Among females, the top three cancers were breast, colorectal, and lung:

- Breast cancer incidence increased significantly. More than 75% of breast cancers were diagnosed at early stages.
- Colorectal cancer incidence stabilised, with about 43% of cases diagnosed at early stages in 2019-2023.
- Lung cancer incidence increased slightly over the past 20 years. A higher proportion of females were diagnosed at early stages compared to males.

CONCLUSION

The WHO estimates that 30%–50% of all cancer cases are preventable through healthy lifestyles (38). It is important for individuals to adopt behaviours that reduce their risk of cancer, such as avoiding smoking, minimising alcohol intake, maintaining a healthy weight, engaging in regular physical activity, and consuming a healthy and balanced diet. Vaccinations for hepatitis B and human papillomavirus (HPV) are key to reducing the risk of liver cancer and cervical cancer respectively. Attending regular health screenings for screenable cancers and necessary follow-ups, as recommended based on one's age and sex, can also facilitate early detection and timely intervention, thereby improving prognosis and outcomes. Preventive measures such as the above can lessen the burden of disease at both the individual and societal levels.

In general, the increasing trend of cancer incidence and decreasing mortality trend suggests that more individuals diagnosed with cancer are surviving longer. However, cancer continues to pose a significant burden on Singapore's health system and society, underscoring the importance of sustained and effective action across the cancer care continuum to improve population health outcomes.

APPENDIX 1

CANCER SITES AND GROUPS USED IN REPORT BY ICD-10 CODES

ICD-10 description	ICD 10 code	Label in report
Nasopharynx	C11	Nasopharynx
Oesophagus	C15	Oesophagus
Stomach	C16	Stomach
Colon	C18	Colorectal
Rectosigmoid & rectum	C19-C20	
Liver & intrahepatic bile ducts	C22	Liver
Gallbladder & other biliary tract	C23.9-C24	Gallbladder
Pancreas	C25	Pancreas
Lung (incl. trachea & bronchus)	C33-C34	Lung
Thymus, heart & mediastinum	C37.9-C38.3, C38.8	Heart, thymus & mediastinum
Bones, joints & articular cartilage	C40, C41	Bone
Connective & soft tissues (incl. peripheral nerves)	C47 & C49	Connective tissue
Other skin cancer	C44	Non-melanoma skin
Breast	C50	Breast
Cervix uteri	C53	Cervix
Corpus uteri	C54	Uterus
Ovary	C56.9	Ovary
Prostate	C61	Prostate
Urinary bladder	C67	Bladder
Kidney & other urinary organs	C64 - C66 & C68	Kidney
Brain & Central Nervous System (CNS)	C70, C71-C72	Brain & Central Nervous System
Thyroid gland	C73	Thyroid
Other endocrine glands & related structures	C74-C75	Other endocrine

CLASSIFICATION OF NEOPLASMS OF HAEMATOPOETIC & LYMPHOID TISSUES IN THIS REPORT#

classified based on diagnosed cases with morphology codes ranging from 9590-9993

Lymphoid Neoplasms
Precursor Lymphoid Neoplasms
B Mature Neoplasms
T/NK Mature Neoplasms
Hodgkin's Lymphoma
Immunodeficiency-associated lymphoproliferative disorders
Histiocytic and Dendritic Cell Neoplasms
Malignant Lymphoma NOS
Myeloid Neoplasms and Acute Leukaemia
Acute leukaemia of ambiguous lineage
Acute Myeloid Leukaemia and related Precursor Neoplasms
Myeloproliferative Neoplasms
Myelodysplastic / Myeloproliferative Neoplasms

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