Singapore Cancer Registry Annual Report 2020

National Registry of Diseases Office
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THE 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) pathology 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 site was 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 up till 1992. Between 1993 and 2002, the SCR employed the International Classification of Diseases for Oncology, 2nd Edition (ICD-O-2) [3]. From 2003 onwards, 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, 6th edition for cases diagnosed between 2003 and 2009, 7th edition for cases diagnosed from 2010 to 2017, and 8th edition for cases diagnosed from 2018 onwards [6] [7] [8].

STATISTICAL METHODS

This report is based on the analysis of anonymised data on all cases of malignant and certain borderline tumours diagnosed among Singapore residents from 1 January 1968 through 31 December 2020 in Singapore, as they stood as of 18 May 2022. Mortality data were as they stood as of 31 December 2021.

CANCER INCIDENCE AND MORTALITY

Computation of cancer incidence excludes 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 gender, ethnicity, and age group. Incidence and mortality rates were age-standardised to adjust for differences in age structure in 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 are 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 2020 were obtained from the Department of Statistics (DOS) [9].

RELATIVE SURVIVAL

Single and multiple primary malignant tumours diagnosed in individuals aged 15 years and above were included for survival analysis in this report. Childhood cancer cases were not included in survival analysis because of their differences in biological characteristics, treatment protocols and survival outcomes. Multiple primary cases were included in accordance with the (European Cancer Registry) Eurocare-6 and CONCORD-3 study protocols [10] [11].

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

Relative survival is defined as the ratio of observed survival of the patients with the expected survival of a comparable group in the general population, matched according to factors believed to be associated with survival at baseline (gender, age and calendar year of diagnosis). In other words, it reflects 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 [12] [9] . Complete life tables for the period of 2003-2020 were available from the DOS [13].

The Brenner method is used for age-standardisation [14]. 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 assures that age-adjustment using the study's population 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 available for analysis in one or more age groups.

Age-standardisation was performed using the International Cancer Survival Standards (ICSS) age categories for weights [15].

(1) TRENDS IN CANCER INCIDENCE AND MORTALITY, 1968-2020

1.1 Gender trends

Incidence and mortality of cancer by gender, 1968-2020

Over the last five decades, gender differences have been observed in the trends for cancer incidence (Figure 1.1.1, Table 1.1.1). In 1968-1972, the ASIR of cancer among males was 228.3 per 100,000 population, significantly higher than that for females (155.0 per 100,000 population). While there was an initial rise in cancer incidence for both males and females in the 1970s-1980s, to 237.2 and 191.8 per 100,000 respectively in 1988-1992, the ASIR for males has plateaued thereafter, and in 2016-2020 remained similar at 237.1 per 100,000 population. However, that for females had continued to rise and in 2016-2020, the ASIR was close to that for males, at 236.0 per 100,000 population.

Over the same period, a similar pattern of a narrowing gender gap was also observed for cancer mortality (Figure 1.1.1, Table 1.1.2). In 1968-1972, the ASMR of cancer was significantly higher among males, at 121.8 per 100,000 population, compared to 67.5 per 100,000 population among females. After an initial rise in ASMR to 165.1 and 96.3 per 100,000 population respectively in 1978-1982, the ASMR declined to 90.5 per 100,000 population for males and 63.0 per 100,000 population for females in 2016-2020. Despite the narrowing gender gap, both the ASIR and ASMR of cancer had nevertheless remained consistently higher among males than females throughout the years.

Ten most frequent incident cancers and cancer deaths by gender, 2016-2020

In 2019, cancer was the highest contributor to disability-adjusted life years (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 [16]. It was also the leading cause of death in Singapore, accounting for 28.4% – 28.8% of all deaths annually from 2018-2020 [17].

For the latest five-year period of 2016-2020, a total of 39,393 males and 41,360 females were diagnosed with cancer while 15,894 males and 13,032 females had died from the disease (Figure 1.1.2, Table 1.1.3). Colorectal, prostate, and lung cancers were the three most frequent incident cancers among males, while breast, colorectal and lung cancers were the top three most frequent incident cancers among females. Colorectal cancer, the most common cancer in males, comprised almost 17% of cancer diagnoses among males with 6,513 cases; while breast cancer, the most common cancer among females with 12,303 diagnoses over the latest five years, alone accounted for about three in ten cancer diagnoses in females. The three leading incident cancers in males and females accounted for approximately 46% and 50% of total diagnoses respectively during this period. Lung cancer was the leading cause of cancer death in males, accounting for 3,991 - about a quarter - of all cancer deaths among males in 2016-2020, while breast cancer was the leading cause of cancer mortality in females, contributing to 2,245 or about 1 in 6 cancer deaths among females.

Figure 1.1.1 Age-standardised incidence and mortality rate (per 100,000 population) of cancer by gender, 1968-2020
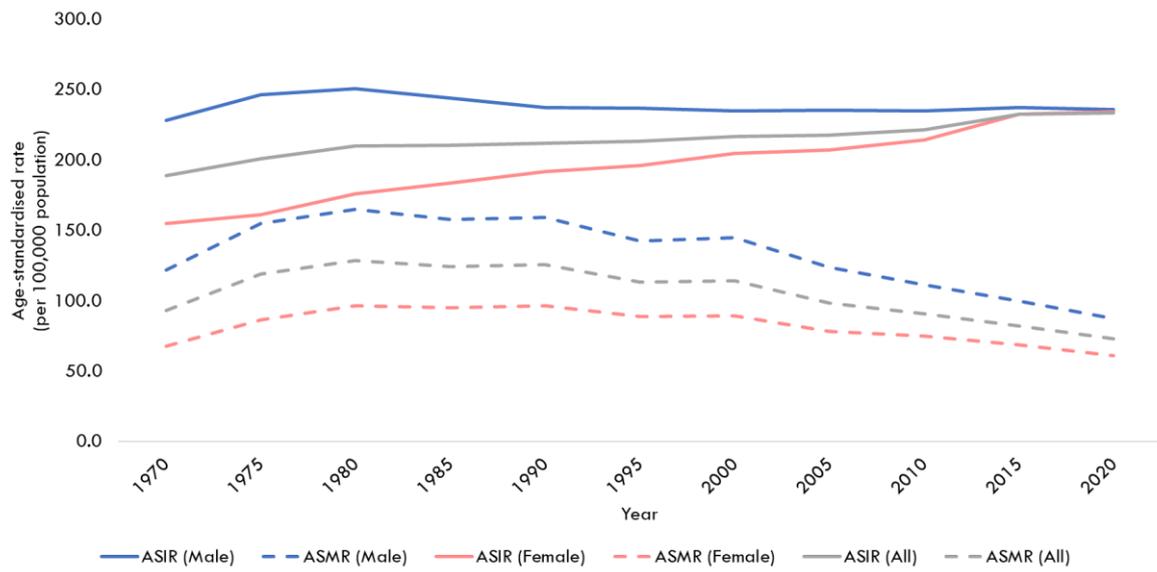
Table 1.1.1 Incidence number and age-standardised incidence rate (per 100,000 population) of cancer by gender, 1968-2020

		1968-1972	1973-1977	1978-1982	1983-1987	1988-1992	1993-1997
Male	No.	6987	8559	10126	11685	13643	16255
	ASIR	228.3	246.4	250.8	244.1	237.2	236.7
	(95% CI)	(222.5-234.1)	(240.9-251.9)	(245.8-255.8)	(239.6-248.6)	(233.2-241.3)	(233.0-240.4)
Female	No.	5087	6192	7992	10074	12767	15762
	ASIR	155.0	161.3	175.8	183.8	191.8	196.2
	(95% CI)	(150.6-159.3)	(157.3-165.4)	(171.9-179.7)	(180.2-187.5)	(188.3-195.2)	(193.0-199.3)
All	No.	12074	14751	18118	21759	26410	32017
	ASIR	188.7	200.8	210.2	210.6	211.7	213.4
	(95% CI)	(185.2-192.2)	(197.5-204.1)	(207.1-213.3)	(207.8-213.5)	(209.1-214.3)	(211.0-215.8)
		1998-2002	2003-2007	2008-2012	2013-2017	2018-2020	2016-2020
Male	No.	19070	22405	27967	34994	24459	**39393**
	ASIR	235.0	235.2	235.1	237.4	235.7	**237.1**
	(95% CI)	(231.6-238.4)	(232.0-238.3)	(232.2-237.9)	(234.9-240.0)	(232.6-238.7)	**(234.6-239.5)**
Female	No.	19890	23634	29372	37290	25395	**41360**
	ASIR	204.6	207.3	214.3	232.4	234.3	**236.0**
	(95% CI)	(201.7-207.5)	(204.5-210.0)	(211.8-216.9)	(229.9-234.9)	(231.2-237.4)	**(233.6-238.4)**
All	No.	38960	46039	57339	72284	49854	**80753**
	ASIR	216.8	217.7	221.7	232.7	233.3	**234.7**
	(95% CI)	(214.6-219.0)	(215.6-219.7)	(219.8-223.6)	(230.9-234.4)	(231.2-235.5)	**(233.0-236.4)**

Table 1.1.2 Mortality number and age-standardised mortality rate (per 100,000 population) of cancer by gender, 1968-2020

		1968-1972	1973-1977	1978-1982	1983-1987	1988-1992	1993-1997
Male	No.	3671	5330	6543	7448	9031	9598
	ASMR	121.8	155.0	165.1	157.9	159.4	142.3
	(95% CI)	(117.6-126.1)	(150.6-159.3)	(161.0-169.2)	(154.3-161.6)	(156.1-162.7)	(139.4-145.2)
Female	No.	2187	3224	4279	5104	6364	7054
	ASMR	67.5	86.4	96.3	95.1	96.4	88.7
	(95% CI)	(64.6-70.4)	(83.4-89.4)	(93.4-99.3)	(92.5-97.8)	(94.0-98.8)	(86.6-90.8)
All	No.	5858	8554	10822	12552	15395	16652
	ASMR	93.2	118.9	128.5	124.3	125.6	113.1
	(95% CI)	(90.8-95.7)	(116.3-121.4)	(126.1-131.0)	(122.1-126.5)	(123.6-127.7)	(111.4-114.9)
		1998-2002	2003-2007	2008-2012	2013-2017	2018-2020	2016-2020
Male	No.	11539	11690	13337	15185	9692	**15894**
	ASMR	145.0	123.9	111.4	99.7	87.5	**90.5**
	(95% CI)	(142.3-147.7)	(121.6-126.2)	(109.5-113.3)	(98.1-101.3)	(85.7-89.2)	**(89.1-92.0)**
Female	No.	8621	9181	11041	12539	7891	**13032**
	ASMR	89.1	78.1	74.7	68.5	61.1	**63.0**
	(95% CI)	(87.1-91.0)	(76.4-79.7)	(73.2-76.1)	(67.2-69.7)	(59.6-62.5)	**(61.9-64.2)**
All	No.	20160	20871	24378	27724	17583	**28926**
	ASMR	114.4	98.4	90.8	82.3	72.8	**75.2**
	(95% CI)	(112.8-116.0)	(97.0-99.7)	(89.6-92.0)	(81.3-83.3)	(71.7-73.9)	**(74.3-76.1)**

<u>Figure 1.1.2</u> Ten most frequent incident cancers and cancer deaths by gender, 2016-2020
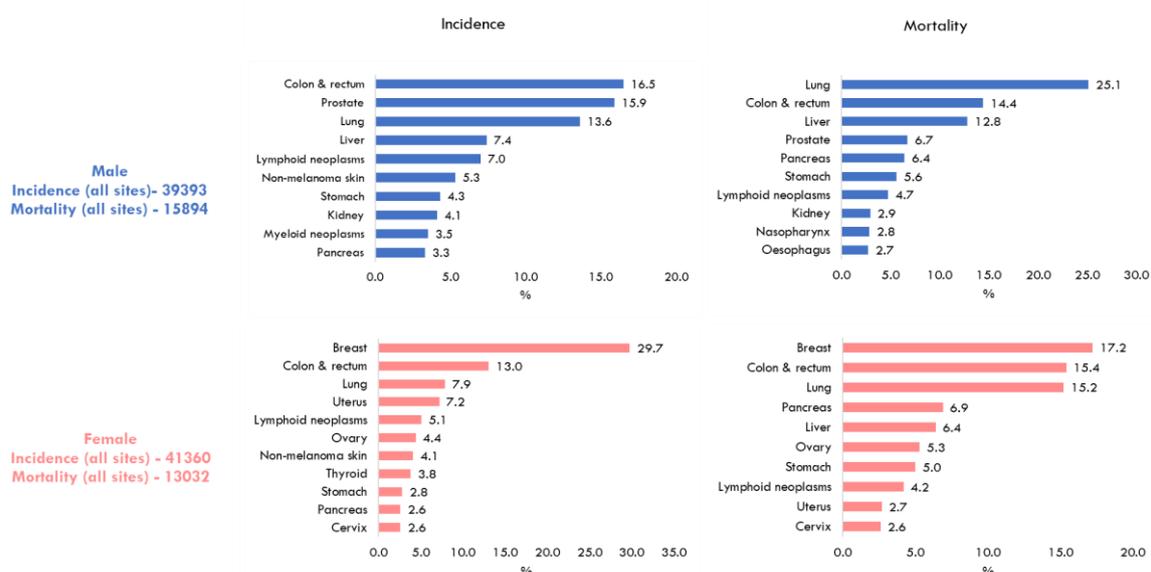
<u>Table 1.1.3</u> Ten most frequent incident cancers and cancer deaths by gender, 2016-2020

Gender	Rank	Incidence			Mortality		
		Site	No.	%	Site	No.	%
Male	1	Colon & rectum	6513	16.5	Lung	3991	25.1
	2	Prostate	6283	15.9	Colon & rectum	2282	14.4
	3	Lung	5368	13.6	Liver	2028	12.8
	4	Liver	2913	7.4	Prostate	1058	6.7
	5	Lymphoid neoplasms	2764	7.0	Pancreas	1019	6.4
	6	Non-melanoma skin	2079	5.3	Stomach	895	5.6
	7	Stomach	1698	4.3	Lymphoid neoplasms	741	4.7
	8	Kidney	1622	4.1	Kidney	468	2.9
	9	Myeloid neoplasms	1383	3.5	Nasopharynx	443	2.8
	10	Pancreas	1314	3.3	Oesophagus	431	2.7
		All sites	**39393**	**100.0**	**All sites**	**15894**	**100.0**
Female	1	Breast	12303	29.7	Breast	2245	17.2
	2	Colon & rectum	5364	13.0	Colon & rectum	2013	15.4
	3	Lung	3252	7.9	Lung	1976	15.2
	4	Uterus	2968	7.2	Pancreas	896	6.9
	5	Lymphoid neoplasms	2124	5.1	Liver	839	6.4
	6	Ovary	1836	4.4	Ovary	691	5.3
	7	Non-melanoma skin	1702	4.1	Stomach	646	5.0
	8	Thyroid	1573	3.8	Lymphoid neoplasms	552	4.2
	9	Stomach	1151	2.8	Uterus	354	2.7
	10	Pancreas	1094	2.6	Cervix	339	2.6
	10	Cervix	1084	2.6			
		All sites	**41360**	**100.0**	**All sites**	**13032**	**100.0**

1.1 Gender trends for incidence and mortality of cancer, 1968-2020

KEY POINTS

- The age-standardised incidence rate of cancer had risen for both males (from 228.3 to 237.1 per 100,000 population) and females (from 155.0 to 236.0 per 100,000 population) during the period from 1968-1972 to 2016-2020.
- During this same period, while the age-standardised mortality rate of cancer for males decreased (from 121.8 to 90.5 per 100,000 population), that of females remained relatively stable (67.5 and 63.0 per 100,000 population).
- Over the years, there has been a narrowing of the gender gap for both cancer incidence and mortality.
- 39,393 males and 41,360 females were diagnosed with cancer in the latest 5-year period from 2016-2020.
- 15,894 males and 13,032 females died of cancer in 2016-2020.
- Three most frequent incident cancers (2016-2020):
  - Males – colorectal (16.5% of all cancers diagnosed in males), prostate (15.9%), lung (13.6%)
  - Females – breast (29.7% of all cancers diagnosed in females), colorectal (13.0%), lung (7.9%)
- Three leading causes of cancer deaths (2016-2020):
  - Males – lung (25.1% of cancer deaths in males), colorectal (14.4%), liver (12.8%)
  - Females – breast (17.2% of cancer deaths in females), colorectal (15.4%), lung (15.2%)

1.2 Ethnic trends

Incidence and mortality of cancer by gender and ethnicity, 1968-2020

Over the years, differing trends were also observed among the three major ethnic groups in Singapore for both genders (Figure 1.2.1(a)-(c)). Ethnic differences in trends were apparent for both cancer incidence as well as mortality (Table 1.2.1(a)-(c), Table 1.2.2(a)-(c)).

While the ASIR of cancer among Chinese males had declined slightly from 258.1 per 100,000 population in 1968-1972 to 242.4 per 100,000 population in 2016-2020, it had risen among Malay and Indian males, doubling from 96.2 to 222.1 per 100,000 population for the former, and rising less drastically with some fluctuations over the years from 125.4 to 157.1 per 100,000 population for the latter (Figure 1.2.1(a), Table 1.2.1(a)).

The same pattern was not observed in females – an increase in the ASIR of cancer was observed for all three ethnic groups (Figure 1.2.1(b), Table 1.2.1(b)). Among Chinese females, the ASIR of cancer rose from 158.5 to 238.2 per 100,000 population. Similar to their male counterparts, the ASIR of cancer among Malay females more than doubled over the years, from 98.5 per 100,000 population in 1968-1972 to 232.8 per 100,000 population in 2016-2020. Among Indian females, the ASIR of cancer rose only slightly from 181.9 to 195.0 per 100,000 population over the same period.

Overall, although the Chinese had the highest ASIR of cancer consistently throughout the years, there is evidence of a closing ethnic gap in cancer incidence, particularly between the Chinese and Malays (Table 1.2.1(c)). In 1968-1972, the Chinese had a significantly higher incidence of cancer compared to the Malays and Indians (202.8, 96.2, and 139.0 per 100,000 population respectively). In 2016-2020, however, ethnic disparities had become less apparent with the ASIR of cancer among the Chinese exhibiting a gradual increase over the years to 238.6 per 100,000 population, while that among the Malays and Indians had risen to 225.7 and 173.3 per 100,000 population respectively).

The trend for cancer mortality rates by ethnicity among males was similar to that observed for the incidence rates. While cancer mortality had decreased from 140.1 to 91.6 per 100,000 population for Chinese males (Figure 1.2.1(a), Table 1.2.2(a)), it had risen among Malay and Indian males – especially for the former – increasing more than twofold from 45.8 to 104.5 for the former and less drastically from 57.8 to 62.7 per 100,000 population for the latter between 1968-1972 and 2016-2020.

While an increase in ASIR of cancer among females was observed for all three ethnic groups, cancer mortality rates were found to have only increased for Malay females – rising from 46.6 to 82.6 per 100,000 population between 1968-1972 and 2016-2020, an almost twofold increase. In contrast, during the same period, cancer mortality rates among Chinese females dipped slightly from 68.2 to 61.3 per 100,000 population, while mortality rates among Indian females decreased from 82.6 to 51.2 per 100,000 population (Figure 1.2.1(b), Table 1.2.2(b)).

As with the ethnic trends for cancer incidence, that for cancer mortality had also seen a closing of the ethnic gap over the years (Table 1.2.2(c)). While the Chinese had the highest cancer mortality rate in 1968-1972 at 100.9 per 100,000 population, compared to 45.4 and 63.2 per 100,000 population among the Malays and Indians respectively, cancer mortality among the Malays surpassed that of the Chinese to become the highest from 2013-2017 onwards. By 2016-2020, cancer mortality among the Malays had risen to 91.9 per 100,000 population, while that of the Chinese and Indians had dipped to 74.7 and 56.2 per 100,000 population respectively.

Ten most frequent incident cancers by gender and ethnicity, 2016-2020

A total of 32,625 Chinese males and 33,588 Chinese females were diagnosed with cancer in 2016-2020. 3,719 Malay males and 4,321 Malay females were diagnosed with cancer; while 1,837 Indian males and 2,319 Indian females were diagnosed with cancer during this period (Figure 1.2.2, Table 1.2.3).

While colorectal, prostate, and lung cancers were the three most frequent incident cancers among Chinese and Indian males; lung and colorectal cancers, along with lymphoid neoplasms, were the three most frequent incident cancers among Malay males (Figure 1.2.2, Table 1.2.3). The three most frequent incident cancers among Chinese, Malay and Indian males accounted for approximately 40-47% of all diagnoses among each ethnicity.

Breast cancer was by far the most frequent incident cancer among females across all three ethnicities, accounting for about 30% of all cancer diagnoses among the Chinese and Malays, and over one-third of diagnoses among Indians (Figure 1.2.2, Table 1.2.3). While colorectal and lung cancers were the second and third most commonly diagnosed cancers in Chinese females, colorectal and uterine cancers were among the three most frequent incident cancers among Malays and Indians. Notably, while cervical cancer was tied with pancreatic cancer as the tenth most frequent incident cancer among the female resident population in 2016-2020 (Figure 1.1.2, Table 1.1.3), it was observed to be the eighth most common incident cancer among the Malays and was not among the ten most common incident cancers among both Chinese and Indian females during this period.

Figure 1.2.1(a) Age-standardised incidence and mortality rate (per 100,000 population) of cancer in males by ethnicity, 1968-2020
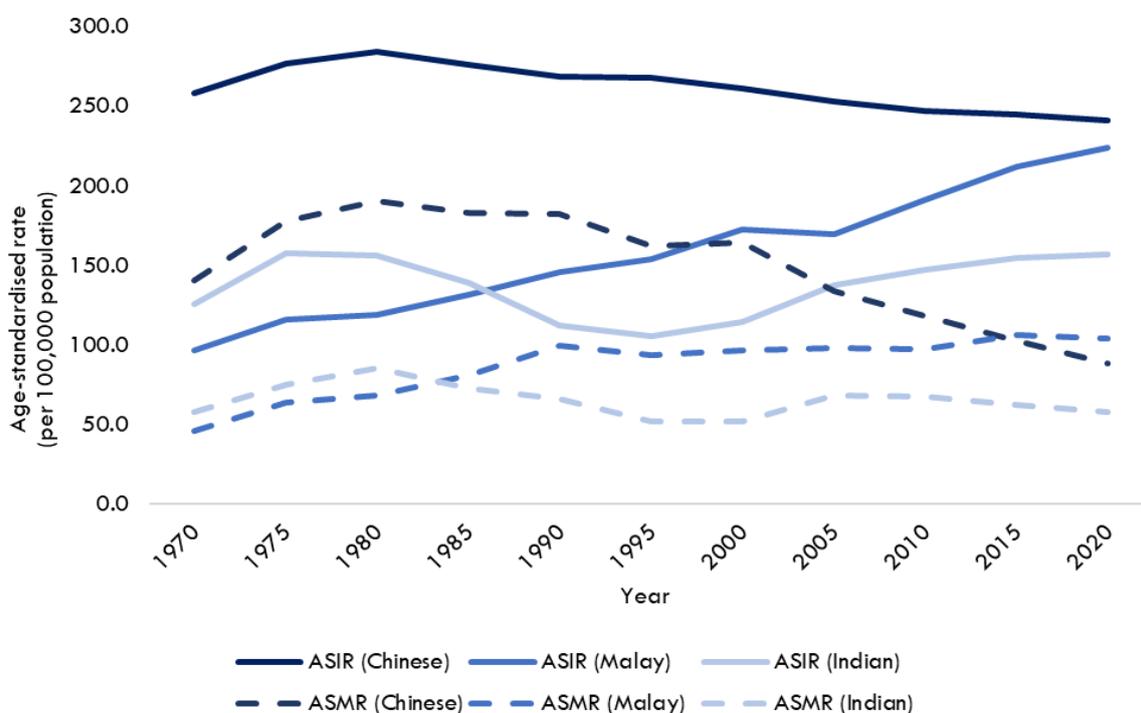
Figure 1.2.1(b) Age-standardised incidence and mortality rate (per 100,000 population) of cancer in females by ethnicity, 1968-2020
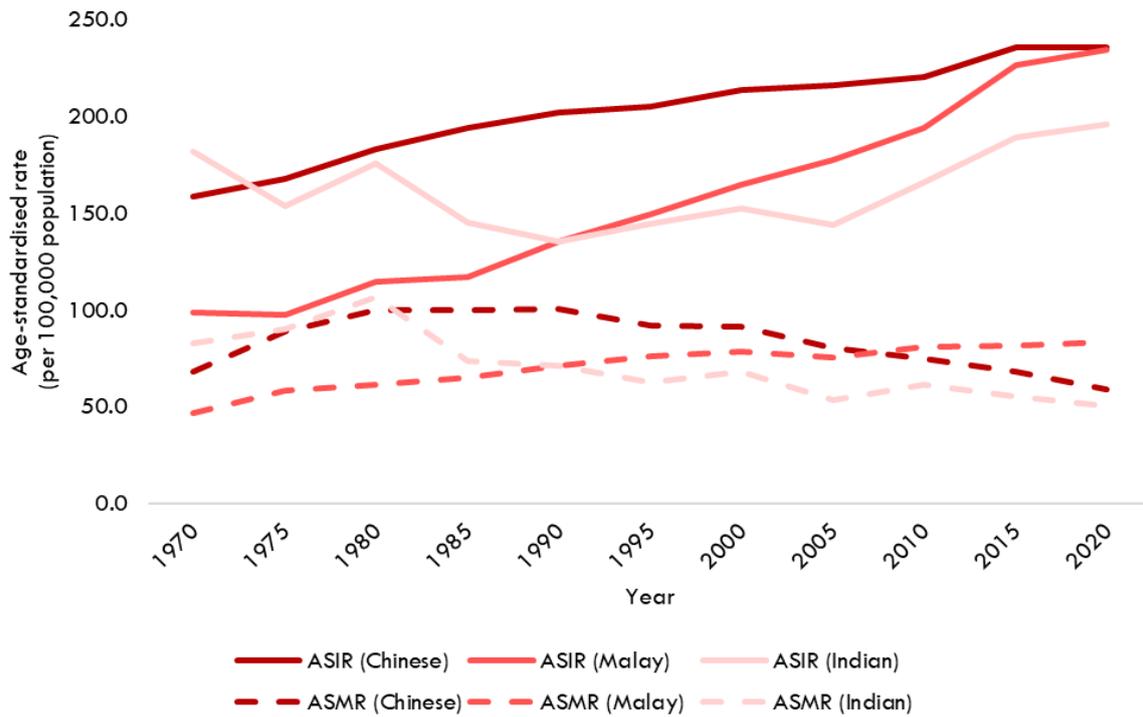
Figure 1.2.1(c) Age-standardised incidence and mortality rate (per 100,000 population) of cancer by ethnicity, 1968-2020
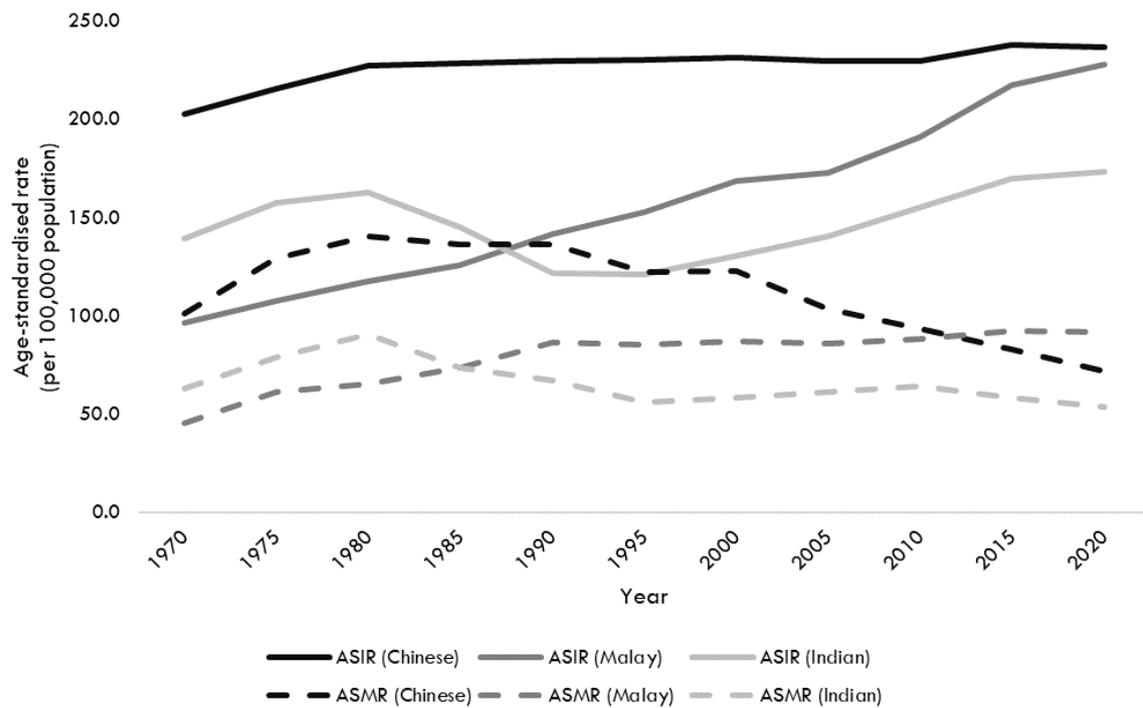
Table 1.2.1(a) Incidence number and age-standardised incidence rate (per 100,000 population) of cancer in males by ethnicity, 1968-2020

		1968-1972	1973-1977	1978-1982	1983-1987	1988-1992	1993-1997
Chinese	No.	6167	7467	8881	10157	11817	14090
	ASIR	258.1	276.2	283.7	275.6	268.6	267.6
	(95% CI)	(251.3-265.0)	(269.7-282.7)	(277.7-289.7)	(270.1-281.0)	(263.7-273.5)	(263.1-272.1)
Malay	No.	357	508	606	787	1013	1242
	ASIR	96.2	115.6	118.7	131.1	145.2	154.1
	(95% CI)	(84.5-107.9)	(104.6-126.6)	(108.6-128.9)	(121.5-140.8)	(136.0-154.4)	(145.2-163.0)
Indian	No.	398	499	537	622	624	696
	ASIR	125.4	157.3	155.9	139.0	112.1	105.7
	(95% CI)	(109.2-141.5)	(140.5-174.1)	(140.9-170.9)	(127.1-150.9)	(102.9-121.3)	(97.5-114.0)
		1998-2002	2003-2007	2008-2012	2013-2017	2018-2020	2016-2020
Chinese	No.	16353	19175	23544	29135	20234	32625
	ASIR	260.7	252.7	246.4	244.5	240.8	242.4
	(95% CI)	(256.6-264.8)	(249.0-256.3)	(243.2-249.6)	(241.5-247.4)	(237.3-244.3)	(239.6-245.2)
Malay	No.	1591	1780	2366	3182	2340	3719
	ASIR	172.0	169.4	190.6	211.6	223.9	222.1
	(95% CI)	(163.2-180.8)	(161.1-177.6)	(182.6-198.6)	(204.0-219.2)	(214.6-233.2)	(214.8-229.5)
Indian	No.	830	996	1285	1634	1134	1837
	ASIR	114.3	137.3	146.9	154.7	156.4	157.1
	(95% CI)	(106.1-122.5)	(128.3-146.2)	(138.4-155.4)	(146.8-162.6)	(147.0-165.8)	(149.7-164.6)

Table 1.2.1(b) Incidence number and age-standardised incidence rate (per 100,000 population) of cancer in females by ethnicity, 1968-2020

		1968-1972	1973-1977	1978-1982	1983-1987	1988-1992	1993-1997
Chinese	No.	4460	5471	7031	8889	11203	13631
	ASIR	158.5	167.7	183.2	194.0	202.3	205.4
	(95% CI)	(153.8-163.2)	(163.2-172.2)	(178.9-187.6)	(189.9-198.1)	(198.5-206.2)	(201.8-208.9)
Malay	No.	368	411	574	734	1009	1336
	ASIR	98.5	97.3	114.5	117.0	135.4	149.6
	(95% CI)	(87.0-110.0)	(86.9-107.6)	(104.3-124.7)	(108.0-126.1)	(126.7-144.2)	(141.3-158.0)
Indian	No.	168	223	298	345	429	609
	ASIR	181.9	153.6	175.7	144.9	135.4	144.5
	(95% CI)	(146.2-217.5)	(129.5-177.6)	(152.1-199.4)	(127.2-162.6)	(121.4-149.4)	(131.8-157.2)
		1998-2002	2003-2007	2008-2012	2013-2017	2018-2020	2016-2020
Chinese	No.	17040	20074	24352	30501	20571	33588
	ASIR	213.6	216.0	220.2	235.6	236.0	238.2
	(95% CI)	(210.3-216.9)	(212.9-219.1)	(217.3-223.1)	(232.8-238.4)	(232.5-239.5)	(235.5-241.0)
Malay	No.	1745	2207	2880	3859	2692	4321
	ASIR	165.0	177.9	194.1	226.5	234.8	232.8
	(95% CI)	(156.9-173.1)	(170.2-185.7)	(186.7-201.4)	(219.1-233.9)	(225.6-243.9)	(225.7-240.0)
Indian	No.	849	1013	1468	2013	1443	2319
	ASIR	152.3	143.9	166.2	189.3	195.7	195.0
	(95% CI)	(141.4-163.2)	(134.6-153.2)	(157.4-175.0)	(180.7-197.8)	(185.3-206.0)	(186.8-203.2)

Table 1.2.1(c) Incidence number and age-standardised incidence rate (per 100,000 population) of cancer by ethnicity, 1968-2020

		1968-1972	1973-1977	1978-1982	1983-1987	1988-1992	1993-1997
Chinese	No.	10627	12938	15912	19046	23020	27721
	ASMR	202.8	215.7	227.0	228.2	229.5	230.3
	(95% CI)	(198.8-206.7)	(212.0-219.5)	(223.4-230.6)	(224.9-231.5)	(226.5-232.5)	(227.6-233.1)
Malay	No.	725	919	1180	1521	2022	2578
	ASMR	96.2	107.3	117.6	125.6	141.4	152.5
	(95% CI)	(88.2-104.2)	(99.7-114.9)	(110.4-124.9)	(119.0-132.3)	(135.0-147.8)	(146.4-158.6)
Indian	No.	566	722	835	967	1053	1305
	ASMR	139.0	157.2	162.6	144.9	121.6	121.3
	(95% CI)	(123.7-154.3)	(143.4-170.9)	(150.0-175.1)	(135.0-154.9)	(113.9-129.3)	(114.5-128.2)
		1998-2002	2003-2007	2008-2012	2013-2017	2018-2020	2016-2020
Chinese	No.	33393	39249	47896	59636	40805	66213
	ASMR	231.5	229.3	229.7	237.6	236.8	238.6
	(95% CI)	(228.9-234.0)	(226.9-231.6)	(227.5-231.8)	(235.6-239.6)	(234.4-239.3)	(236.6-240.5)
Malay	No.	3336	3987	5246	7041	5032	8040
	ASMR	168.6	172.9	190.8	217.3	227.5	225.7
	(95% CI)	(162.7-174.6)	(167.3-178.6)	(185.4-196.1)	(212.1-222.6)	(221.1-234.0)	(220.6-230.8)
Indian	No.	1679	2009	2753	3647	2577	4156
	ASMR	130.3	140.4	155.0	169.8	173.1	173.3
	(95% CI)	(123.8-136.8)	(134.0-146.8)	(149.0-161.0)	(164.0-175.5)	(166.3-180.0)	(167.8-178.7)

Table 1.2.2(a) Mortality number and age-standardised mortality rate (per 100,000 population) of cancer in males by ethnicity, 1968-2020

		1968-1972	1973-1977	1978-1982	1983-1987	1988-1992	1993-1997
Chinese	No.	3315	4751	5869	6613	7896	8380
	ASMR	140.1	177.9	190.5	182.4	182.3	162.2
	(95% CI)	(135.0-145.2)	(172.6-183.1)	(185.6-195.5)	(177.9-186.8)	(178.2-186.3)	(158.6-165.7)
Malay	No.	164	300	343	476	686	730
	ASMR	45.8	63.9	68.3	80.9	99.7	93.6
	(95% CI)	(37.6-54.0)	(56.0-71.8)	(60.5-76.1)	(73.2-88.5)	(92.0-107.4)	(86.6-100.6)
Indian	No.	166	237	279	312	359	346
	ASMR	57.8	74.8	85.1	72.8	65.7	52.0
	(95% CI)	(45.6-70.0)	(63.9-85.6)	(73.6-96.6)	(64.0-81.7)	(58.5-72.9)	(46.3-57.7)
		1998-2002	**2003-2007**	**2008-2012**	**2013-2017**	**2018-2020**	**2016-2020**
Chinese	No.	10051	10066	11420	12726	8007	**13140**
	ASMR	163.8	134.0	118.2	102.8	88.3	**91.6**
	(95% CI)	(160.6-167.0)	(131.3-136.7)	(116.0-120.4)	(101.0-104.6)	(86.3-90.3)	**(89.9-93.2)**
Malay	No.	868	1004	1188	1605	1103	**1771**
	ASMR	96.3	97.7	97.0	106.2	103.7	**104.5**
	(95% CI)	(89.7-103.0)	(91.4-104.1)	(91.2-102.7)	(100.9-111.6)	(97.5-109.9)	**(99.5-109.5)**
Indian	No.	396	505	580	661	428	**741**
	ASMR	52.1	68.2	67.8	62.6	58.0	**62.7**
	(95% CI)	(46.6-57.5)	(62.0-74.5)	(62.0-73.6)	(57.6-67.6)	(52.5-63.6)	**(58.1-67.3)**

Table 1.2.2(b) Mortality number and age-standardised mortality rate (per 100,000 population) of cancer in females by ethnicity, 1968-2020

		1968-1972	1973-1977	1978-1982	1983-1987	1988-1992	1993-1997
Chinese	No.	1909	2843	3787	4531	5615	6131
	ASMR	68.2	88.9	99.7	99.6	100.8	91.9
	(95% CI)	(65.1-71.3)	(85.6-92.2)	(96.5-102.9)	(96.7-102.6)	(98.1-103.5)	(89.5-94.3)
Malay	No.	166	223	291	368	497	640
	ASMR	46.6	58.2	61.4	64.8	71.3	75.9
	(95% CI)	(38.6-54.5)	(49.8-66.6)	(53.7-69.0)	(57.8-71.8)	(64.8-77.8)	(69.8-82.0)
Indian	No.	75	113	151	156	198	228
	ASMR	82.6	90.0	106.6	73.4	71.3	62.4
	(95% CI)	(59.0-106.3)	(70.1-109.9)	(87.0-126.2)	(60.1-86.8)	(60.5-82.1)	(53.5-71.3)
		1998-2002	**2003-2007**	**2008-2012**	**2013-2017**	**2018-2020**	**2016-2020**
Chinese	No.	7404	7861	9237	10332	6373	**10564**
	ASMR	91.5	80.2	74.9	67.8	59.1	**61.3**
	(95% CI)	(89.3-93.7)	(78.3-82.0)	(73.3-76.5)	(66.4-69.2)	(57.5-60.7)	**(60.1-62.6)**
Malay	No.	779	887	1165	1447	1014	**1638**
	ASMR	78.4	75.4	81.0	81.6	83.1	**82.6**
	(95% CI)	(72.7-84.1)	(70.3-80.6)	(76.2-85.9)	(77.2-85.9)	(77.9-88.4)	**(78.5-86.7)**
Indian	No.	343	351	511	592	398	**641**
	ASMR	68.1	53.7	61.3	55.5	50.5	**51.2**
	(95% CI)	(60.4-75.8)	(47.8-59.5)	(55.8-66.8)	(50.9-60.1)	(45.4-55.5)	**(47.1-55.2)**

Table 1.2.2(c) Mortality number and age-standardised mortality rate (per 100,000 population) of cancer by ethnicity, 1968-2020

		1968-1972	1973-1977	1978-1982	1983-1987	1988-1992	1993-1997
Chinese	No.	5224	7594	9656	11144	13511	14511
	ASMR	100.9	129.0	140.2	136.1	136.5	122.3
	(95% CI)	(98.1-103.7)	(126.0-131.9)	(137.4-143.0)	(133.5-138.7)	(134.2-138.9)	(120.3-124.4)
Malay	No.	330	523	634	844	1183	1370
	ASMR	45.4	61.4	65.5	73.5	86.5	85.0
	(95% CI)	(39.8-50.9)	(55.6-67.1)	(60.0-71.0)	(68.3-78.7)	(81.5-91.6)	(80.4-89.6)
Indian	No.	241	350	430	468	557	574
	ASMR	63.2	78.6	90.7	73.8	67.2	55.7
	(95% CI)	(52.4-74.0)	(69.0-88.2)	(80.9-100.5)	(66.4-81.1)	(61.4-73.1)	(51.0-60.4)
		1998-2002	**2003-2007**	**2008-2012**	**2013-2017**	**2018-2020**	**2016-2020**
Chinese	No.	17455	17927	20657	23058	14380	**23704**
	ASMR	122.7	103.3	93.6	83.2	72.0	**74.7**
	(95% CI)	(120.8-124.5)	(101.7-104.8)	(92.3-95.0)	(82.0-84.3)	(70.8-73.3)	**(73.7-75.7)**
Malay	No.	1647	1891	2353	3052	2117	**3409**
	ASMR	87.0	85.9	88.0	92.4	91.9	**91.9**
	(95% CI)	(82.7-91.4)	(81.8-89.9)	(84.3-91.7)	(89.0-95.8)	(87.9-95.9)	**(88.8-95.1)**
Indian	No.	739	856	1091	1253	826	**1382**
	ASMR	58.4	61.3	64.0	58.5	53.4	**56.2**
	(95% CI)	(54.0-62.8)	(57.0-65.5)	(60.0-67.9)	(55.1-61.8)	(49.7-57.1)	**(53.1-59.2)**

Figure 1.2.2 Ten most frequent incident cancers by gender and ethnicity, 2016-2020

Male | Female

Chinese
Male (all sites) - 32625
Female (all sites) - 33588

Male:
Colon & rectum	16.9
Prostate	16.8
Lung	13.5
Liver	7.4
Lymphoid neoplasms	6.3
Non-melanoma skin	5.1
Stomach	4.6
Kidney	4.2
Pancreas	3.4
Myeloid neoplasms	3.3

Female:
Breast	29.3
Colon & rectum	13.4
Lung	8.4
Uterus	6.8
Lymphoid neoplasms	4.7
Non-melanoma skin	4.4
Ovary	4.1
Thyroid	3.7
Stomach	3.1
Pancreas	2.8

Malay
Male (all sites) - 3719
Female (all sites) - 4321

Male:
Lung	18.0
Colon & rectum	15.8
Lymphoid neoplasms	11.6
Prostate	10.6
Liver	8.6
Myeloid neoplasms	5.2
Kidney	3.5
Pancreas	2.6
Bladder	2.5
Stomach	2.4
Nasopharynx	2.4

Female:
Breast	29.0
Colon & rectum	12.6
Uterus	8.4
Lymphoid neoplasms	7.8
Ovary	6.3
Lung	6.0
Thyroid	4.2
Cervix	3.8
Myeloid neoplasms	3.1
Liver	2.9

Indian
Male (all sites) - 1837
Female (all sites) - 2319

Male:
Colon & rectum	15.9
Prostate	13.2
Lung	11.3
Lymphoid neoplasms	10.3
Liver	7.1
Stomach	5.2
Kidney	5.0
Myeloid neoplasms	3.9
Pancreas	3.3
Thyroid	2.1
Brain & Central Nervous System	2.1

Female:
Breast	35.9
Colon & rectum	9.7
Uterus	9.6
Lymphoid neoplasms	6.0
Ovary	5.6
Thyroid	4.4
Lung	3.8
Myeloid neoplasms	2.6
Stomach	2.2
Pancreas	2.2

Table 1.2.3 Ten most frequent incident cancers by gender and ethnicity, 2016-2020

Ethnicity	Rank	Male			Female		
		Site	No.	%	Site	No.	%
Chinese	1	Colon & rectum	5521	16.9	Breast	9839	29.3
	2	Prostate	5465	16.8	Colon & rectum	4504	13.4
	3	Lung	4392	13.5	Lung	2833	8.4
	4	Liver	2399	7.4	Uterus	2299	6.8
	5	Lymphoid neoplasms	2045	6.3	Lymphoid neoplasms	1594	4.7
	6	Non-melanoma skin	1671	5.1	Non-melanoma skin	1482	4.4
	7	Stomach	1487	4.6	Ovary	1379	4.1
	8	Kidney	1359	4.2	Thyroid	1230	3.7
	9	Pancreas	1121	3.4	Stomach	1036	3.1
	10	Myeloid neoplasms	1084	3.3	Pancreas	926	2.8
		All sites	**32625**	**100.0**	**All sites**	**33588**	**100.0**
Malay	1	Lung	671	18.0	Breast	1251	29.0
	2	Colon & rectum	589	15.8	Colon & rectum	544	12.6
	3	Lymphoid neoplasms	432	11.6	Uterus	361	8.4
	4	Prostate	396	10.6	Lymphoid neoplasms	335	7.8
	5	Liver	321	8.6	Ovary	272	6.3
	6	Myeloid neoplasms	194	5.2	Lung	258	6.0
	7	Kidney	131	3.5	Thyroid	182	4.2
	8	Pancreas	98	2.6	Cervix	166	3.8
	9	Bladder	92	2.5	Myeloid neoplasms	133	3.1
	10	Nasopharynx	91	2.4	Liver	125	2.9
	10	Stomach	91	2.4			
		All sites	**3719**	**100.0**	**All sites**	**4321**	**100.0**
Indian	1	Colon & rectum	292	15.9	Breast	833	35.9
	2	Prostate	243	13.2	Colon & rectum	225	9.7
	3	Lung	207	11.3	Uterus	223	9.6
	4	Lymphoid neoplasms	189	10.3	Lymphoid neoplasms	138	6.0
	5	Liver	130	7.1	Ovary	129	5.6
	6	Stomach	95	5.2	Thyroid	103	4.4
	7	Kidney	92	5.0	Lung	88	3.8
	8	Myeloid neoplasms	72	3.9	Myeloid neoplasms	61	2.6
	9	Pancreas	61	3.3	Stomach	52	2.2
	10	Thyroid	39	2.1	Pancreas	52	2.2
	10	Brain & Central Nervous System	38	2.1			
		All sites	**1837**	**100.0**	**All sites**	**2319**	**100.0**

1.2 Ethnic trends for incidence and mortality of cancer, 1968-2020

KEY POINTS

- The age-standardised incidence rate of cancer had decreased for Chinese males (from 258.1 to 242.4 per 100,000 population), but it increased for Malay and Indian males (from 96.2 to 222.1 per 100,000 population, and from 125.4 to 157.1 per 100,000 population respectively) between 1968-1972 and 2016-2020.
- The age-standardised incidence rate of cancer had increased for females across all three ethnic groups between 1968-1972 and 2016-2020 (Chinese: 158.5 to 238.2 per 100,000 population; Malay: 98.5 to 232.8 per 100,000 population; Indian: 181.9 to 195.0 per 100,000 population).
- From 1968-1972 to 2016-2020, the age-standardised mortality rate of cancer decreased among Chinese males (from 140.1 to 91.6 per 100,000 population) but increased for Malay and Indian males (from 45.8 to 104.5, and 57.8 to 62.7 per 100,000 population respectively).
- From 1968-1972 to 2016-2020, the age-standardised mortality rate of cancer fell for Chinese and Indian females (from 68.2 to 61.3 and 82.6 to 51.2 per 100,000 respectively) but increased nearly twofold for Malay females (from 46.6 to 82.6 per 100,000 population).
- Overall, there had been a closing of the ethnic gap for both cancer incidence and mortality, particularly between the Chinese and Malays.
- In 2016-2020, among males, colorectal and lung cancers were among the three most frequent incident cancers in all ethnic groups, each accounting for approximately 11-18% of all diagnoses within each ethnic group.
- In 2016-2020, breast cancer was by far the leading cancer diagnosed among females across all three ethnic groups, accounting for about 29-36% of all diagnoses within each ethnic group.

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1.3 Age group trends

Incidence and mortality of cancer by age group, 1968-2020

Between 1968-1972 and 2016-2020, the proportion of all cancer diagnoses among the younger age groups had fallen; while that among the older age groups had correspondingly increased (Figure 1.3.1(a)-(c)). This pattern was observed for both males and females, resulting in an increase in the median age at cancer diagnosis for both genders (Table 1.3.1(a)-(c)). This observed trend is linked to an increase in life expectancy over the years as more individuals live past their 80s, when age-specific incidence rate of cancer is at its highest (Table 1.3.2(a)-(c)) [16] [18].

Among males, the proportion of individuals diagnosed with cancer under 40 years old had fallen from 12.1% in 1968-1972 to 4.2% in 2016-2020 (Table 1.3.1(a)). In contrast, the proportion of diagnoses at ages 70 years and above had risen from 15.7% to 43.2% over the same period. Across the years, individuals aged 60-69 years made up the largest proportion of newly diagnosed cancer patients in almost every five-year period. The median age at diagnosis for males had risen from 59.6 years in 1968-1972 to 68.1 years in 2016-2020.

Among females, 16.9% of all cancer diagnoses occurred under the age of 40 years in 1968-1972, and this had fallen to 7.2% in 2016-2020 (Table 1.3.1(b)). Correspondingly, the proportion of diagnoses among those aged 70 years and above had risen from 17% to 33.4% over the same period. Similar to the trends observed for their male counterparts, the 60-69 years age band was also the largest age group among females diagnosed with cancer across most five-year periods from 1968-2020. The median age at diagnosis for females had also risen from 57.3 years in 1968-1972 to 63.3 years in 2016-2020. However, the median age at diagnosis for females remained lower than that of males for every five-year period.

Overall, the proportion of individuals diagnosed with cancer at the age of 70 years and above had doubled from 16.3% in 1968-1972 to 38.2% in 2016-2020, and the median age at diagnosis had thus increased from 58.7 years to 66.0 years during this period (Table 1.3.1(c)).

The risk of developing and dying from cancer increases with age, as shown by the increase in both the age-specific incidence and mortality rates of cancer for males as well as females (Figure 1.3.2). In 2016-2020, while females had higher age-specific incidence rates of cancer for individuals below 60 years old as compared to males, the age-specific incidence rates of cancer among males increased sharply after 60 years of age and overtook those of females (Table 1.3.2(a), Table 1.3.2(b)).

In 2016-2020, the age-specific incidence rate of cancer among males under 30 years old was 24.6 per 100,000 population, and this rose to 2,885.8 per 100,000 population among the oldest age group of 80 years and above – an increase of more than a hundred-fold (Table 1.3.2(a)). Similarly, the age-specific incidence rate of cancer among females also rose from 28.0 per 100,000 for those below 30 years old to 1,805.2 per 100,000 population from those aged 80 and above (Table 1.3.2(b)). Similar to the age-specific incidence trends, the age-specific cancer mortality rates increased from 2.7 and 2.1 per 100,000 population for males and females under 30 years old to 1,929.3 and 1,161.1 per 100,000 population respectively for males and females aged 80 years and above. While the age-specific mortality rates of cancer in males and females were similar before 60 years of age, like the age-specific incidence trends, the age-specific mortality rates of cancer among males also surpassed those of females thereafter.

Ten most frequent incident cancers by gender and age group, 2016-2020

The pattern of the ten most frequent incident cancers for males and females also differed by age group (Figure 1.3.3, Table 1.3.3). In the period 2016-2020, lymphoid neoplasms were the most common diagnosis in males below 30 years old, accounting for one in three cancer diagnoses in this age group. Lung cancer, while less common in younger males, was the most common diagnosis in males aged 80 years and above, accounting for about one in six incident cancers among males in that age group. The

two other most common cancers diagnosed in males 50 years and above were colorectal and prostate cancers.

Among females, lymphoid neoplasms were also the most common diagnosis for those below 30 years old, accounting for about one-fifth of all incident cases of cancer in that age group. Between the ages of 30 to 79 years, breast cancer was the most common diagnosis and accounted for nearly half of all cancer diagnoses within the 40-49 years age band. As with males, colorectal and lung cancers were also common among older females.

Figure 1.3.1(a) Distribution of age at diagnosis (%) of cancer in males, 1968-2020
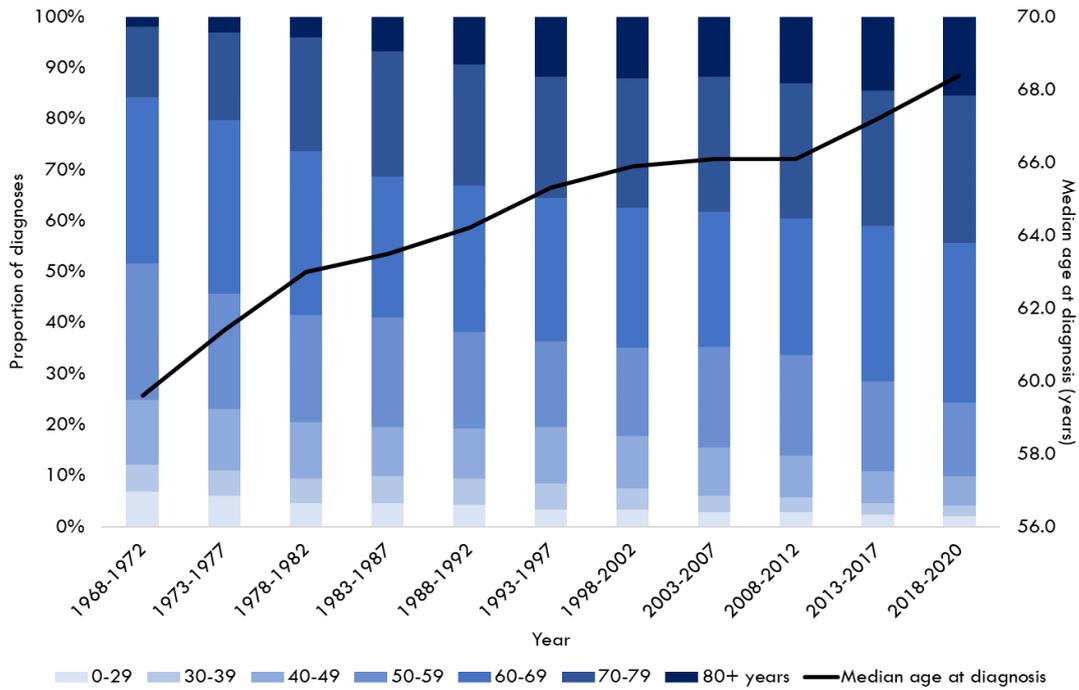
Figure 1.3.1(b) Distribution of age at diagnosis (%) of cancer in females, 1968-2020
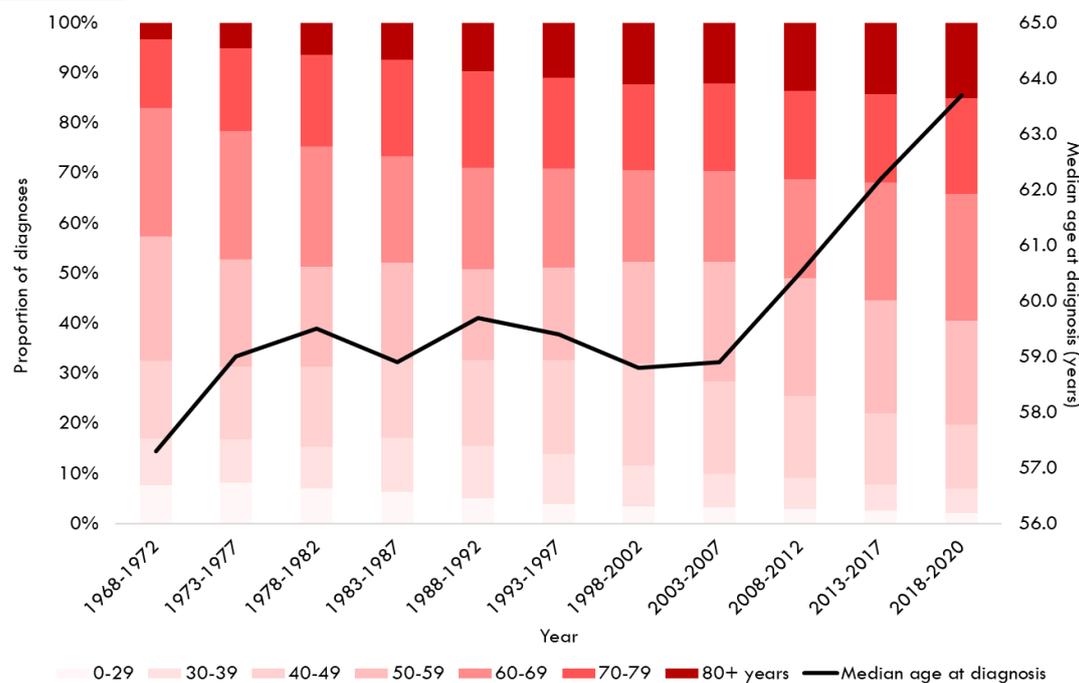
Figure 1.3.1(c) Distribution of age at diagnosis (%) of cancer, 1968-2020
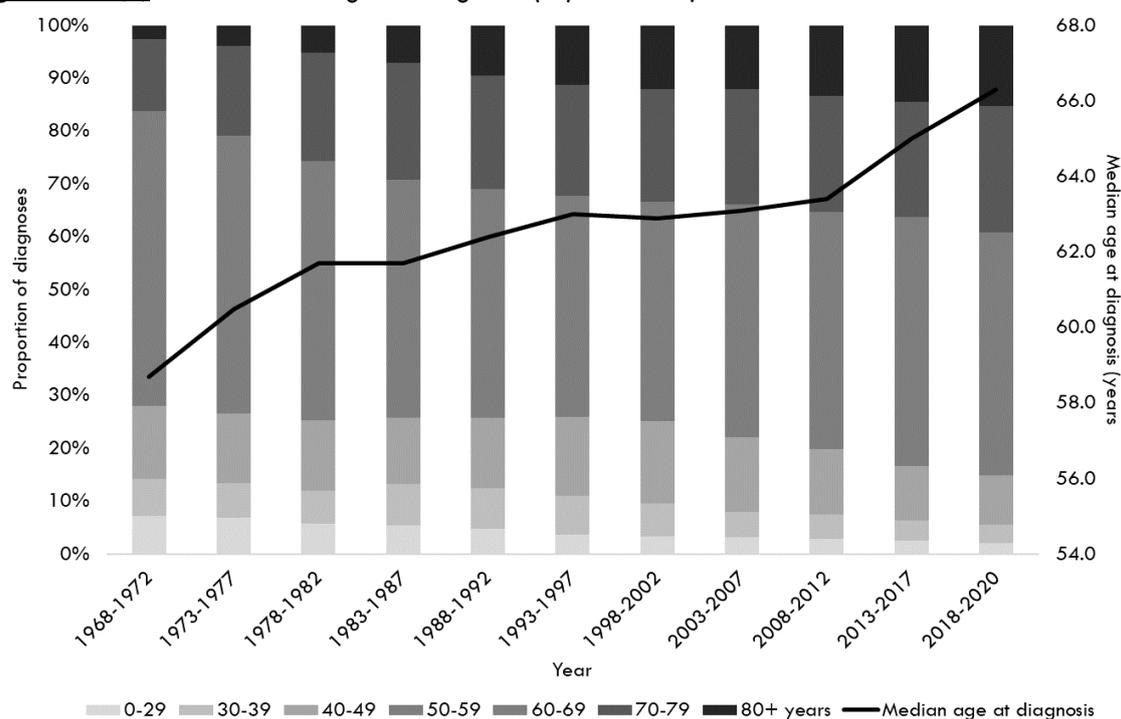
Table 1.3.1(a) Distribution of age at diagnosis (%) of cancer in males, 1968-2020

Age group	1968-1972	1973-1977	1978-1982	1983-1987	1988-1992	1993-1997
0-29 years	6.8	6.0	4.7	4.6	4.3	3.3
30-39 years	5.3	5.0	4.7	5.3	5.2	5.2
40-49 years	12.7	12.0	11.1	9.7	9.7	11.0
50-59 years	26.8	22.6	21.1	21.4	19.0	17.0
60-69 years	32.7	34.0	32.1	27.7	28.7	28.0
70-79 years	13.7	17.3	22.2	24.6	23.7	23.9
80+ years	2.0	3.0	4.1	6.7	9.3	11.7
Median age at diagnosis (years)	59.6	61.4	63.0	63.5	64.2	65.3
Age group	**1998-2002**	**2003-2007**	**2008-2012**	**2013-2017**	**2018-2020**	**2016-2020**
0-29 years	3.3	2.9	2.8	2.3	2.1	**2.1**
30-39 years	4.2	3.1	3.0	2.3	2.1	**2.1**
40-49 years	10.3	9.5	8.2	6.3	5.7	**5.7**
50-59 years	17.4	19.8	19.7	17.6	14.5	**15.3**
60-69 years	27.4	26.4	26.8	30.6	31.2	**31.5**
70-79 years	25.4	26.6	26.5	26.4	28.8	**28.0**
80+ years	12.0	11.7	13.0	14.5	15.5	**15.2**
Median age at diagnosis (years)	65.9	66.1	66.1	67.2	68.4	**68.1**

Table 1.3.1(b) Distribution of age at diagnosis (%) of cancer in females, 1968-2020

Age group	1968-1972	1973-1977	1978-1982	1983-1987	1988-1992	1993-1997
0-29 years	7.6	8.1	7.0	6.4	5.1	3.9
30-39 years	9.3	8.7	8.4	10.7	10.5	9.9
40-49 years	15.5	14.6	16.0	15.7	17.1	18.9
50-59 years	24.8	21.4	19.9	19.3	18.2	18.3
60-69 years	25.7	25.7	24.0	21.2	20.3	19.8
70-79 years	13.7	16.5	18.3	19.2	19.2	18.1
80+ years	3.3	5.1	6.4	7.4	9.7	11.0
Median age at diagnosis (years)	57.3	59.0	59.5	58.9	59.7	59.4
Age group	1998-2002	2003-2007	2008-2012	2013-2017	2018-2020	2016-2020
0-29 years	3.5	3.3	3.0	2.6	2.1	2.3
30-39 years	8.1	6.7	6.2	5.2	4.9	4.9
40-49 years	20.5	18.4	16.3	14.3	12.7	13.2
50-59 years	20.3	23.9	23.5	22.5	20.8	21.1
60-69 years	18.2	18.2	19.8	23.6	25.2	25.0
70-79 years	17.2	17.4	17.6	17.6	19.2	18.7
80+ years	12.3	12.2	13.6	14.2	15.0	14.7
Median age at diagnosis (years)	58.8	58.9	60.5	62.2	63.7	63.3

Table 1.3.1(c) Distribution of age at diagnosis (%) of cancer, 1968-2020

Age group	1968-1972	1973-1977	1978-1982	1983-1987	1988-1992	1993-1997
0-29 years	7.2	6.9	5.7	5.4	4.7	3.6
30-39 years	7.0	6.5	6.3	7.8	7.7	7.5
40-49 years	13.9	13.1	13.2	12.5	13.3	14.9
50-59 years	25.9	22.1	20.6	20.4	18.6	17.7
60-69 years	29.8	30.5	28.5	24.7	24.7	24.0
70-79 years	13.7	17.0	20.5	22.1	21.5	21.0
80+ years	2.6	3.9	5.1	7.1	9.5	11.3
Median age at diagnosis (years)	58.7	60.5	61.7	61.7	62.4	63.0
Age group	1998-2002	2003-2007	2008-2012	2013-2017	2018-2020	2016-2020
0-29 years	3.4	3.1	2.9	2.5	2.1	2.2
30-39 years	6.2	4.9	4.6	3.8	3.5	3.6
40-49 years	15.5	14.1	12.3	10.4	9.3	9.6
50-59 years	18.9	21.9	21.7	20.1	17.7	18.3
60-69 years	22.7	22.2	23.2	27.0	28.2	28.2
70-79 years	21.2	21.8	21.9	21.8	23.9	23.2
80+ years	12.1	12.0	13.3	14.4	15.3	15.0
Median age at diagnosis (years)	62.9	63.1	63.4	65.0	66.3	66.0

Figure 1.3.2 Age-specific incidence and mortality rate (per 100,000 population) of cancer by gender, 2016-2020
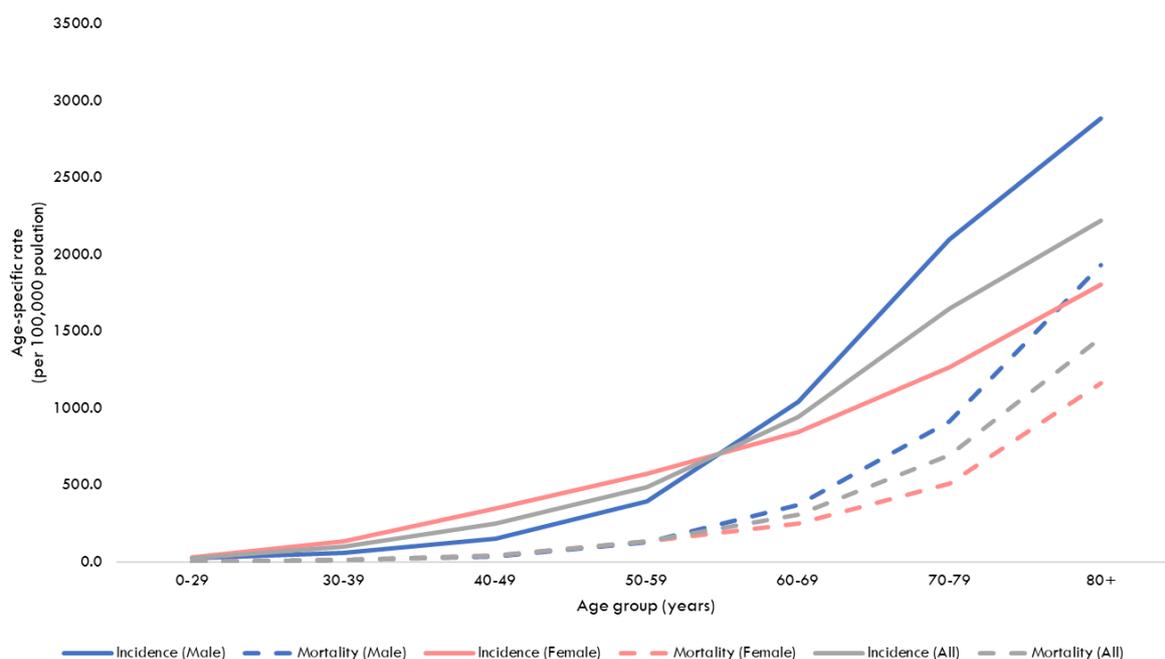
Table 1.3.2(a) Age-specific incidence and mortality number and rate (per 100,000 population) of cancer in males, 2016-2020

		0-29 years	30-39 years	40-49 years	50-59 years	60-69 years	70-79 years	80+ years
Incidence	**No.**	846	843	2249	6027	12411	11013	6004
	Age-specific rate (95% CI)	24.6 (22.9-26.2)	60.3 (56.2-64.4)	151.5 (145.2-157.8)	395.6 (385.6-405.6)	1041.9 (1023.6-1060.3)	2097.7 (2058.5-2136.9)	2885.8 (2812.8-2958.8)
Mortality	**No.**	92	132	535	1940	4380	4801	4014
	Age-specific rate (95% CI)	2.7 (2.1-3.2)	9.4 (7.8-11.0)	36.0 (33.0-39.1)	127.3 (121.7-133.0)	367.7 (356.8-378.6)	914.5 (888.6-940.3)	1929.3 (1869.6-1989.0)

Table 1.3.2(b) Age-specific incidence and mortality number and rate (per 100,000 population) of cancer in females, 2016-2020

		0-29 years	30-39 years	40-49 years	50-59 years	60-69 years	70-79 years	80+ years
Incidence	**No.**	942	2026	5464	8745	10339	7751	6093
	Age-specific rate (95% CI)	28.0 (26.3-29.8)	131.0 (125.3-136.7)	345.8 (336.6-355.0)	571.7 (559.7-583.6)	845.2 (828.9-861.5)	1264.9 (1236.7-1293.0)	1805.2 (1759.8-1850.5)
Mortality	**No.**	71	184	660	2047	3048	3103	3919
	Age-specific rate (95% CI)	2.1 (1.6-2.6)	11.9 (10.2-13.6)	41.8 (38.6-45.0)	133.8 (128.0-139.6)	249.2 (240.3-258.0)	506.4 (488.5-524.2)	1161.1 (1124.7-1197.4)

Table 1.3.2(c) Age-specific incidence and mortality number and rate (per 100,000 population) of cancer, 2016-2020

		0-29 years	30-39 years	40-49 years	50-59 years	60-69 years	70-79 years	80+ years
Incidence	**No.**	1788	2869	7713	14772	22750	18764	12097
	Age-specific rate (95% CI)	26.3 (25.1-27.5)	97.4 (93.9-101.0)	251.7 (246.1-257.3)	483.8 (476.0-491.6)	942.3 (930.0-954.5)	1649.2 (1625.6-1672.8)	2217.2 (2177.7-2256.8)
Mortality	**No.**	163	316	1195	3987	7428	7904	7933
	Age-specific rate (95% CI)	2.4 (2.0-2.8)	10.7 (9.5-11.9)	39.0 (36.8-41.2)	130.6 (126.5-134.6)	307.7 (300.7-314.6)	694.7 (679.4-710.0)	1454.0 (1422.0-1486.0)

Figure 1.3.3 Ten most frequent incident cancers by gender and age group, 2016-2020

Male

Female

0-29 years
Male (all sites) - 846
Female (all sites)- 942

Male	%
Lymphoid neoplasms	32.6
Testis	10.3
Myeloid neoplasms	9.2
Brain & Central Nervous System	7.9
Connective tissue	5.2
Bone	5.1
Thyroid	5.1
Heart, thymus, & mediastinum	3.7
Colon & rectum	3.4
Other endocrine	3.3

Female	%
Lymphoid neoplasms	19.5
Ovary	14.5
Thyroid	14.4
Breast	9.3
Myeloid neoplasms	8.0
Brain & Central Nervous System	5.5
Uterus	3.7
Bone	3.4
Connective tissue	3.0
Other endocrine	2.1

30-39 years
Male (all sites) - 843
Female (all sites) - 2026

Male	%
Lymphoid neoplasms	14.7
Colon & rectum	11.5
Nasopharynx	10.4
Myeloid neoplasms	7.8
Testis	7.8
Thyroid	7.6
Non-melanoma skin	5.5
Brain & Central Nervous System	4.5
Kidney	4.2
Connective tissue	3.6

Female	%
Breast	33.6
Thyroid	12.4
Uterus	9.1
Cervix	7.7
Ovary	7.2
Lymphoid neoplasms	5.8
Colon & rectum	4.8
Myeloid neoplasms	2.8
Lung	1.8
Non-melanoma skin	1.5

40-49 years
Male (all sites) - 2249
Female (all sites) - 5464

Male	%
Colon & rectum	16.5
Nasopharynx	11.0
Lymphoid neoplasms	10.6
Kidney	8.2
Lung	7.7
Non-melanoma skin	6.9
Thyroid	4.8
Liver	4.7
Myeloid neoplasms	4.4
Stomach	3.2

Female	%
Breast	46.6
Uterus	10.1
Thyroid	6.3
Ovary	6.0
Colon & rectum	5.9
Cervix	4.2
Lung	3.3
Lymphoid neoplasms	2.8
Non-melanoma skin	1.6
Kidney	1.5
Myeloid neoplasms	1.5

50-59 years
Male (all sites) - 6027
Female (all sites) - 8745

Male	%
Colon & rectum	18.7
Lung	11.9
Prostate	8.1
Lymphoid neoplasms	7.6
Liver	7.6
Kidney	5.6
Nasopharynx	5.1
Non-melanoma skin	4.7
Stomach	4.1
Myeloid neoplasms	3.5

Female	%
Breast	37.5
Uterus	11.0
Colon & rectum	10.7
Ovary	6.2
Lung	5.6
Thyroid	4.3
Lymphoid neoplasms	4.2
Cervix	2.9
Non-melanoma skin	1.8
Kidney	1.8

60-69 years
Male (all sites) - 12411
Female (all sites) - 10339

Male:
Site	%
Colon & rectum	18.5
Prostate	18.4
Lung	13.5
Liver	8.5
Lymphoid neoplasms	5.9
Kidney	4.3
Non-melanoma skin	3.9
Stomach	3.8
Pancreas	3.4
Myeloid neoplasms	2.9

Female:
Site	%
Breast	31.0
Colon & rectum	14.1
Lung	8.7
Uterus	7.6
Lymphoid neoplasms	5.2
Ovary	3.9
Non-melanoma skin	3.3
Pancreas	3.2
Stomach	2.7
Thyroid	2.6
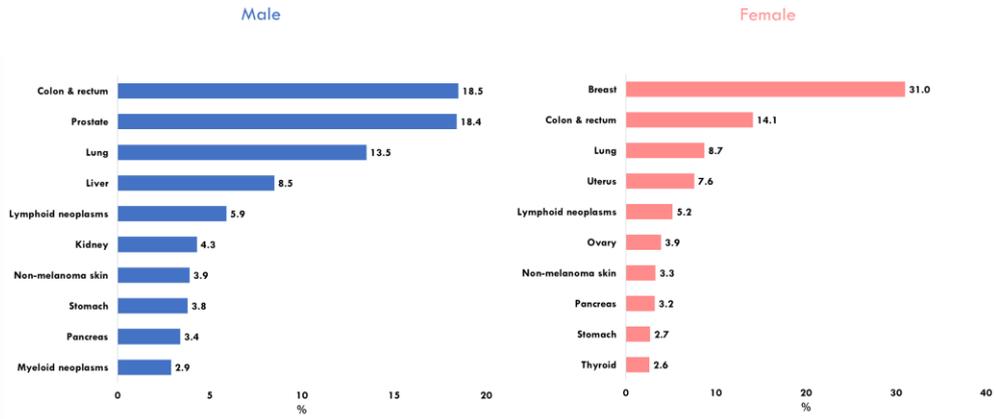
70-79 years
Male (all sites) - 11013
Female (all sites) - 7751

Male:
Site	%
Prostate	22.8
Lung	15.9
Colon & rectum	15.2
Liver	7.5
Lymphoid neoplasms	5.7
Non-melanoma skin	5.2
Stomach	4.6
Pancreas	3.7
Kidney	3.2
Myeloid neoplasms	3.0

Female:
Site	%
Breast	21.6
Colon & rectum	16.8
Lung	11.5
Lymphoid neoplasms	6.3
Non-melanoma skin	5.7
Uterus	4.3
Liver	4.3
Pancreas	4.1
Stomach	3.9
Kidney	2.7

80 years+
Male (all sites) - 6004
Female (all sites) - 6093

Male:
Site	%
Lung	17.0
Prostate	16.0
Colon & rectum	15.3
Non-melanoma skin	8.6
Liver	7.7
Stomach	6.2
Lymphoid neoplasms	5.1
Myeloid neoplasms	3.9
Pancreas	3.3
Kidney	2.8

Female:
Site	%
Colon & rectum	20.2
Breast	13.5
Lung	12.3
Non-melanoma skin	10.3
Stomach	5.6
Liver	5.3
Lymphoid neoplasms	4.6
Pancreas	4.2
Myeloid neoplasms	3.7
Gallbladder	2.2

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Table 1.3.3 Ten most frequent incident cancers by gender and age group, 2016-2020

Age group	Rank	Male Site	No.	%	Female Site	No.	%
0-29 years	1	Lymphoid neoplasms	276	32.6	Lymphoid neoplasms	184	19.5
	2	Testis	87	10.3	Ovary	137	14.5
	3	Myeloid neoplasms	78	9.2	Thyroid	136	14.4
	4	Brain & Central Nervous System	67	7.9	Breast	88	9.3
	5	Connective tissue	44	5.2	Myeloid neoplasms	75	8.0
	6	Thyroid	43	5.1	Brain & Central Nervous System	52	5.5
	7	Bone	43	5.1	Uterus	35	3.7
	8	Heart, thymus, & mediastinum	31	3.7	Bone	32	3.4
	9	Colon & rectum	29	3.4	Connective tissue	28	3.0
	10	Other endocrine	28	3.3	Other endocrine	20	2.1
		All sites	**846**	**100.0**	**All sites**	**942**	**100.0**
30-39 years	1	Lymphoid neoplasms	124	14.7	Breast	681	33.6
	2	Colon & rectum	97	11.5	Thyroid	251	12.4
	3	Nasopharynx	88	10.4	Uterus	184	9.1
	4	Testis	66	7.8	Cervix	156	7.7
	5	Myeloid neoplasms	66	7.8	Ovary	145	7.2
	6	Thyroid	64	7.6	Lymphoid neoplasms	118	5.8
	7	Non-melanoma skin	46	5.5	Colon & rectum	97	4.8
	8	Brain & Central Nervous System	38	4.5	Myeloid neoplasms	57	2.8
	9	Kidney	35	4.2	Lung	37	1.8
	10	Connective tissue	30	3.6	Non-melanoma skin	31	1.5
		All sites	**843**	**100.0**	**All sites**	**2026**	**100.0**
40-49 years	1	Colon & rectum	371	16.5	Breast	2546	46.6
	2	Nasopharynx	247	11.0	Uterus	551	10.1
	3	Lymphoid neoplasms	239	10.6	Thyroid	344	6.3
	4	Kidney	185	8.2	Ovary	327	6.0
	5	Lung	174	7.7	Colon & rectum	323	5.9
	6	Non-melanoma skin	156	6.9	Cervix	231	4.2
	7	Thyroid	108	4.8	Lung	180	3.3
	8	Liver	106	4.7	Lymphoid neoplasms	153	2.8
	9	Myeloid neoplasms	99	4.4	Non-melanoma skin	88	1.6
	10	Stomach	73	3.2	Kidney	80	1.5
	10	-			Myeloid neoplasms	80	1.5
		All sites	**2249**	**100.0**	**All sites**	**5464**	**100.0**
50-59 years	1	Colon & rectum	1128	18.7	Breast	3282	37.5
	2	Lung	715	11.9	Uterus	962	11.0
	3	Prostate	491	8.1	Colon & rectum	932	10.7
	4	Lymphoid neoplasms	460	7.6	Ovary	538	6.2
	5	Liver	458	7.6	Lung	489	5.6
	6	Kidney	339	5.6	Thyroid	378	4.3
	7	Nasopharynx	308	5.1	Lymphoid neoplasms	365	4.2
	8	Non-melanoma skin	286	4.7	Cervix	250	2.9
	9	Stomach	249	4.1	Non-melanoma skin	161	1.8
	10	Myeloid neoplasms	212	3.5	Kidney	159	1.8
		All sites	**6027**	**100.0**	**All sites**	**8745**	**100.0**
60-69 years	1	Colon & rectum	2297	18.5	Breast	3204	31.0
	2	Prostate	2282	18.4	Colon & rectum	1461	14.1
	3	Lung	1678	13.5	Lung	903	8.7
	4	Liver	1049	8.5	Uterus	783	7.6
	5	Lymphoid neoplasms	729	5.9	Lymphoid neoplasms	538	5.2
	6	Kidney	529	4.3	Ovary	403	3.9
	7	Non-melanoma skin	486	3.9	Non-melanoma skin	338	3.3
	8	Stomach	470	3.8	Pancreas	328	3.2
	9	Pancreas	424	3.4	Stomach	274	2.7
	10	Myeloid neoplasms	364	2.9	Thyroid	264	2.6
		All sites	**12411**	**100.0**	**All sites**	**10339**	**100.0**
70-79 years	1	Prostate	2507	22.8	Breast	1677	21.6
	2	Lung	1746	15.9	Colon & rectum	1306	16.8
	3	Colon & rectum	1674	15.2	Lung	890	11.5
	4	Liver	822	7.5	Lymphoid neoplasms	486	6.3
	5	Lymphoid neoplasms	628	5.7	Non-melanoma skin	445	5.7
	6	Non-melanoma skin	578	5.2	Uterus	335	4.3
	7	Stomach	504	4.6	Liver	333	4.3
	8	Pancreas	402	3.7	Pancreas	314	4.1
	9	Kidney	349	3.2	Stomach	303	3.9
	10	Myeloid neoplasms	332	3.0	Kidney	211	2.7
		All sites	**11013**	**100.0**	**All sites**	**7751**	**100.0**
80+ years	1	Lung	1021	17.0	Colon & rectum	1228	20.2
	2	Prostate	958	16.0	Breast	825	13.5
	3	Colon & rectum	917	15.3	Lung	748	12.3
	4	Non-melanoma skin	516	8.6	Non-melanoma skin	628	10.3
	5	Liver	461	7.7	Stomach	339	5.6
	6	Stomach	375	6.2	Liver	325	5.3
	7	Lymphoid neoplasms	308	5.1	Lymphoid neoplasms	280	4.6
	8	Myeloid neoplasms	232	3.9	Pancreas	254	4.2
	9	Pancreas	197	3.3	Myeloid neoplasms	224	3.7
	10	Kidney	169	2.8	Gallbladder	131	2.2
		All sites	**6004**	**100.0**	**All sites**	**6093**	**100.0**

1.3 Age group trends for incidence and mortality of cancer, 1968-2020

KEY POINTS

- There had been a shift towards a greater proportion of cancer diagnoses among the older age groups. The proportion of diagnoses at the age of 70 years and above had risen from 15.7% in 1968-1972 to 43.2% in 2016-2020 for males, and from 17% to 33.4% in females during this period.
- From 1968-1972 to 2016-2020, while the median age at diagnosis for cancer had risen for both genders, it was observed to be consistently higher for males than females (males: 59.6 to 68.1 years; females: 57.3 to 63.3 years).
- Individuals aged 60-69 years made up the largest age group among all cancer diagnoses for the majority of the five-year periods for both males and females.
- The risk of developing and dying from cancer increased with age as age-specific incidence and mortality rates rose with age.
- In 2016-2020, lymphoid neoplasms was the most common diagnosis in younger males while lung, colorectal, and prostate cancers were more common among older males.
- In 2016-2020, breast cancer was the most common diagnosis in females aged 30 – 79 years; colorectal and lung cancers were also common among older females.

(2) TRENDS IN CANCER SURVIVAL, 1968-2020

2.1 Five-year age-standardised relative survival (ASRS) of cancer, 1968-2020

2.1.1 Gender trends

The five-year age-standardised relative survival (ASRS) of all cancers had improved for males and females over the years (Figure 2.1.1, Table 2.1.1). The five-year ASRS increased from 13.2% to 54.3% for males from 1973-1977 to 2016-2020 and rose from 28.0% to 62.7% for females over the same period. Notably, the five-year ASRS in every five-year period was higher for females than for males.

Figure 2.1.1 Five-year age-standardised relative survival rate (%) of cancer by gender, 1968-2020
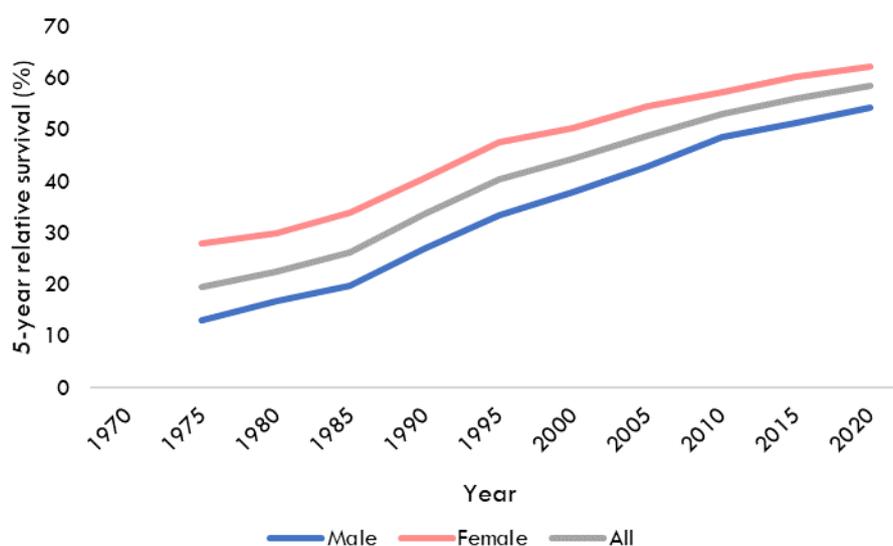
Table 2.1.1 Five-year age-standardised relative survival rate (%) of cancers by gender, 1968-2020

		1968-1972	1973-1977	1978-1982	1983-1987	1988-1992	1993-1997
Male	**5-year ASRS**	-	13.2	16.8	19.9	27.1	33.4
	(95% CI)	-	(12.3-14.1)	(15.8-17.7)	(18.9-20.8)	(26.1-28.1)	(32.4-34.3)
Female	**5-year ASRS**	-	28.0	29.9	34.0	40.8	47.7
	(95% CI)	-	(26.6-29.5)	(28.7-31.2)	(32.9-35.2)	(39.7-41.9)	(46.7-48.6)
All	**5-year ASRS**	-	19.5	22.5	26.4	33.8	40.4
	(95% CI)	-	(18.7-20.3)	(21.8-23.3)	(25.7-27.1)	(33.0-34.5)	(39.8-41.1)
		1998-2002	2003-2007	2008-2012	2013-2017	2018-2020	2016-2020
Male	**5-year ASRS**	38.0	43.0	48.7	51.5	54.4	**54.3**
	(95% CI)	(37.2-38.9)	(42.2-43.8)	(48.0-49.4)	(50.9-52.2)	(53.7-55.2)	**(53.7-54.9)**
Female	**5-year ASRS**	50.5	54.5	57.4	60.4	62.4	**62.7**
	(95% CI)	(49.7-51.3)	(53.8-55.3)	(56.7-58.0)	(59.9-61.0)	(61.7-63.0)	**(62.2-63.3)**
All	**5-year ASRS**	44.4	48.9	53.2	56.1	58.5	**58.7**
	(95% CI)	(43.8-45.0)	(48.4-49.5)	(52.7-53.7)	(55.7-56.6)	(58.0-59.0)	**(58.3-59.1)**

2.1.2 Ethnic trends

From 1973-1977 onwards, the five-year ASRS of cancer has increased for all three ethnic groups (Figure 2.1.2, Table 2.1.2). From 1973-1977 to 2016-2020, the five-year ASRS of cancer rose from 19.6% to 59.8%, 17.0% to 46.0%, and 24.6% to 58.1% for the Chinese, Malays and Indians respectively. Aside from some fluctuation in the five-year ASRS during the earlier time periods, the survival rates of cancer for the Chinese and Indians remained fairly similar. However, the Malays consistently had the lowest five-year ASRS throughout the years.

Figure 2.1.2 Five-year age-standardised relative survival rate (%) of cancer by ethnicity, 1968-2020
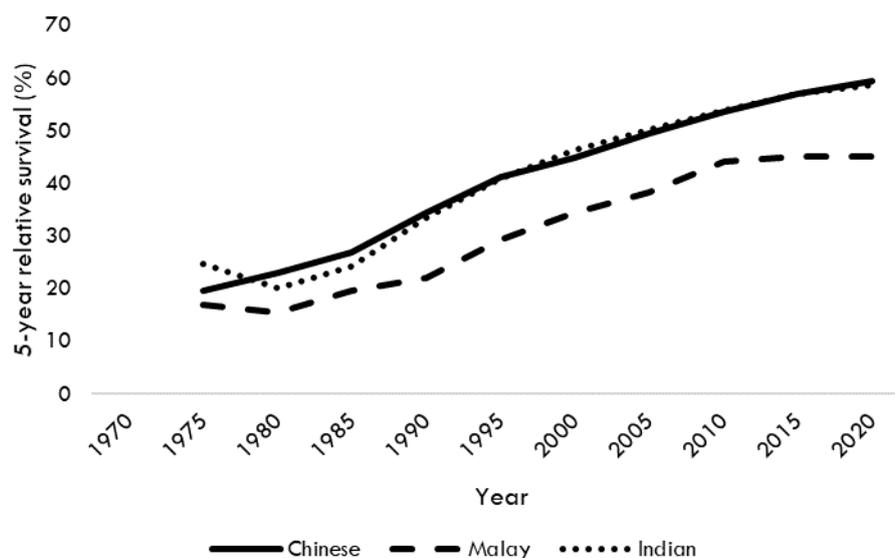
Table 2.1.2 Five-year age-standardised relative survival rate (%) of cancer by ethnicity, 1968-2020

		1968-1972	1973-1977	1978-1982	1983-1987	1988-1992	1993-1997
Chinese	5-year ASRS	-	19.6	23.0	26.8	34.4	41.2
	(95% CI)	-	(18.7-20.5)	(22.1-23.8)	(26.0-27.6)	(33.7-35.2)	(40.4-41.9)
Malay	5-year ASRS	-	17.0	15.4	19.7	22.1	29.4
	(95% CI)	-	(13.8-20.6)	(12.9-18.2)	(17.3-22.3)	(19.8-24.5)	(27.3-31.6)
Indian	5-year ASRS	-	24.6	20.0	24.3	33.4	40.9
	(95% CI)	-	(19.9-29.6)	(16.6-23.6)	(20.6-28.1)	(29.7-37.2)	(37.5-44.4)
		1998-2002	2003-2007	2008-2012	2013-2017	2018-2020	2016-2020
Chinese	5-year ASRS	44.9	49.5	53.5	56.9	59.5	**59.8**
	(95% CI)	(44.3-45.6)	(48.9-50.1)	(53.0-54.0)	(56.4-57.3)	(59.0-60.1)	**(59.3-60.2)**
Malay	5-year ASRS	34.3	38.2	44.1	45.2	45.2	**46.0**
	(95% CI)	(32.4-36.2)	(36.5-39.9)	(42.5-45.6)	(43.8-46.5)	(43.7-46.7)	**(44.8-47.3)**
Indian	5-year ASRS	46.3	50.1	53.8	57.1	58.6	**58.1**
	(95% CI)	(43.4-49.2)	(47.4-52.7)	(51.6-56.0)	(55.2-59.0)	(56.3-60.7)	**(56.4-59.9)**

2.1.3 Age group trends

The five-year age-specific relative survival of cancer had seen an overall increase across all the different age groups. This was so even among the oldest age groups (70-79 years and 80 years and above), where relative survival rose from 13.3% in 1973-1977 to 54.1% in 2016-2020 for the former and from 22.4% to 37.9% over the same period for the latter (Figure 2.1.3(a), Table 2.1.3). In the 2016-2020 period, the five-year age-specific relative survival of cancer was observed to decrease with age, particularly after the age of 49 years, dropping from 86.7% among individuals under 30 years of age to 37.9% in those aged 80 years 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, 1968-2020
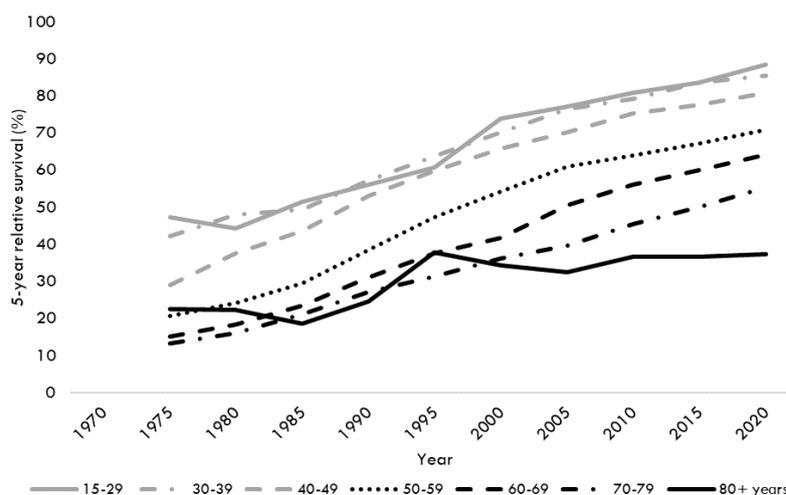
Figure 2.1.3(b) Five-year age-specific relative survival rate (%) of cancer by age group, 2016-2020
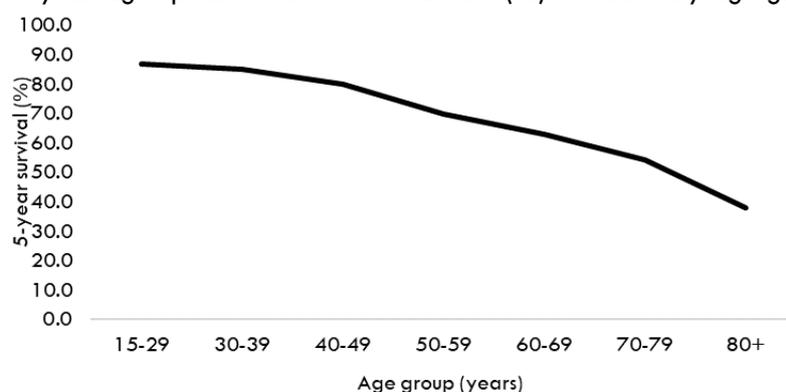
Table 2.1.3 Five-year age-specific relative survival rate (%) of cancer by age group, 1968-2020

		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	47.2	42.2	29.0	20.7	15.0	13.3	22.4
	(95% CI)	(42.7-51.7)	(38.5-45.8)	(26.7-31.3)	(19.1-22.3)	(13.8-16.3)	(11.5-15.3)	(15.0-31.7)
1978-1982	5-year ASRS	44.3	47.9	37.5	24.1	18.4	16.0	22.2
	(95% CI)	(40.4-48.2)	(44.6-51.2)	(35.2-39.7)	(22.5-25.7)	(17.1-19.7)	(14.4-17.8)	(16.9-28.5)
1983-1987	5-year ASRS	51.4	49.3	43.5	29.4	23.3	21.0	18.5
	(95% CI)	(47.4-55.3)	(46.5-52.1)	(41.4-45.6)	(27.8-31.0)	(21.9-24.7)	(19.4-22.7)	(15.0-22.5)
1988-1992	5-year ASRS	56.1	57.2	52.9	38.4	31.0	27.2	24.6
	(95% CI)	(52.3-59.8)	(54.8-59.6)	(50.9-54.7)	(36.9-40.0)	(29.6-32.4)	(25.6-28.8)	(21.2-28.3)
1993-1997	5-year ASRS	60.7	63.7	59.8	47.3	37.6	31.3	37.8
	(95% CI)	(56.8-64.5)	(61.5-65.7)	(58.2-61.3)	(45.8-48.8)	(36.3-38.9)	(29.8-32.8)	(34.6-41.2)
1998-2002	5-year ASRS	73.8	70.2	65.7	54.2	41.7	36.1	34.2
	(95% CI)	(70.4-76.9)	(68.3-72.0)	(64.4-67.0)	(52.9-55.4)	(40.6-42.9)	(34.8-37.4)	(32.0-36.5)
2003-2007	5-year ASRS	77.1	76.3	70.1	60.9	50.4	39.5	32.5
	(95% CI)	(74.0-79.9)	(74.5-78.1)	(68.9-71.2)	(59.9-62.0)	(49.3-51.5)	(38.3-40.7)	(30.5-34.4)
2008-2012	5-year ASRS	80.8	79.2	75.2	63.9	55.9	45.3	36.5
	(95% CI)	(78.0-83.2)	(77.5-80.9)	(74.1-76.2)	(63.0-64.8)	(54.9-56.8)	(44.2-46.4)	(34.7-38.3)
2013-2017	5-year ASRS	83.5	83.6	77.6	67.2	60.0	50.1	36.5
	(95% CI)	(81.2-85.7)	(82.1-85.0)	(76.6-78.6)	(66.4-68.0)	(59.2-60.8)	(49.1-51.1)	(35.1-38.0)
2018-2020	5-year ASRS	88.3	85.3	80.7	70.7	64.0	55.4	37.3
	(95% CI)	(85.6-90.5)	(83.5-87.0)	(79.5-81.8)	(69.7-71.7)	(63.1-64.9)	(54.2-56.5)	(35.7-38.9)
2016-2020	5-year ASRS	**86.7**	**85.1**	**80.0**	**69.7**	**63.0**	**54.1**	**37.9**
	(95% CI)	**(84.6-88.6)**	**(83.7-86.5)**	**(79.0-80.9)**	**(69.0-70.5)**	**(62.3-63.7)**	**(53.2-55.0)**	**(36.6-39.3)**

2.1 Five-year relative survival of cancer by gender, ethnicity and age group

KEY POINTS

- From 1973-1977 to 2016-2020, while the five-year relative survival rate had improved significantly for both males and females (13.2% to 54.3% and 28% to 62.7% respectively), females were observed to consistently have a higher survival rate compared to males.
- While the five-year relative survival rate improved for all three ethnic groups over the years, Malays were found to consistently have the lowest survival rates throughout the years (Chinese: 19.6% to 59.8% from 1973-1977 to 2016-2020; Malay: 17% to 46%; Indian: 24.6% to 58.1%).
- The five-year relative survival rates decreased with age. In 2016-2020, the 5-year ASRS for individuals aged 15-29 years was 86.7%, compared to only 37.9% for those aged 80 years and above.

2.2 Five-year age-standardised relative survival rate (%) for ten most frequent incident cancers by gender, 2016-2020

Of the ten most frequent incident cancers for both genders in 2016-2020, non-melanoma skin cancer had the highest five-year ASRS, at 95.5% and 98.5% respectively for males and females (Figure 2.2.1, Figure 2.2.2). Prostate cancer in males as well as breast and thyroid cancers in females also had high survival rates that exceeded 80%. Cancers of the stomach, liver, lung and pancreas had poorer survival rates on the whole. Of the ten most frequent incident cancers among males, pancreatic cancer had the lowest five-year ASRS at 13.6% followed by lung and liver cancers at 17.9% and 25.5% respectively. Pancreatic cancer had the lowest five-year ASRS among the top ten most commonly diagnosed cancers in females at 12.8%, followed by lung and stomach cancers at 33.2% and 40.4% respectively.

Figure 2.2.1 Five-year age-standardised relative survival rate (%) for ten most frequent incident cancers in males, 2016-2020
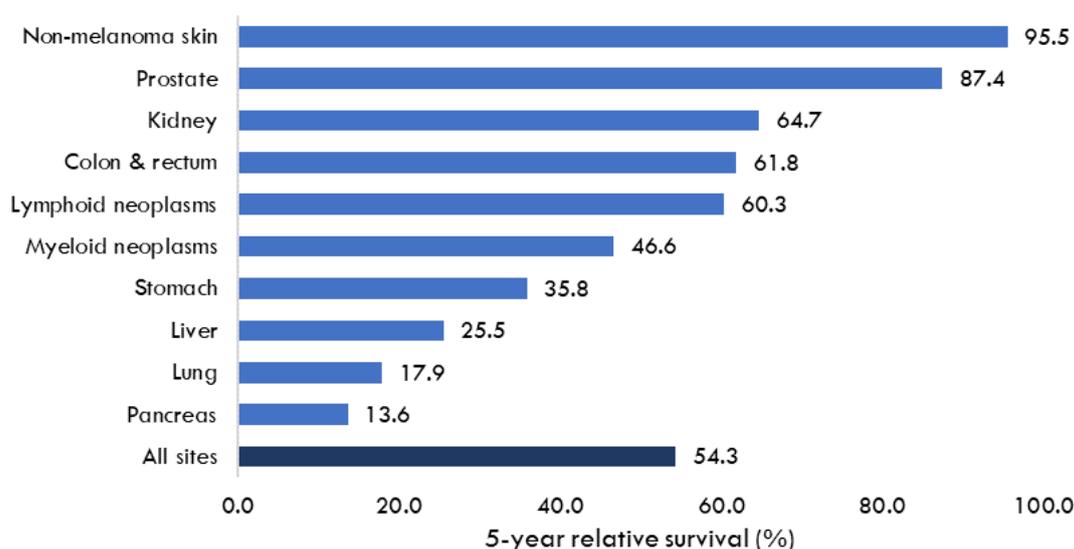
Figure 2.2.2 Five-year age-standardised relative survival rate (%) for ten most frequent incident cancers in females, 2016-2020

2.3 Age-standardised relative survival rate (%) five years following diagnosis for ten most frequent incident cancers by gender, 2016-2020

While the ASRS of cancer for both genders decreased with each year post-diagnosis, the survival for some cancers declined more rapidly for every additional year post-diagnosis in comparison to others. Overall, the cancer survival rate for each year following diagnosis for all cancers was better among for females compared than males.

Among males, the one-year survival rate for all cancers was 74.1%, and by the five-year mark, this had decreased gradually to 54.3% (Figure 2.3.1, Table 2.3.1). Non-melanoma skin and prostate cancers had the highest survival rate at every one-year interval after diagnosis. Pancreatic, lung, and liver cancers had the poorest survival rates among males for each year after diagnosis, with the most rapid deterioration occurring between the first and second year.

For females, the ASRS declined gradually from 79.3% at the one-year mark to 62.7% after five years (Figure 2.3.2, Table 2.3.2). Non-melanoma skin, thyroid, and breast cancers consistently had the best survival rates out of the most frequent incident cancers among females, with the survival rate for non-melanoma skin cancer being consistently the highest over the five years following diagnosis. In contrast, pancreatic, lung and stomach cancers had consistently poorer survival rates than other commonly diagnosed cancers in females in the five years following diagnosis, with the most rapid declines observed between the first and second year.

Figure 2.3.1 Age-standardised relative survival rate (%) five years following diagnosis for ten most frequent incident cancers in males, 2016-2020
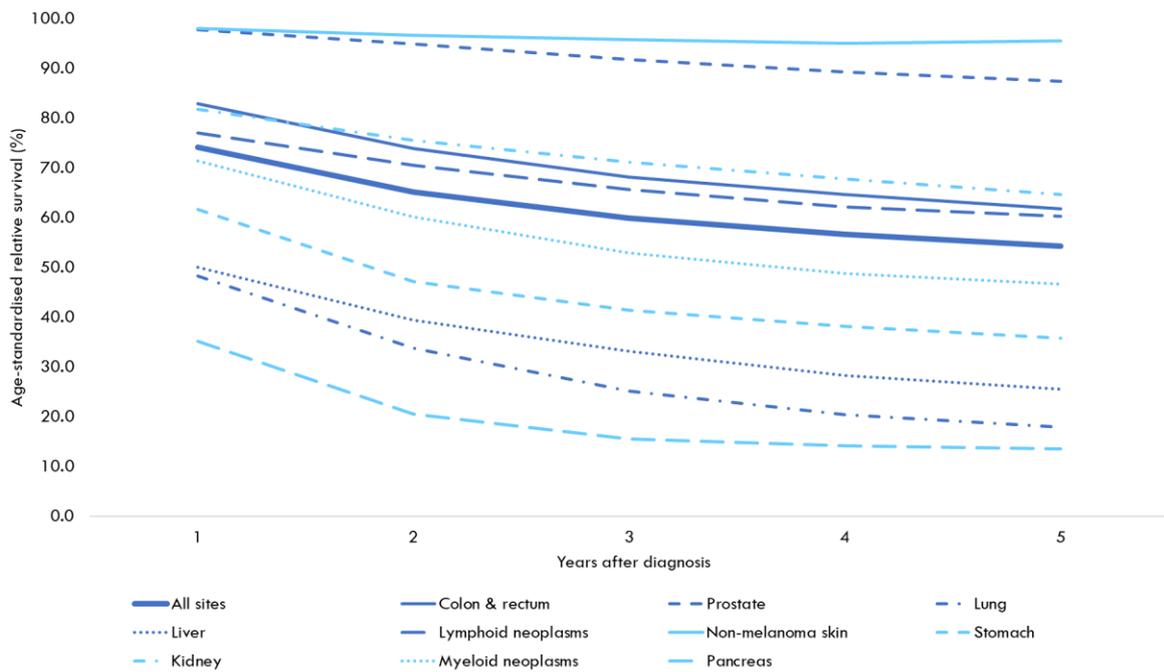
Figure 2.3.2 Age-standardised relative survival rate (%) five years following diagnosis for ten most frequent incident cancers in females, 2016-2020
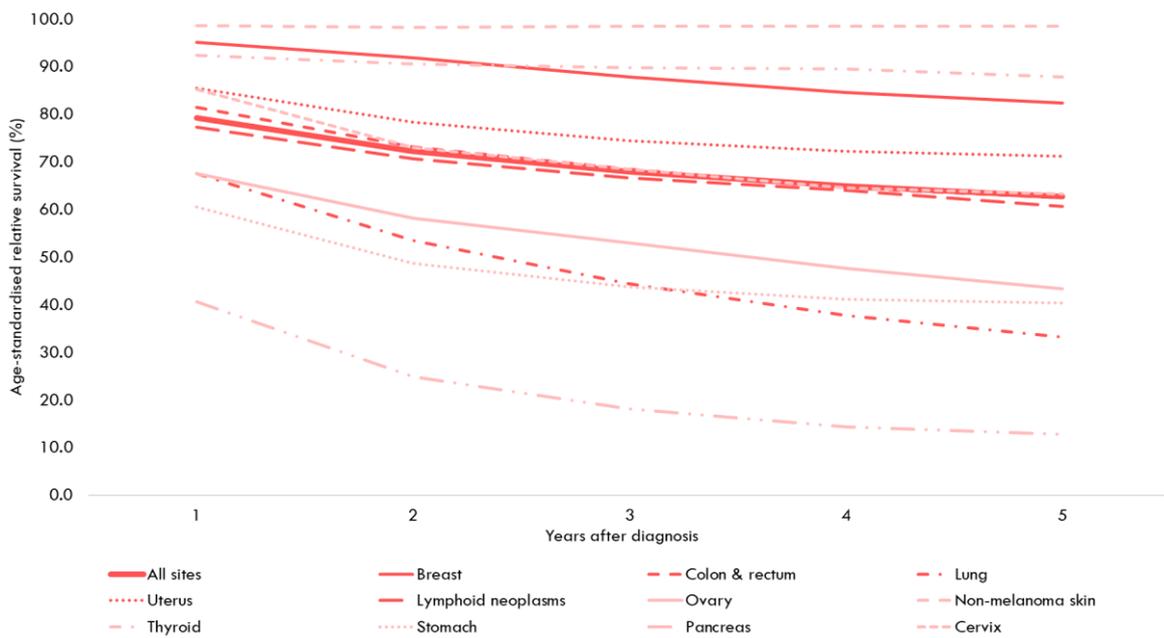
Table 2.3.1 Age-standardised relative survival rate (%) five years following diagnosis for ten most frequent incident cancers in males, 2016-2020

		Years after diagnosis				
		1	2	3	4	5
Male	Colon & rectum	82.9 (81.9-83.9)	73.9 (72.7-75.1)	68.2 (66.9-69.5)	64.7 (63.3-66.1)	61.8 (60.3-63.2)
	Prostate	97.8 (97.2-98.4)	94.9 (94.0-95.7)	91.7 (90.6-92.8)	89.2 (88.0-90.5)	87.4 (85.9-88.7)
	Lung	48.3 (46.9-49.7)	33.8 (32.4-35.1)	25.2 (23.9-26.4)	20.4 (19.2-21.7)	17.9 (16.7-19.1)
	Liver	50.0 (48.1-51.9)	39.4 (37.5-41.3)	33.1 (31.2-34.9)	28.3 (26.5-30.1)	25.5 (23.7-27.2)
	Lymphoid neoplasms	77.0 (75.2-78.7)	70.5 (68.6-72.4)	65.7 (63.6-67.7)	62.1 (59.9-64.3)	60.3 (57.9-62.5)
	Non-melanoma skin	98.0 (96.8-98.9)	96.6 (95.1-97.9)	95.8 (94.0-97.4)	95.0 (93.0-96.9)	95.5 (93.2-97.6)
	Stomach	61.7 (59.2-64.1)	47.2 (44.6-49.7)	41.4 (38.8-44.0)	38.2 (35.6-40.8)	35.8 (33.1-38.5)
	Kidney	81.8 (79.7-83.6)	75.5 (73.2-77.7)	71.1 (68.5-73.5)	67.8 (65.1-70.4)	64.7 (61.8-67.4)
	Myeloid neoplasms	71.4 (68.8-73.9)	60.1 (57.3-62.9)	52.9 (50.0-55.8)	48.8 (45.8-51.8)	46.6 (43.5-49.7)
	Pancreas	35.1 (32.4-37.7)	20.6 (18.4-23.0)	15.5 (13.5-17.7)	14.2 (12.1-16.3)	13.6 (11.6-15.8)
	All sites	**74.1 (73.6-74.5)**	**65.1 (64.6-65.6)**	**59.9 (59.4-60.5)**	**56.6 (56.0-57.2)**	**54.3 (53.7-54.9)**

Table 2.3.2 Age-standardised relative survival rate (%) five years following diagnosis for ten most frequent incident cancers in females, 2016-2020

		Years after diagnosis				
		1	2	3	4	5
Female	Breast	95.1 (94.7-95.5)	91.9 (91.3-92.4)	87.8 (87.1-88.5)	84.6 (83.9-85.4)	82.4 (81.5-83.2)
	Colon & rectum	81.5 (80.3-82.6)	73.1 (71.7-74.3)	68.4 (66.9-69.8)	64.6 (63.1-66.1)	62.5 (61.0-64.1)
	Lung	67.6 (65.9-69.3)	53.5 (51.7-55.4)	44.4 (42.5-46.3)	37.8 (35.9-39.8)	33.2 (31.2-35.1)
	Uterus	85.5 (84.2-86.7)	78.3 (76.8-79.8)	74.4 (72.8-76.0)	72.2 (70.5-73.9)	71.2 (69.4-73.0)
	Lymphoid neoplasms	77.3 (75.3-79.2)	70.7 (68.5-72.8)	66.7 (64.4-68.9)	64.0 (61.6-66.4)	60.7 (58.2-63.2)
	Ovary	67.5 (65.5-69.5)	58.2 (56.0-60.3)	53.0 (50.8-55.2)	47.6 (45.4-49.8)	43.4 (41.1-45.6)
	Non-melanoma skin	98.7 (97.5-99.6)	98.2 (96.7-99.5)	98.5 (96.6-100.1)	98.5 (96.4-100.4)	98.5 (96.1-100.7)
	Thyroid	92.4 (91.0-93.6)	90.6 (89.1-92.0)	89.8 (88.1-91.3)	89.5 (87.7-91.1)	87.9 (85.9-89.7)
	Stomach	60.5 (57.5-63.4)	48.7 (45.6-51.7)	43.7 (40.6-46.8)	41.2 (38.1-44.4)	40.4 (37.2-43.6)
	Pancreas	40.6 (37.5-43.6)	24.9 (22.3-27.7)	18.1 (15.8-20.6)	14.3 (12.1-16.6)	12.8 (10.7-15.1)
	Cervix	85.3 (83.2-87.2)	73.0 (70.3-75.4)	68.5 (65.7-71.1)	64.6 (61.7-67.3)	63.2 (60.3-66.0)
	All sites	**79.3 (78.9-79.7)**	**72.2 (71.8-72.7)**	**68.0 (67.5-68.5)**	**65.0 (64.5-65.5)**	**62.7 (62.2-63.3)**

2.3 Age-standardised relative survival five years following diagnosis for ten most frequent incident cancers by gender, 2016-2020

KEY POINTS

- While cancer survival rates decreased each year after diagnosis, the rate of decline was observed to be quicker for some cancers compared to others.
- Among males, non-melanoma skin and prostate cancers had the highest survival rates for each year post-diagnosis (98.0% and 97.8% at one year and 95.5% and 87.4% at five years respectively), while pancreatic, lung, and liver cancers had the lowest survival rates at every one-year interval post-diagnosis (35.1%, 48.3% and 50.0% at one year and 13.6%, 17.9% and 25.5% respectively at five years).
- Among females, non-melanoma skin, thyroid, and breast cancers had the highest survival rates for each year post-diagnosis (98.7%, 92.4% and 95.1% at one year; and 98.5%, 87.9% and 82.4% at five years respectively); whereas pancreatic, stomach, and lung cancers had the poorest survival rates at nearly every one-year interval post-diagnosis (40.6%, 60.5%, and 67.6% at one year; and 12.8%, 40.4% and 33.2%respectively at five years).

(3) TRENDS IN INCIDENCE, MORTALITY AND SURVIVAL OF SELECTED CANCERS, 1968-2020

3.1 Age-standardised incidence, age-standardised mortality, and five-year age-standardised relative survival for selected cancers in males and females, 1968-2020

Males

Among the ten most frequent incident cancers in males for the period of 2016-2020, while there had been an overall increase in the five-year age-standardised survival rates across the board from 1968-2020, differing trends can be observed for the incidence and mortality rates of these cancers (Figure 3.1.1, Table 3.1.1).

From the period of 1968-1972 to 2016-2020, there was a notable rise in the ASIR of two common cancers – colorectal and prostate cancers – from 19.4 to 38.0 per 100,000 population and 4.0 to 35.1 per 100,000 population (a jump of more than 8 times) respectively. This is likely linked to Singapore's ageing population, as the likelihood of being diagnosed with these cancers increase significantly with age.

However, there were also significant decreases in the incidence of other cancers during the same period. For instance, the ASIR of lung and liver cancers dropped from 47.3 to 30.5 per 100,000 population and from 28.7 to 16.8 per 100,000 population. Meanwhile, the ASIR of stomach cancer in 2016-2020 was 9.7 per 100,000 population, less than a third of what it used to be in 1968-1972 (37.7 per 100,000 population).

Similar to the trends observed for ASIR, the ASMR for stomach cancer also declined from 26.2 per 100,000 population in 1968-1972 to 5.0 per 100,000 population in 2016-2020. The ASMR of colorectal and prostate cancers in males, likewise, had risen from 1968-1972 to 2016-2020, alongside the rise in its corresponding incidence rate, from 8.9 to 13.0 per 100,000 population and 1.2 to 5.6 per 100,000 population respectively. Unfortunately, during the same period, pancreatic cancer, which has a low survival rate, also exhibited an increasing mortality rate alongside its increasing incidence, where its ASMR rose from 1.7 to 5.7 per 100,000 population – an increase of more than threefold, although the overall mortality rate was low vis-à-vis other more common cancers such as lung, colorectal, and liver cancers.

Despite exhibiting differing trends in incidence and mortality over the years, there had been improvements in the survival across all ten commonly diagnosed cancers. For instance, while the five-year ASRS of colorectal cancer was 24.4% in 1973-1977, it climbed to 61.8% in 2016-2020. Likewise, the survival of prostate cancer had increased from 47.3% to 87.4% during this period. Even among cancers with generally poorer survival rates, there had been significant improvements in the five-year ASRS over the years – in 1973-1977, the five-year ASRS of lung and liver cancers were 3.0% and 0.2% respectively, but in 2016-2020, these figures had risen to 17.9% and 25.5% respectively.

Females

As with the trends observed for males, the ten most frequent incident cancers of 2016-2020 among females also displayed differing incidence and mortality trends over the years from 1968-2020. However, there had been a consistent pattern of an overall increase in survival rates for all ten common cancers (Figure 3.1.2, Table 3.1.2).

Notably, the ASIR of breast cancer, which is the most common cancer diagnosis in females, had risen about 3.5 times from 20.1 per 100,000 population in 1968-1972 to 73.8 per 100,000 population in 2016-2020. Similarly, the ASIR of uterine and ovarian cancers had also risen significantly over the same period, from 4.9 to 18.1 per 100,000 population and 5.9 to 12.1 per 100,000 population – registering

increases of approximately 3.5 and 2 times respectively. On the other hand, as with males, the ASIR of stomach cancer in females had also decreased significantly, from 17.4 per 100,000 population in 1968-1972 to 5.6 per 100,000 population in 2016-2020. During the same period, the ASIR of cervical cancer had also fallen drastically from 18.0 to 6.7 per 100,000 population.

The ASMR of many common cancers have risen over the years, driven largely by a corresponding increase in the ASIR of these cancers. For example, the ASMR of breast cancer rose from 5.7 per 100,000 population in 1968-1972 to 12.0 per 100,000 population in 2016-2020. During the same period, the ASMR of ovarian cancer had also increased from 1.4 per 100,000 population to 3.7 per 100,000 population, in tandem with an increasing incidence rate. On the other hand, the ASMR of stomach cancer had fallen drastically from 11.9 per 100,000 population in 1968-1972 to 2.9 per 100,000 population in 2016-2020. Similarly, the ASMR of cervical cancer had also decreased from 4.9 to 1.8 per 100,000 population over the same period.

As mortality rates are a function of both incidence and survival rates, rising cancer mortality should not be interpreted in isolation from either. Despite increasing mortality rates, significant improvements were observed in the survival rates for many common cancers. For example, the five-year ASRS of the most common incident cancer in females – breast cancer – had significantly improved from 49.9% in 1973-1977 to 82.4% in 2016-2020. Similarly, the five-year ASRS for uterine cancer had also increased from 48.3% to 71.2% during this period. As with males, improvements were also observed for other common cancers with generally poorer survival rates such as lung and stomach cancers, whereby five-year ASRS improved from 5.3% to 33.2% and 6.4% to 40.4% respectively.

Figure 3.1.1 Age-standardised incidence rate (per 100,000 population), age-standardised mortality rate (per 100,000 population) and five-year age-standardised relative survival rate (%) of selected cancers in males, 1968-2020
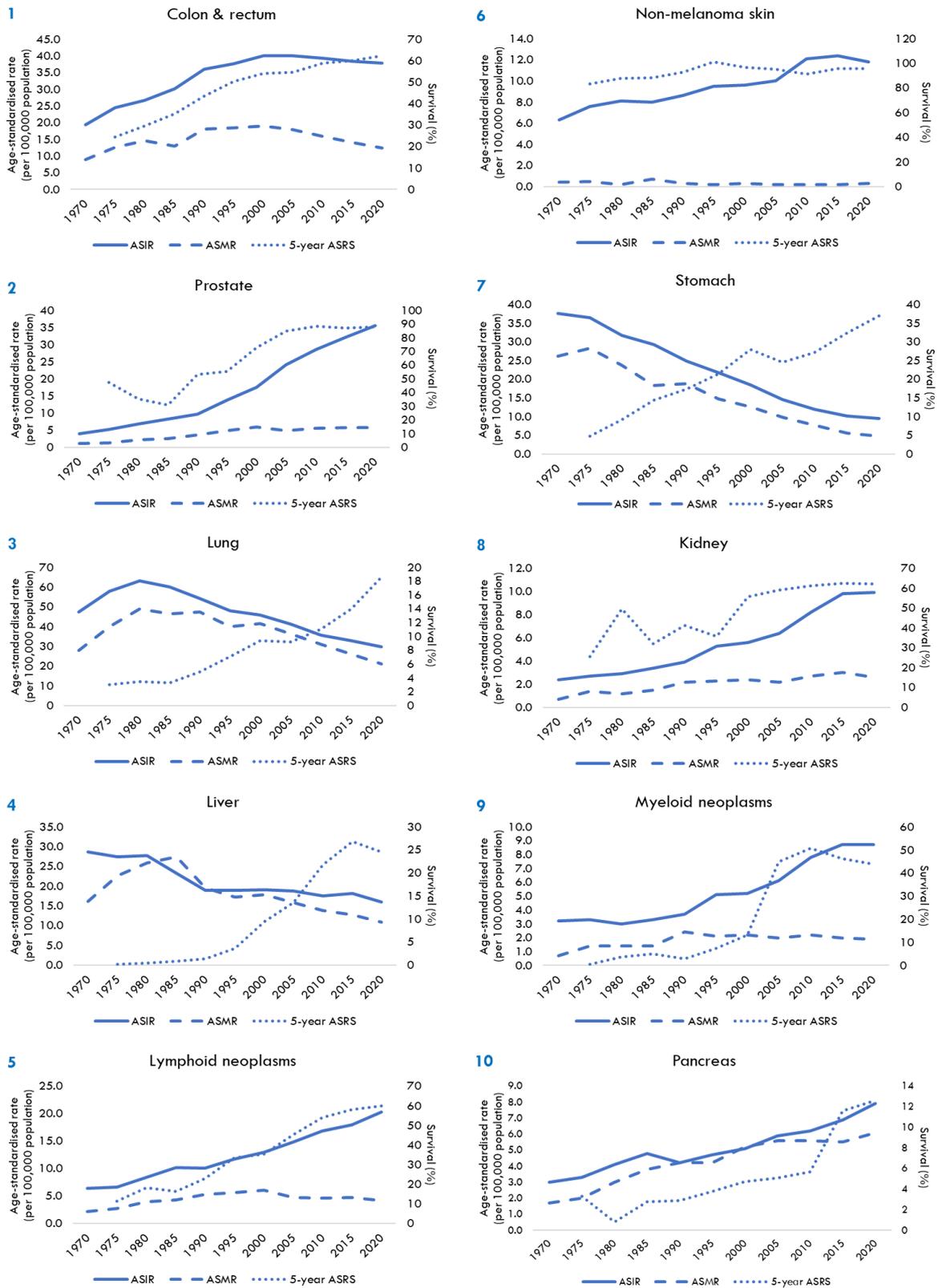
Table 3.1.1 Incidence number and age-standardised incidence rate (per 100,000 population), age-standardised mortality rate (per 100,000 population) and five-year age-standardised relative survival rate (%) of selected cancers in males, 1968-2020

Site	Year	Number	ASIR (95% CI)*	ASMR (95% CI)*	ASRS (95% CI)
Colon & rectum	1968-1972	563	19.4 (17.6-21.2)	8.9 (7.7-10.1)	
	1973-1977	824	24.6 (22.8-26.4)	12.6 (11.3-13.9)	24.4 (20.2-28.9)
	1978-1982	1057	26.7 (25.0-28.4)	14.6 (13.3-15.8)	29.6 (25.9-33.5)
	1983-1987	1435	30.2 (28.6-31.8)	12.9 (11.9-14.0)	35.2 (31.7-38.8)
	1988-1992	2052	36.0 (34.4-37.6)	18.1 (16.9-19.2)	43.5 (40.4-46.6)
	1993-1997	2553	37.7 (36.2-39.2)	18.5 (17.5-19.6)	50.4 (47.7-53.1)
	1998-2002	3252	40.1 (38.7-41.5)	19.1 (18.1-20.0)	54.1 (51.8-56.4)
	2003-2007	3849	40.0 (38.7-41.3)	17.9 (17.0-18.7)	54.7 (52.6-56.6)
	2008-2012	4790	39.3 (38.2-40.4)	16.0 (15.3-16.7)	58.9 (57.1-60.7)
	2013-2017	5824	38.4 (37.4-39.4)	14.1 (13.5-14.7)	60.1 (58.5-61.7)
	2018-2020	4053	37.9 (36.7-39.1)	12.5 (11.8-13.1)	62.2 (60.4-64.0)
	2016-2020	6513	38.0 (37.1-39.0)	13.0 (12.5-13.6)	61.8 (60.3-63.2)
Prostate	1968-1972	94	4.0 (3.1-4.8)	1.2 (0.8-1.7)	
	1973-1977	144	5.2 (4.3-6.0)	1.3 (0.9-1.7)	47.3 (33.6-61.6)
	1978-1982	240	6.8 (5.9-7.7)	2.2 (1.7-2.7)	35.4 (25.5-46.2)
	1983-1987	356	8.2 (7.4-9.1)	2.5 (2.1-3.0)	30.8 (24.0-38.1)
	1988-1992	529	9.7 (8.9-10.6)	3.6 (3.1-4.1)	53.4 (46.0-60.7)
	1993-1997	902	13.8 (12.9-14.7)	4.8 (4.3-5.4)	55.3 (49.9-60.6)
	1998-2002	1359	17.6 (16.7-18.5)	5.9 (5.4-6.5)	73.0 (68.9-76.9)
	2003-2007	2212	24.2 (23.2-25.3)	4.8 (4.3-5.2)	85.0 (82.2-87.7)
	2008-2012	3337	28.6 (27.6-29.6)	5.6 (5.2-6.0)	88.5 (86.5-90.4)
	2013-2017	4914	32.2 (31.2-33.1)	5.7 (5.3-6.1)	87.0 (85.3-88.5)
	2018-2020	4026	35.6 (34.5-36.7)	5.8 (5.4-6.3)	87.8 (86.0-89.5)
	2016-2020	6283	35.1 (34.3-36.0)	5.6 (5.3-6.0)	87.4 (85.9-88.7)
Lung	1968-1972	1361	47.3 (44.6-49.9)	28.0 (25.9-30.0)	
	1973-1977	1920	57.9 (55.3-60.6)	39.9 (37.7-42.2)	3.0 (2.1-4.0)
	1978-1982	2440	63.0 (60.4-65.5)	48.8 (46.5-51.0)	3.5 (2.7-4.4)
	1983-1987	2770	60.1 (57.9-62.4)	46.6 (44.6-48.6)	3.3 (2.7-4.1)
	1988-1992	2972	54.1 (52.1-56.1)	47.3 (45.5-49.1)	4.9 (4.1-5.9)
	1993-1997	3168	48.1 (46.4-49.8)	40.0 (38.4-41.5)	7.1 (6.0-8.2)
	1998-2002	3599	45.8 (44.3-47.3)	41.6 (40.1-43.0)	9.4 (8.4-10.5)
	2003-2007	3862	41.3 (39.9-42.6)	36.2 (34.9-37.4)	9.2 (8.2-10.3)
	2008-2012	4292	35.7 (34.6-36.8)	30.9 (29.9-31.9)	11.1 (10.1-12.2)
	2013-2017	5058	33.0 (32.1-33.9)	26.2 (25.4-27.0)	14.0 (12.9-15.1)
	2018-2020	3290	29.8 (28.8-30.8)	21.0 (20.2-21.9)	18.6 (17.1-20.2)
	2016-2020	5368	30.5 (29.7-31.3)	22.3 (21.6-23.0)	17.9 (16.7-19.1)
Liver	1968-1972	898	28.7 (26.7-30.6)	16.2 (14.7-17.7)	
	1973-1977	965	27.4 (25.6-29.3)	22.7 (21.0-24.3)	0.2 (0.1-0.4)
	1978-1982	1126	27.8 (26.1-29.4)	25.9 (24.3-27.5)	0.5 (0.3-1.0)
	1983-1987	1095	23.2 (21.8-24.5)	27.4 (25.9-29.0)	0.8 (0.4-1.3)
	1988-1992	1089	19.0 (17.8-20.1)	19.6 (18.4-20.8)	1.4 (0.7-2.4)
	1993-1997	1302	18.9 (17.9-20.0)	17.2 (16.2-18.2)	3.6 (2.5-5.0)
	1998-2002	1554	19.1 (18.1-20.0)	17.9 (16.9-18.8)	9.4 (7.8-11.2)
	2003-2007	1788	18.7 (17.8-19.6)	15.9 (15.1-16.7)	13.6 (11.7-15.6)
	2008-2012	2139	17.6 (16.9-18.4)	13.8 (13.1-14.5)	21.8 (19.7-23.9)
	2013-2017	2764	18.1 (17.4-18.8)	12.7 (12.1-13.3)	26.8 (24.9-28.7)
	2018-2020	1751	16.0 (15.2-16.8)	10.9 (10.2-11.5)	24.6 (22.4-26.8)
	2016-2020	2913	16.8 (16.1-17.4)	11.5 (11.0-12.1)	25.5 (23.7-27.2)
Lymphoid neoplasms	1968-1972	260	6.4 (5.6-7.3)	2.2 (1.7-2.7)	
	1973-1977	279	6.6 (5.8-7.5)	2.8 (2.3-3.4)	11.3 (6.9-16.9)
	1978-1982	381	8.4 (7.5-9.3)	4.0 (3.4-4.7)	18.3 (13.1-24.2)
	1983-1987	526	10.2 (9.3-11.1)	4.3 (3.7-4.8)	16.5 (12.3-21.4)
	1988-1992	610	10.1 (9.3-10.9)	5.3 (4.7-5.9)	22.9 (18.9-27.2)
	1993-1997	834	11.7 (10.9-12.6)	5.6 (5.0-6.2)	33.4 (29.1-37.9)
	1998-2002	1050	13.0 (12.2-13.8)	6.1 (5.5-6.6)	35.5 (32.0-39.1)
	2003-2007	1352	14.9 (14.1-15.7)	4.8 (4.3-5.2)	45.3 (41.9-48.6)
	2008-2012	1846	16.9 (16.1-17.7)	4.6 (4.2-5.0)	54.2 (51.3-57.0)
	2013-2017	2300	18.0 (17.2-18.9)	4.8 (4.4-5.1)	58.0 (55.5-60.4)
	2018-2020	1806	20.3 (19.2-21.3)	4.2 (3.8-4.6)	60.1 (57.2-62.9)
	2016-2020	2764	19.4 (18.6-20.2)	4.4 (4.1-4.7)	60.3 (57.9-62.5)
Non-melanoma skin	1968-1972	167	6.3 (5.2-7.4)	0.4 (0.2-0.6)	
	1973-1977	247	7.6 (6.6-8.6)	0.5 (0.2-0.9)	83.5 (70.7-95.1)
	1978-1982	319	8.1 (7.1-9.0)	0.2 (0.1-0.3)	87.8 (79.2-95.5)
	1983-1987	371	8.0 (7.1-8.8)	0.7 (0.5-1.0)	88.2 (79.6-96.0)
	1988-1992	501	8.6 (7.9-9.4)	0.3 (0.2-0.5)	92.6 (85.7-98.8)
	1993-1997	667	9.5 (8.8-10.3)	0.2 (0.1-0.3)	101.4 (95.7-106.4)
	1998-2002	790	9.6 (8.9-10.3)	0.3 (0.1-0.4)	96.5 (91.8-100.8)
	2003-2007	959	10.0 (9.4-10.7)	0.2 (0.1-0.3)	95.2 (91.4-98.6)
	2008-2012	1472	12.1 (11.4-12.7)	0.2 (0.1-0.3)	91.3 (88.1-94.3)
	2013-2017	1885	12.4 (11.8-13.0)	0.2 (0.1-0.2)	95.7 (93.3-98.0)
	2018-2020	1271	11.8 (11.1-12.4)	0.3 (0.2-0.4)	95.6 (92.7-98.4)
	2016-2020	2079	12.1 (11.5-12.6)	0.2 (0.2-0.3)	95.5 (93.2-97.6)

Site	Year	Number	ASIR (95% CI)*	ASMR (95% CI)*	ASRS (95% CI)
Stomach	1968-1972	1094	37.7 (35.3-40.2)	26.2 (24.2-28.2)	
	1973-1977	1216	36.5 (34.3-38.6)	28.3 (26.4-30.2)	4.8 (3.6-6.4)
	1978-1982	1233	31.8 (29.9-33.6)	23.8 (22.2-25.4)	9.2 (7.4-11.3)
	1983-1987	1334	29.3 (27.7-30.9)	18.3 (17.1-19.6)	14.4 (12.3-16.8)
	1988-1992	1374	24.8 (23.4-26.1)	18.9 (17.7-20.0)	17.3 (15.1-19.8)
	1993-1997	1442	21.7 (20.5-22.8)	14.8 (13.9-15.8)	21.5 (18.9-24.2)
	1998-2002	1453	18.5 (17.5-19.4)	12.6 (11.8-13.4)	28.0 (25.4-30.7)
	2003-2007	1381	14.6 (13.8-15.4)	9.9 (9.2-10.5)	24.5 (21.9-27.1)
	2008-2012	1452	12.0 (11.4-12.7)	7.7 (7.2-8.3)	27.1 (24.4-29.8)
	2013-2017	1566	10.2 (9.7-10.8)	5.6 (5.2-6.0)	32.4 (29.7-35.2)
	2018-2020	1038	9.5 (8.9-10.0)	4.7 (4.3-5.1)	36.9 (33.5-40.3)
	2016-2020	1698	9.7 (9.2-10.2)	5.0 (4.7-5.4)	35.8 (33.1-38.5)
Kidney	1968-1972	77	2.4 (1.8-3.0)	0.7 (0.4-1.0)	
	1973-1977	100	2.7 (2.2-3.3)	1.4 (1.0-1.8)	25.7 (15.5-37.7)
	1978-1982	118	2.9 (2.3-3.4)	1.2 (0.9-1.6)	49.6 (33.8-65.7)
	1983-1987	161	3.4 (2.8-3.9)	1.5 (1.2-1.9)	32.1 (22.5-42.8)
	1988-1992	223	3.9 (3.4-4.5)	2.2 (1.8-2.5)	41.2 (32.6-50.1)
	1993-1997	366	5.3 (4.7-5.9)	2.3 (1.9-2.7)	35.7 (29.2-42.5)
	1998-2002	469	5.6 (5.1-6.1)	2.4 (2.1-2.8)	55.8 (50.0-61.5)
	2003-2007	644	6.4 (5.9-6.9)	2.2 (1.9-2.5)	58.9 (53.8-63.8)
	2008-2012	1006	8.2 (7.7-8.7)	2.7 (2.4-3.0)	61.3 (57.3-65.2)
	2013-2017	1443	9.8 (9.3-10.3)	3.0 (2.7-3.3)	62.3 (59.1-65.4)
	2018-2020	997	9.9 (9.3-10.5)	2.6 (2.3-3.0)	62.1 (58.5-65.5)
	2016-2020	1622	10.0 (9.5-10.5)	2.7 (2.4-2.9)	64.7 (61.8-67.4)
Myeloid neoplasms	1968-1972	138	3.2 (2.6-3.8)	0.7 (0.5-1.0)	
	1973-1977	154	3.3 (2.7-3.8)	1.4 (1.0-1.7)	0.6 (0.1-2.4)
	1978-1982	150	3.0 (2.5-3.5)	1.4 (1.0-1.7)	3.8 (1.3-8.7)
	1983-1987	177	3.3 (2.8-3.8)	1.4 (1.1-1.8)	4.9 (1.8-10.5)
	1988-1992	231	3.7 (3.2-4.1)	2.4 (2.0-2.8)	3.0 (1.3-5.9)
	1993-1997	369	5.1 (4.6-5.7)	2.1 (1.7-2.4)	7.4 (4.3-11.8)
	1998-2002	433	5.2 (4.7-5.7)	2.2 (1.9-2.5)	13.3 (9.3-18.1)
	2003-2007	579	6.1 (5.6-6.6)	2.0 (1.7-2.3)	44.8 (39.2-50.5)
	2008-2012	912	7.8 (7.3-8.3)	2.2 (1.9-2.5)	50.7 (46.4-54.9)
	2013-2017	1222	8.7 (8.2-9.2)	2.0 (1.7-2.2)	46.3 (43.0-49.7)
	2018-2020	837	8.7 (8.1-9.4)	1.9 (1.7-2.2)	43.8 (40.1-47.5)
	2016-2020	1383	8.9 (8.4-9.4)	1.9 (1.7-2.1)	46.6 (43.5-49.7)
Pancreas	1968-1972	92	3.0 (2.4-3.7)	1.7 (1.2-2.2)	
	1973-1977	112	3.3 (2.7-3.9)	2.0 (1.5-2.5)	3.3 (0.9-8.5)
	1978-1982	161	4.1 (3.4-4.7)	3.0 (2.5-3.6)	0.8 (0.2-2.6)
	1983-1987	224	4.8 (4.1-5.4)	3.8 (3.2-4.4)	2.8 (0.9-6.7)
	1988-1992	239	4.2 (3.7-4.8)	4.2 (3.7-4.7)	2.9 (1.1-6.2)
	1993-1997	310	4.7 (4.1-5.2)	4.2 (3.7-4.7)	3.8 (1.7-7.2)
	1998-2002	410	5.1 (4.6-5.6)	5.2 (4.7-5.7)	4.7 (2.9-7.0)
	2003-2007	579	5.9 (5.4-6.4)	5.6 (5.1-6.0)	5.1 (3.4-7.5)
	2008-2012	746	6.2 (5.7-6.6)	5.6 (5.1-6.0)	5.7 (4.0-7.8)
	2013-2017	1064	6.9 (6.5-7.3)	5.5 (5.1-5.9)	11.6 (9.5-13.8)
	2018-2020	855	7.9 (7.4-8.4)	6.1 (5.6-6.5)	12.6 (10.2-15.2)
	2016-2020	1314	7.5 (7.1-7.9)	5.7 (5.3-6.1)	13.6 (11.6-15.8)

* per 100,000 resident population

Figure 3.1.2 Incidence number and age-standardised incidence rate (per 100,000 population), age-standardised mortality rate (per 100,000 population) and five-year age-standardised relative survival rate (%) of selected cancers in females, 1968-2020

Cervix
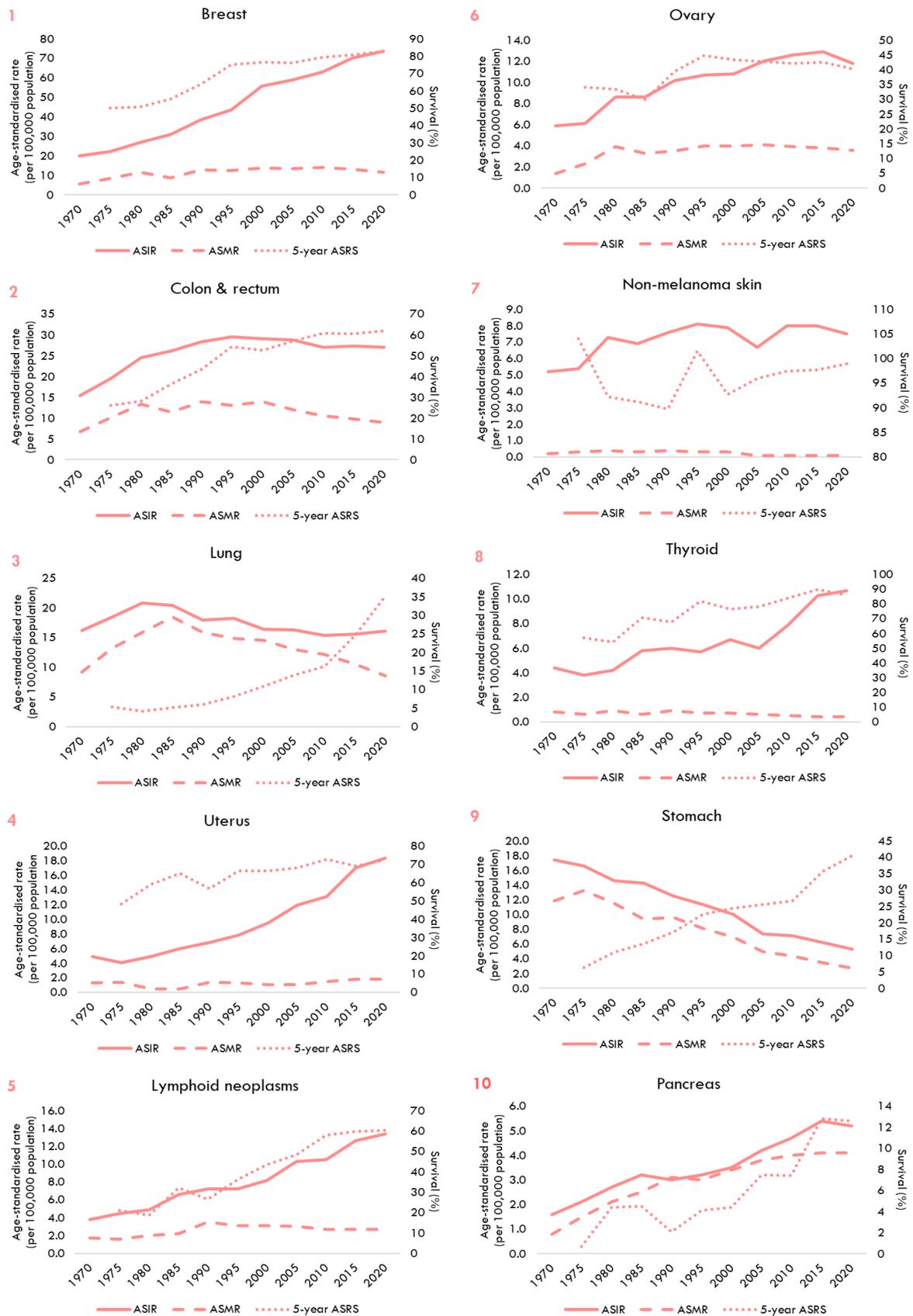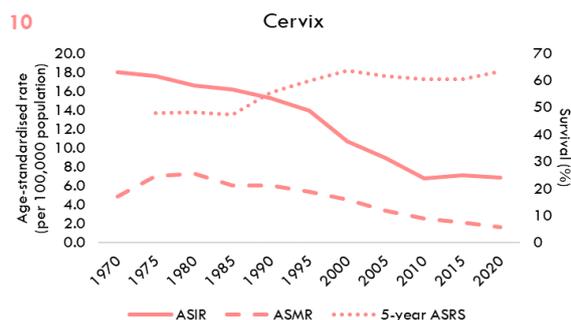
Table 3.1.2 Incidence number and age-standardised incidence rate (per 100,000 population), age-standardised mortality rate (per 100,000 population) and five-year age-standardised relative survival rate (%) of selected cancers in females, 1968-2020

Site	Year	Number	ASIR (95% CI)*	ASMR (95% CI)*	ASRS (95% CI)
Breast	1968-1972	672	20.1 (18.5-21.6)	5.7 (4.9-6.6)	
	1973-1977	863	22.1 (20.6-23.6)	8.5 (7.5-9.4)	49.9 (45.2-54.6)
	1978-1982	1237	26.9 (25.3-28.4)	11.6 (10.6-12.6)	50.8 (46.7-54.9)
	1983-1987	1739	31.1 (29.6-32.6)	8.6 (7.8-9.4)	55.4 (52.0-58.8)
	1988-1992	2635	38.6 (37.1-40.1)	12.9 (12.0-13.8)	63.7 (61.1-66.2)
	1993-1997	3606	43.6 (42.1-45.0)	12.6 (11.8-13.3)	75.0 (72.9-77.0)
	1998-2002	5582	55.7 (54.2-57.2)	13.9 (13.1-14.7)	76.6 (75.0-78.1)
	2003-2007	6860	59.0 (57.5-60.4)	13.6 (12.9-14.3)	76.1 (74.8-77.4)
	2008-2012	8566	63.0 (61.7-64.4)	14.2 (13.6-14.9)	79.4 (78.3-80.5)
	2013-2017	10898	70.3 (68.9-71.6)	13.0 (12.4-13.5)	80.8 (79.8-81.7)
	2018-2020	7574	73.8 (72.0-75.5)	11.6 (11.0-12.2)	82.9 (81.9-84.0)
	2016-2020	**12303**	**73.8 (72.4-75.1)**	**12.0 (11.5-12.5)**	**82.4 (81.5-83.2)**
Colon & rectum	1968-1972	478	15.4 (14.0-16.8)	6.7 (5.7-7.6)	
	1973-1977	715	19.6 (18.1-21.1)	10.1 (9.0-11.1)	26.2 (21.9-30.8)
	1978-1982	1084	24.6 (23.1-26.1)	13.4 (12.3-14.5)	28.3 (24.7-32.0)
	1983-1987	1392	26.1 (24.7-27.5)	11.4 (10.4-12.3)	36.4 (33.1-39.8)
	1988-1992	1848	28.3 (27.0-29.6)	14.0 (13.1-14.9)	43.6 (40.5-46.6)
	1993-1997	2300	29.5 (28.2-30.7)	13.0 (12.2-13.8)	54.3 (51.6-56.9)
	1998-2002	2796	29.1 (28.0-30.3)	13.9 (13.1-14.6)	52.5 (50.3-54.7)
	2003-2007	3351	28.8 (27.8-29.8)	12.0 (11.4-12.7)	57.0 (54.9-59.0)
	2008-2012	3922	27.1 (26.2-27.9)	10.5 (10.0-11.1)	60.7 (58.8-62.5)
	2013-2017	4856	27.3 (26.5-28.1)	9.9 (9.4-10.3)	60.5 (58.9-62.2)
	2018-2020	3338	27.0 (26.0-28.0)	8.9 (8.4-9.4)	62.1 (60.2-64.1)
	2016-2020	**5364**	**27.0 (26.2-27.8)**	**9.0 (8.6-9.5)**	**62.5 (61.0-64.1)**
Lung	1968-1972	489	16.2 (14.7-17.6)	9.2 (8.1-10.2)	
	1973-1977	663	18.5 (17.1-19.9)	13.2 (12.0-14.4)	5.3 (3.6-7.4)
	1978-1982	893	20.8 (19.4-22.2)	15.9 (14.7-17.1)	4.1 (2.8-5.8)
	1983-1987	1072	20.4 (19.2-21.6)	18.5 (17.3-19.7)	5.1 (3.7-6.7)
	1988-1992	1174	18.0 (16.9-19.1)	15.9 (14.9-16.9)	5.9 (4.5-7.6)
	1993-1997	1444	18.3 (17.3-19.2)	14.9 (14.0-15.7)	8.1 (6.5-9.9)
	1998-2002	1602	16.4 (15.6-17.2)	14.6 (13.8-15.4)	11.0 (9.4-12.7)
	2003-2007	1906	16.3 (15.6-17.1)	13.0 (12.3-13.7)	13.9 (12.1-15.8)
	2008-2012	2264	15.4 (14.8-16.1)	12.2 (11.7-12.8)	16.2 (14.5-18.1)
	2013-2017	2837	15.6 (15.0-16.2)	10.5 (10.0-10.9)	24.6 (22.7-26.5)
	2018-2020	2005	16.1 (15.3-16.8)	8.6 (8.1-9.1)	35.1 (32.6-37.7)
	2016-2020	**3252**	**16.1 (15.6-16.7)**	**9.0 (8.6-9.4)**	**33.2 (31.2-35.1)**
Uterus	1968-1972	159	4.9 (4.1-5.7)	1.3 (0.9-1.7)	
	1973-1977	154	4.1 (3.5-4.8)	1.4 (1.0-1.8)	48.3 (37.8-58.7)
	1978-1982	217	4.9 (4.3-5.6)	0.5 (0.3-0.8)	59.1 (49.7-68.1)
	1983-1987	314	6.0 (5.3-6.7)	0.5 (0.3-0.7)	64.9 (57.2-72.0)
	1988-1992	436	6.8 (6.2-7.5)	1.4 (1.1-1.6)	56.7 (51.1-62.1)
	1993-1997	609	7.8 (7.2-8.4)	1.3 (1.1-1.6)	66.3 (61.3-71.0)
	1998-2002	909	9.5 (8.9-10.1)	1.1 (0.9-1.3)	66.4 (62.7-70.0)
	2003-2007	1357	11.9 (11.3-12.6)	1.1 (0.9-1.3)	68.0 (65.0-71.0)
	2008-2012	1787	13.1 (12.5-13.7)	1.5 (1.3-1.7)	72.7 (70.2-75.1)
	2013-2017	2620	17.0 (16.3-17.6)	1.8 (1.6-2.0)	68.9 (66.8-70.8)
	2018-2020	1835	18.3 (17.5-19.2)	1.8 (1.6-2.1)	72.4 (70.2-74.5)
	2016-2020	**2968**	**18.1 (17.4-18.8)**	**1.9 (1.7-2.1)**	**71.2 (69.4-73.0)**

Site	Year	Number	ASIR (95% CI)*	ASMR (95% CI)*	ASRS (95% CI)
Lymphoid neoplasms	1968-1972	153	3.8 (3.1-4.4)	1.7 (1.3-2.2)	
	1973-1977	191	4.5 (3.8-5.2)	1.6 (1.2-2.0)	21.0 (12.1-32.0)
	1978-1982	231	4.9 (4.3-5.6)	2.0 (1.6-2.4)	18.6 (12.5-25.8)
	1983-1987	355	6.6 (5.9-7.3)	2.2 (1.8-2.6)	32.1 (25.6-39.0)
	1988-1992	453	7.2 (6.5-7.9)	3.5 (3.0-4.0)	26.3 (21.5-31.5)
	1993-1997	555	7.2 (6.6-7.8)	3.1 (2.7-3.5)	36.1 (31.2-41.2)
	1998-2002	723	8.2 (7.6-8.9)	3.1 (2.7-3.5)	43.5 (39.3-47.8)
	2003-2007	1011	10.3 (9.6-11.0)	3.0 (2.7-3.4)	48.4 (44.6-52.1)
	2008-2012	1255	10.5 (9.9-11.2)	2.7 (2.4-3.0)	58.1 (54.9-61.2)
	2013-2017	1764	12.6 (11.9-13.2)	2.7 (2.5-3.0)	59.7 (56.9-62.4)
	2018-2020	1331	13.4 (12.6-14.2)	2.7 (2.4-3.0)	60.5 (57.4-63.5)
	2016-2020	2124	13.4 (12.7-14.1)	2.6 (2.4-2.9)	60.7 (58.2-63.2)
Ovary	1968-1972	217	5.9 (5.1-6.7)	1.4 (1.0-1.8)	
	1973-1977	258	6.1 (5.4-6.9)	2.3 (1.8-2.7)	34.1 (26.8-41.6)
	1978-1982	410	8.6 (7.7-9.4)	3.9 (3.3-4.4)	33.4 (27.6-39.4)
	1983-1987	496	8.6 (7.8-9.4)	3.3 (2.8-3.8)	30.0 (25.0-35.2)
	1988-1992	692	10.2 (9.4-11.0)	3.5 (3.1-4.0)	39.5 (34.9-44.2)
	1993-1997	866	10.7 (9.9-11.4)	4.0 (3.6-4.5)	44.8 (40.8-48.8)
	1998-2002	1036	10.8 (10.1-11.5)	4.0 (3.6-4.5)	43.3 (40.1-46.5)
	2003-2007	1321	12.0 (11.3-12.6)	4.1 (3.7-4.5)	42.8 (39.9-45.6)
	2008-2012	1611	12.6 (11.9-13.2)	3.9 (3.5-4.2)	42.2 (39.6-44.8)
	2013-2017	1848	12.9 (12.3-13.5)	3.8 (3.5-4.1)	42.5 (40.1-44.8)
	2018-2020	1106	11.8 (11.1-12.5)	3.6 (3.3-4.0)	40.3 (37.6-42.9)
	2016-2020	1836	12.1 (11.5-12.6)	3.7 (3.4-4.0)	43.4 (41.1-45.6)
Non-melanoma skin	1968-1972	153	5.2 (4.3-6.0)	0.2 (0.1-0.4)	
	1973-1977	198	5.4 (4.7-6.2)	0.3 (0.1-0.5)	104.0 (93.5-112.1)
	1978-1982	328	7.3 (6.5-8.1)	0.4 (0.2-0.5)	92.2 (83.3-100.0)
	1983-1987	374	6.9 (6.2-7.6)	0.3 (0.2-0.4)	91.3 (83.6-98.0)
	1988-1992	526	7.6 (7.0-8.3)	0.4 (0.2-0.5)	89.7 (83.7-94.9)
	1993-1997	666	8.1 (7.5-8.7)	0.3 (0.2-0.4)	101.6 (96.8-105.8)
	1998-2002	790	7.9 (7.4-8.5)	0.3 (0.2-0.4)	92.7 (88.7-96.2)
	2003-2007	803	6.7 (6.2-7.2)	0.1 (0.0-0.1)	96.0 (92.2-99.4)
	2008-2012	1217	8.0 (7.5-8.4)	0.1 (0.1-0.1)	97.5 (94.4-100.3)
	2013-2017	1514	8.0 (7.6-8.4)	0.1 (0.1-0.2)	97.7 (95.1-100.1)
	2018-2020	1019	7.5 (7.0-8.0)	0.1 (0.1-0.2)	99.0 (95.9-101.7)
	2016-2020	1702	7.9 (7.5-8.3)	0.1 (0.1-0.2)	98.5 (96.1-100.7)
Thyroid	1968-1972	163	4.4 (3.7-5.1)	0.8 (0.5-1.1)	
	1973-1977	169	3.8 (3.2-4.4)	0.6 (0.4-0.9)	56.8 (46.7-66.3)
	1978-1982	226	4.2 (3.6-4.7)	0.9 (0.6-1.2)	54.1 (45.9-61.8)
	1983-1987	371	5.8 (5.2-6.4)	0.6 (0.4-0.8)	70.9 (64.8-76.5)
	1988-1992	436	6.0 (5.4-6.5)	0.9 (0.7-1.1)	67.8 (62.8-72.4)
	1993-1997	492	5.7 (5.2-6.2)	0.7 (0.5-0.9)	81.9 (77.5-85.8)
	1998-2002	657	6.7 (6.2-7.2)	0.7 (0.6-0.9)	76.6 (72.8-80.1)
	2003-2007	662	6.0 (5.5-6.4)	0.6 (0.5-0.8)	78.4 (75.0-81.6)
	2008-2012	994	7.9 (7.4-8.4)	0.5 (0.4-0.6)	84.0 (81.3-86.4)
	2013-2017	1435	10.3 (9.8-10.9)	0.4 (0.3-0.5)	89.7 (87.7-91.6)
	2018-2020	949	10.7 (10.0-11.4)	0.4 (0.3-0.5)	86.2 (83.6-88.5)
	2016-2020	1573	10.8 (10.3-11.4)	0.4 (0.3-0.5)	87.9 (85.9-89.7)
Stomach	1968-1972	542	17.4 (15.9-18.8)	11.9 (10.6-13.1)	
	1973-1977	610	16.6 (15.3-18.0)	13.3 (12.1-14.5)	6.4 (4.3-9.1)
	1978-1982	643	14.6 (13.4-15.7)	11.5 (10.5-12.5)	11.0 (8.4-14.1)
	1983-1987	772	14.3 (13.3-15.4)	9.4 (8.6-10.2)	13.6 (10.9-16.7)
	1988-1992	826	12.5 (11.6-13.3)	9.6 (8.8-10.3)	17.2 (14.4-20.2)
	1993-1997	917	11.4 (10.7-12.2)	8.1 (7.4-8.7)	22.6 (19.5-26.0)
	1998-2002	968	10.0 (9.3-10.6)	7.0 (6.5-7.6)	24.4 (21.5-27.3)
	2003-2007	889	7.4 (6.9-7.9)	5.0 (4.6-5.4)	25.5 (22.4-28.8)
	2008-2012	1078	7.1 (6.7-7.6)	4.4 (4.0-4.7)	26.6 (23.6-29.7)
	2013-2017	1154	6.2 (5.9-6.6)	3.5 (3.2-3.8)	35.7 (32.5-39.0)
	2018-2020	679	5.3 (4.9-5.8)	2.7 (2.4-3.0)	40.5 (36.5-44.6)
	2016-2020	1151	5.6 (5.2-5.9)	2.9 (2.7-3.2)	40.4 (37.2-43.6)
Pancreas	1968-1972	50	1.6 (1.2-2.1)	0.8 (0.4-1.1)	
	1973-1977	78	2.1 (1.6-2.6)	1.5 (1.1-1.9)	0.7 (0.1-3.7)
	1978-1982	116	2.7 (2.2-3.2)	2.1 (1.6-2.5)	4.4 (1.8-9.0)
	1983-1987	174	3.2 (2.7-3.7)	2.5 (2.1-2.9)	4.5 (1.9-8.9)
	1988-1992	193	3.0 (2.6-3.4)	3.1 (2.6-3.5)	2.1 (0.8-4.7)
	1993-1997	244	3.2 (2.8-3.6)	3.0 (2.6-3.4)	4.1 (2.1-7.1)
	1998-2002	345	3.5 (3.2-3.9)	3.4 (3.1-3.8)	4.4 (2.5-7.0)
	2003-2007	484	4.2 (3.8-4.5)	3.8 (3.4-4.2)	7.5 (5.1-10.5)
	2008-2012	679	4.7 (4.3-5.0)	4.0 (3.7-4.3)	7.4 (5.3-10.0)
	2013-2017	962	5.4 (5.0-5.7)	4.1 (3.8-4.4)	12.8 (10.4-15.4)
	2018-2020	663	5.2 (4.8-5.6)	4.1 (3.8-4.5)	12.6 (10.0-15.5)
	2016-2020	1094	5.4 (5.1-5.8)	4.2 (3.9-4.5)	12.8 (10.7-15.1)

Site	Year	Number	ASIR (95% CI)*	ASMR (95% CI)*	ASRS (95% CI)
Cervix	1968-1972	603	18.0 (16.6-19.5)	4.9 (4.2-5.7)	
	1973-1977	676	17.6 (16.3-18.9)	7.0 (6.2-7.9)	47.8 (43.2-52.3)
	1978-1982	751	16.6 (15.4-17.8)	7.3 (6.5-8.1)	48.3 (44.0-52.5)
	1983-1987	898	16.2 (15.1-17.3)	6.0 (5.4-6.7)	47.3 (43.3-51.3)
	1988-1992	1002	15.3 (14.3-16.2)	6.0 (5.4-6.6)	55.5 (52.0-58.8)
	1993-1997	1128	13.9 (13.0-14.7)	5.4 (4.9-6.0)	59.8 (56.6-63.0)
	1998-2002	1040	10.7 (10.1-11.4)	4.5 (4.0-4.9)	63.7 (60.6-66.7)
	2003-2007	1015	8.9 (8.3-9.5)	3.4 (3.1-3.8)	61.5 (58.3-64.5)
	2008-2012	928	6.8 (6.4-7.3)	2.5 (2.2-2.8)	60.5 (57.3-63.6)
	2013-2017	1083	7.1 (6.7-7.6)	2.1 (1.9-2.3)	60.5 (57.4-63.4)
	2018-2020	677	6.9 (6.3-7.4)	1.6 (1.4-1.9)	63.4 (59.6-67.0)
	2016-2020	**1084**	**6.7 (6.3-7.1)**	**1.8 (1.6-2.0)**	**63.2 (60.3-66.0)**

* per 100,000 resident population

3.1 Trends in age-standardised incidence, mortality, and survival of selected cancers in males and females, 1968-2020

KEY POINTS

- Five-year age-standardised survival rates had increased over the years for all the top ten common cancers diagnosed in males and females; however, differing trends were observed for their age-standardised incidence and mortality rates.

- From 1968-1972 to 2016-2020, in males, there were notable rises in the age-standardised incidence rates of colorectal and prostate cancers (19.4 to 38.0, and 4.0 to 35.1 per 100,000 population respectively); but also significant decreases in that of lung, liver, and stomach cancers (47.3 to 30.5, 28.7 to 16.8, and 37.7 to 9.7 per 100,000 population respectively).

- While there was a noteworthy fall in the age-standardised mortality rate of stomach cancer in males (26.2 to 5.0 per 100,000 population), those of pancreatic and colorectal cancers had risen (1.7 to 5.7 and 8.9 to 13.0 per 100,000 respectively).

- In females, while the age-standardised incidence rates of breast, uterine, and ovarian cancers had risen significantly (20.1 to 73.8, 4.9 to 18.1, 5.9 to 12.1 per 100,000 population respectively), there were significant declines in the age-standardised incidence rates of stomach and cervical cancers (17.4 to 5.6, and 18.0 to 6.7 per 100,000 population respectively).

- In conjunction with the changes in the corresponding incidence rates over the years, age-standardised mortality rates for breast and ovarian cancers had risen significantly (from 5.7 to 12.0 and 1.4 to 3.7 per 100,000 population respectively), whereas that of stomach and cervical cancers had fallen (11.9 to 2.9, and 4.9 to 1.8 per 100,000 population respectively).

- Even among cancers with generally poorer survival rates, there had been an increase in the five-year ASRS over the years, such as for lung and liver cancers in males, and for lung and stomach cancers in females.

3.2 Stage distribution for selected cancers, 2003-2020

The SCR began comprehensive collection of staging information in 2003. From 2003-2007 to 2013-2017, many commonly diagnosed cancers had experienced a shift towards being diagnosed at earlier stages (Stages I-II)[1]. Among males, prostate, liver and pancreatic cancers registered the biggest changes in the proportion of early-stage (stages I and II) and late-stage (stages III and IV) diagnoses (Table 3.2.1). The proportion of early-stage diagnosis for liver cancer rose from 23.8% in 2003-2007 to 44.5% in 2013-2017; while that for pancreatic cancer rose from 16.5% to 30.7% during the same period. However, the proportion of prostate cancer diagnosed at an early stage fell from 63.6% in 2003-2007 to 51.7% in 2013-2017.

In 2018-2020, lung, pancreatic, and stomach cancers had the lowest proportions of early-stage diagnoses among males (19.9%, 26.2%, and 37.8% respectively), and this pattern was also seen across earlier years (Figure 3.2.1, Table 3.2.1). This could partly explain the higher mortality rates for lung, stomach, and pancreatic cancers relative to their respective incidence rates, as well as lower survival rates.

Among females, the biggest changes in the proportion of early- and late-stage diagnoses occurred in lung, stomach, and pancreatic cancers (Table 3.2.2). 13.8% of lung cancer in females were diagnosed at Stages I and II in 2003-2007, and this increased to 23.2% in 2013-2017. For stomach cancer, 26.9% of diagnoses were made at earlier stages in 2003-2007, and this had increased to 37.8% in 2013-2017. Similarly, the proportion of pancreatic cancer diagnosed at Stage I or II registered a nearly twofold increase from 16.4% in 2003-2007 to 31.2% in 2013-2017.

While the proportion of early-stage diagnoses for lung, pancreatic, and stomach cancers among females had increased, these cancers still had the lowest proportions of early-stage diagnoses in 2018-2020 (27.4%, 29.8%, and 37.9% respectively), and similar to that of males, this pattern was also observed for earlier years (Figure 3.2.2, Table 3.2.2). This could partly account for the higher mortality rates vis-à-vis the respective incidence rates, as well as the lower survival rates in contrast to breast and thyroid cancers, which consistently had a higher proportion of early-stage diagnoses.

Table 3.2.1 Stage distribution (%) of selected cancers in males, 2003-2020^

	2003-2007 (AJCC 6)				2008-2012 (AJCC 6 & 7)				2013-2017 (AJCC 7)				2018-2020 (AJCC 8)			
	Stage I	Stage II	Stage III	Stage IV	Stage I	Stage II	Stage III	Stage IV	Stage I	Stage II	Stage III	Stage IV	Stage I	Stage II	Stage III	Stage IV
Colon & rectum	12.5	27.9	36.6	23.0	16.0	27.0	33.1	23.9	18.1	24.7	32.8	24.4	19.6	21.6	33.4	25.4
Prostate	1.0	62.6	11.4	25.0	10.0	53.6	9.8	26.6	15.4	36.3	16.6	31.7	14.4	27.5	25.9	32.3
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	14.8	5.1	17.4	62.7
Liver	11.4	12.4	32.5	43.7	22.6	19.5	30.5	27.5	26.7	17.8	28.6	26.9	34.6	14.9	24.9	25.6
Non-melanoma skin*	81.0	8.0	7.4	3.7	76.8	18.1	2.3	2.8	75.7	21.3	1.2	1.9				
Stomach	17.3	11.0	17.9	53.8	17.0	11.3	24.8	46.8	22.0	12.2	23.1	42.6	27.1	10.7	20.5	41.7
Kidney	38.9	10.1	19.2	31.7	43.3	11.3	16.5	29.0	50.3	8.1	16.4	25.2	46.2	6.9	16.6	30.3
Pancreas	2.9	13.6	8.9	74.5	5.7	15.4	14.0	64.9	8.2	22.5	11.7	57.6	12.6	13.6	15.8	57.9

Table 3.2.2 Stage distribution (%) of selected cancers in females, 2003-2020^

	2003-2007 (AJCC 6)				2008-2012 (AJCC 6 & 7)				2013-2017 (AJCC 7)				2018-2020 (AJCC 8)			
	Stage I	Stage II	Stage III	Stage IV	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	38.4	19.0	9.7	33.7	38.9	16.8	10.7	56.2	20.2	12.6	10.9
Colon & rectum	12.5	29.4	36.2	21.9	14.5	26.0	34.8	24.8	16.8	23.8	34.0	25.4	18.8	23.4	30.7	27.1
Lung	10.6	3.2	23.2	63.0	13.2	3.0	15.5	68.3	18.1	5.1	10.0	66.7	23.2	4.2	10.2	62.4
Uterus	66.4	9.1	16.2	8.2	67.3	8.5	14.4	9.8	68.3	6.6	14.4	10.8	64.7	6.4	16.2	12.6
Ovary	41.9	10.3	31.5	16.3	36.5	9.5	35.6	18.4	40.6	9.7	31.8	17.9	46.2	7.4	25.2	21.2
Non-melanoma skin*	84.2	11.3	4.5	0.0	82.5	16.2	0.9	0.4	81.1	16.4	0.4	2.0				
Thyroid	46.3	15.6	12.6	25.5	62.4	8.9	13.7	15.1	57.4	6.1	21.9	14.6	77.1	14.9	2.0	6.0
Stomach	16.1	10.8	19.6	53.6	18.5	10.8	22.7	48.0	24.8	13.0	21.0	41.2	27.2	10.7	15.8	46.3
Pancreas	4.8	11.6	12.9	70.7	7.5	17.6	14.6	60.4	8.7	22.5	14.1	54.7	13.8	16.0	19.1	51.0
Cervix	46.0	26.0	18.6	9.4	44.6	25.8	15.1	14.6	41.7	22.9	18.9	16.4	35.0	28.0	20.0	17.0

^ TNM staging is only available for some lymphoid and myeloid neoplasms

[1] 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.

**Figure 3.2.1** Stage distribution (%) of selected cancers in males, 2018-2020
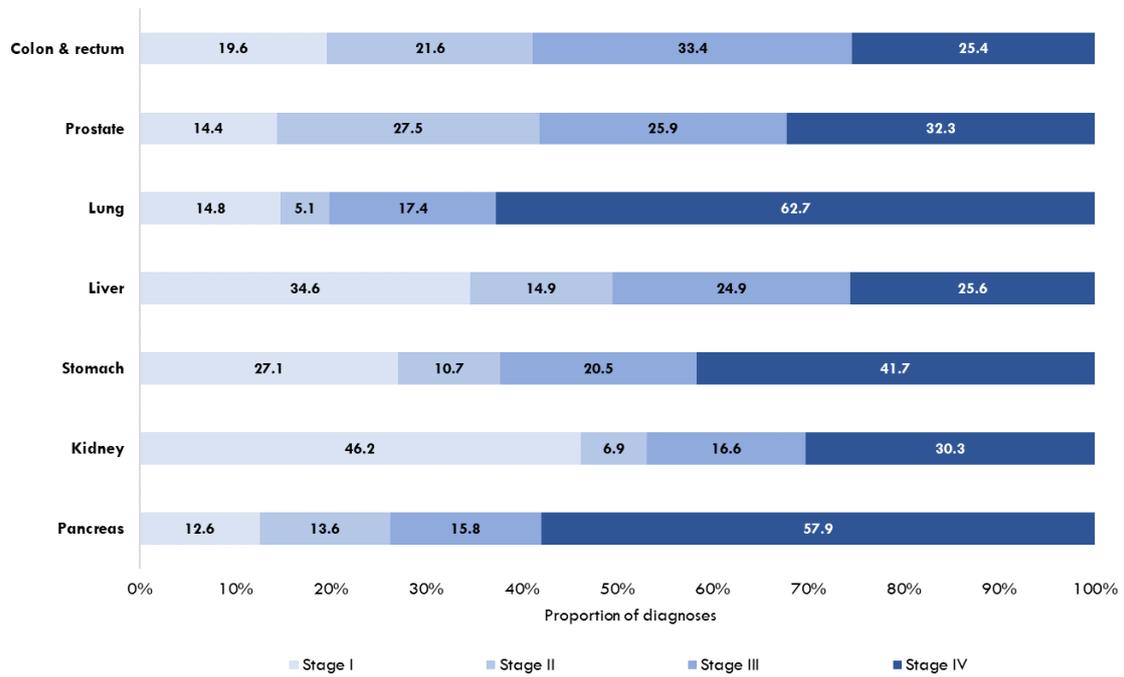
Figure 3.2.2 Stage distribution (%) of selected cancers in females, 2018-2020
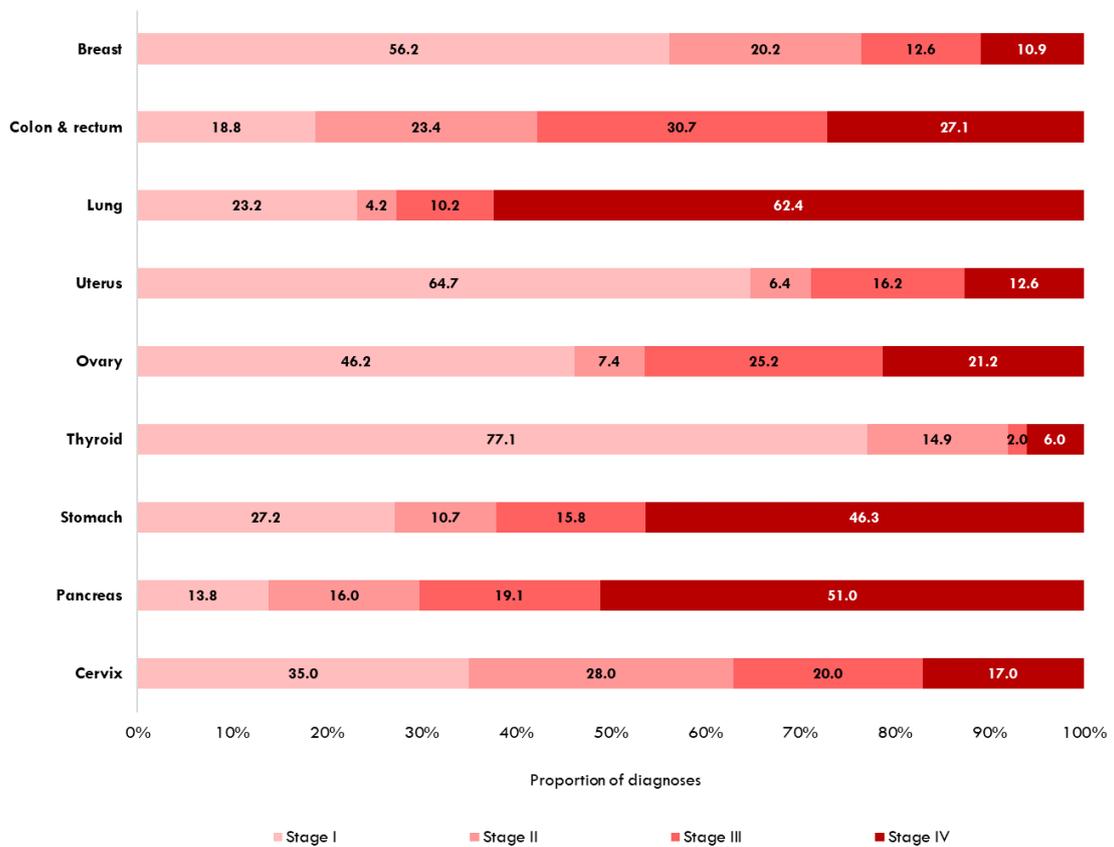
3.2 Stage distribution for selected cancers by gender, 2003-2020

KEY POINTS

- From 2003-2007 to 2013-2017, there had been a slight increase in the proportion of diagnoses at early stages (Stage I and II) for most of the common cancers diagnosed in males and females.
- Staging distribution is linked in part to outcomes in terms of cancer mortality and survival.
- In 2018-2020, among males, lung, pancreatic, and stomach cancers were more likely to be diagnosed at later stages (80.1%, 73.7%, 62.2% respectively). This pattern was consistent across time.
- Similarly, in 2018-2020, among females, lung, pancreatic, and stomach cancers were also more likely to be diagnosed at later stages (72.6%, 70.1%, and 62.1% respectively). This was seen across all time periods.

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	Colon & rectum
Rectosigmoid & rectum	C19-C20	
Liver	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	C53	Cervix
Uterus	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 (ICD10: C81-C96, D45-D47)

Lymphoid Neoplasms
Precursor Lymphoid Neoplasms
B Mature Neoplasms
T/NK Mature Neoplasms
Hodgkin's Lymphoma
Immunodeficiency-associated lymphoproliferative disorders
Histiocytic and Dendritic Cell Neoplasm
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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