Overview of Hong Kong Cancer Statistics of 2019

1. Background

1.1   The Hong Kong Cancer Registry (HKCaR) is a population-based cancer registry responsible for collecting the basic demographic data, information of the cancer site, and tumour histology of patients diagnosed with cancer in public and private medical institutions in Hong Kong. Robust cancer registry data provide the basis for governments to prioritise resources in cancer control according to the burden of various cancers in the communities, for health care planners and researchers in developing healthcare policies to improve the quality of cancer care, prioritizing costly cancer treatments, and implementing cost-effective cancer prevention strategies such as cancer screening programmes and other public health interventions.

1.2   This is the annual overview of cancer statistics in Hong Kong that provides population-based data highlighting cancer incidence and mortality rates for 2019 and the key trends for major cancers. In addition, this paper presents, for the first time, the stage-specific population-based survival of common gynaecological cancers and nasopharyngeal cancer in Hong Kong.

2. New cancer cases in 2019

2.1   A total of 35,082 new cancer cases were diagnosed in Hong Kong in 2019, up from 25,977 in 2009 or 35% over the last decade. On average, 96 people were diagnosed with cancer each day.

2.2   Of these new cancer cases, 17,685 were diagnosed in males, and 17,397 in females. The numbers have increased by 645 (or 3.8%) for males and 409 (or 2.4%) for females compared to 2018. The crude annual incidence rates of cancer per 100,000 population were 516.7 for males and 425.9 for females in 2019.

2.3   The five most commonly diagnosed cancers in 2019 were lung cancer (15.9%), colorectal cancer (15.8%), breast cancer (13.7%), prostate cancer (7.2%) and liver cancer (5.3%), accounting for nearly 58% of new cancer cases diagnosed in Hong Kong. Compared with the preceding year, lung cancer superseded colorectal cancer to reclaim the top spot since 2012. Lung cancer increased by 6.2% to 5,575 cases while colorectal cancer decreased by 1.4% to 5,556 cases.

2.4   In 2019, the inclination of the number of new cancer cases was mainly attributed to the growing numbers of prostate cancer in men, breast cancer in women, as well as lung cancer in both genders.

2.5   For males, the top five cancers comprised about 64% of new cancer cases. They were cancers of the lung (19.4%), colorectum (18.3%), prostate (14.3%), liver (8.2%) and stomach (4.3%).

2.6   For females, the five leading cancers were cancers of the breast (27.4%), colorectum (13.3%), lung (12.4%), corpus uteri (6.9%) and thyroid (4.7%), accounting for around 65% of new cancer cases in women.

2.7   The number of newly diagnosed invasive breast cancer cases in women increased by 3.1% to 4,761 in 2019. In addition, 737 new cases of in-situ breast cancer (or known as stage 0 breast cancer) were also diagnosed, up 10% from previous year.

2.8   The number of newly diagnosed pancreatic cancer cases has increased considerably in recent years, making it the 11th most frequent cancer in Hong Kong. Compared to 2018, there was an increase of 10.6% in the number of newly diagnosed pancreatic cancer cases, up to a total number of 946. The number has increased by 90% since 2009. Although pancreatic cancer was only the 11th most common cancer, it was the 5th leading cause of cancer deaths in Hong Kong with 740 deaths recorded in 2019, indicating an overall poor prognosis of this cancer.

2.9   Compared to a decade earlier, new cancer cases have jumped by 35% or at an annual rate of 3.1%. During the same period, the population grew slowly at an annual rate of 0.7%, but the population aged 65 and older increased at 3.9% per year.

2.10   As cancer incidence rates increase sharply with age, the increase in overall cancer incidence rate in Hong Kong is largely driven by the ageing population, along with changes in cancer risks as well as the improvements in diagnostic practices.

2.11   The type and order of the five leading cancers have remained more or less the same over the decade (Table 1). The biggest increases were in prostate cancer among men and breast cancer in women, with about 71% and 62% inclinations in the number of new cases, respectively. The annual number of new cases of liver cancer has remained stable in recent years.

Table 1. Leading cancer types (both genders combined)

Rank in 2019	Cancer type	No. of new cases in 2009 (rank)	No. of new cases in 2019	Overall change
	All cancers	25,977	35,082	+35.1%
1	Lung	4,365 (1)	5,575	+27.7%
2	Colorectum	4,335 (2)	5,556	+28.2%
3	Breast	2,962 (3)	4,793	+61.8%
4	Prostate	1,484 (5)	2,532	+70.6%
5	Liver	1,832 (4)	1,876	+2.4%

3. Cancer deaths registered in 2019:

3.1   Cancer was the number one killer in Hong Kong in 2019 with 14,871 cancer deaths, accounting for 30.5% of all deaths in Hong Kong. Over half (58%) of the cancer deaths were in men. The crude annual mortality rates of cancer per 100,000 population were 252.6 for males and 152.4 for females in 2019.

3.2   The top three causes of cancer deaths were lung cancer (27.1%), colorectal cancer (14.6%) and liver cancer (10.3%), which accounted for over half of all cancer deaths.

3.3   For males, cancers of the lung (30.7%), colorectum (14.6%) and liver (13.1%) accounted for 58% of the cancer deaths.

3.4   The cancers causing most deaths in females were lung cancer (22.2%), colorectal cancer (14.6%) and breast cancer (13.7%), accounting for just half of the cancer deaths.

3.5   Over the past decade, the number of cancer deaths has risen at an annual rate of 1.5% per year. The ranking of the top five deadliest cancers almost unchanged (Table 2). There were marked increases in the number of deaths from pancreatic cancer (64.8%) and breast cancer (54.8%). The increase was much less pronounced in liver cancer (2.8%).

Table 2. Leading cancer deaths (both genders combined)

Rank in 2019	Cancer type	No. of deaths in 2009 *(rank)*	No. of deaths in 2019	*Overall change*
	All cancers	12,839	14,871	*+15.8%*
1	Lung	3,692 *(1)*	4,033	*+9.2%*
2	Colorectum	1,752 *(2)*	2,174	*+24.1%*
3	Liver	1,488 *(3)*	1,530	*+2.8%*
4	Breast	555 *(5)*	859	*+54.8%*
5	Pancreas	449 *(6)*	740	*+64.8%*

3.6   The increase in the numbers of new cancer cases and cancer deaths was primarily attributed to the ageing population. As long as the current demographic trends continue in Hong Kong, we shall be witnessing an elevated incidence and mortality burden of cancer in the population.

Appendix 1 displays the ten cancers with the largest number of new cases diagnosed and cancer deaths by gender in 2019.

4.   Cancer and gender

4.1   Men still had a higher risk of developing cancer than women but the gap had closed in the past ten years. With the prevailing trends in incidence and population structure, it is expected that females will surpass males in the number of cancer cases in the next few years.

4.2   Women are more prone to have cancer than men among adults aged 20-59 years, mainly due to the relatively high incidence rates of gender-specific cancers of the breast, cervix, corpus uteri and ovary. The age-specific female preponderance was most apparent in the age group of 20-44 years, in which the number of cancer cases in women was more than twice of that in men.

4.3　The cancers with the highest male to female ratio were cancers of the larynx (male to female ratio=13:1), oesophagus (3.5:1) and liver (3.4:1).

4.4　The only two cancers that were more common in women than men were thyroid cancer (female to male ratio=3.5:1), and breast cancer (just a mere 0.7% of cases occurred in men).

5.　Cancer and age

5.1　Age is the most important risk factor for most cancer types. In 2019, the incidence rates for cancer climbed steadily as age increases, from fewer than 50 cases per 100,000 people in the age groups under 30 years, to about 350 per 100,000 people among those aged 45–49, to more than 1,000 per 100,000 people in age groups 65 years and older.

5.2　The median age at diagnosis was 66 years (males 68 years, females 62 years). This means that half of the cancer cases occurred in people below this age and half in people above this age. Only a mere 0.6% of cancer cases being diagnosed in children and adolescents (i.e. in aged 0-19 years).

5.3　There were 196 newly diagnosed cancer cases in children and adolescents in 2019, 111 in males and 85 in females. The more common children and adolescent cancers were leukaemia (24.5%), lymphoma (19.4%) and malignant brain and spinal tumours (12.8%). The top three cancers constituted 56.7% of all cancer cases in children and adolescents.

5.4　In young adults aged 20-44 years, the most common cancer was nasopharyngeal cancer for males and breast cancer for females.

5.5　In adults aged 45-64 years, the most common cancer was colorectal cancer for males and breast cancer for females, with nearly 40% of cancer cases occurring in this age group.

5.6　In elderly people aged 65-74 years, prostate cancer surpassed lung and colorectal cancers to become the most common cancer for males. The most common cancer was breast cancer for females.

5.7　In very elderly people aged 75 or older, the most common cancer was lung cancer for males and colorectal cancer for females.

5.8　A person's risk of developing or dying from cancer is age-dependent. Based on the cancer statistics collected in 2019, about 1 in 4 men and 1 in 5 women will develop cancer before the age of 75. About 1 in 9 men and 1 in 15 women will die from cancer before the age of 75.

Appendix 2 displays the relative frequency of the five most common cancers by gender and age groups in 2019.

6. Trends in age-standardised incidence and mortality in the last decade, 2010-2019

6.1 Age-standardised rate (ASR) is a health statistics indicator which is often used to enable the comparison of rates between different time periods or different geographical areas, after removing the influence of age distributions of populations. Average Annual Percent Change (AAPC) is a summary measure of the trends in the ASRs over the ten-year period from 2010 to 2019. A p-value of less than 0.05 ($p<0.05$) is considered statistically significant.

6.2 The trends in overall cancer incidence rates were increasing in women (AAPC: +1.3%, $p<0.05$) but stable in men over the last decade in Hong Kong. The trends in overall cancer mortality were decreasing for both genders, at -2.2% per year ($p<0.05$) among males and -1.0% per year among females ($p<0.05$) during the period 2010 to 2019.

6.3 Among the common cancers, a significant trend of decreasing incidence was most apparent in cancers of the nasopharynx (*AAPC: -1.9% in males; -4.3% in females*) and liver (*AAPC: -2.3% in males; -4.8% in females*) in both genders, as well as stomach (*AAPC: -1.3%*) in males (Figures 1 and 2).

6.4 A significant trend of rising incidence was observed for cancers of the thyroid (*AAPC: +4.6% in males; +3.8% in females*) and pancreas (*AAPC: +1.7% in males; +1.7% in females*) in both genders, corpus uteri (*AAPC: +3.4%*), breast *(AAPC: +2.5%),* cervix (*AAPC: +1.4%*) and lung *(AAPC: +1.2%)* in females, as well as the prostate (*AAPC: +3.3%*) and colorectum (*AAPC: +0.6%*) in males.

6.5 In terms of mortality, a significant decreasing trend was observed in most cancers, with the exception of pancreatic cancer (*AAPC: +1.9% in males; +1.0% in females*) in both genders, prostate cancer (*AAPC: +1.0%*) in males and cancers of the breast (*AAPC: +1.8%*) and corpus uteri (*AAPC: +3.3%*) in females. No significant changes were observed in cancer of the cervix in females.

Figure 1. Average annual percent change (AAPC)[1] of age-standardised rates[2] of common cancers over the period 2010-2019, Males
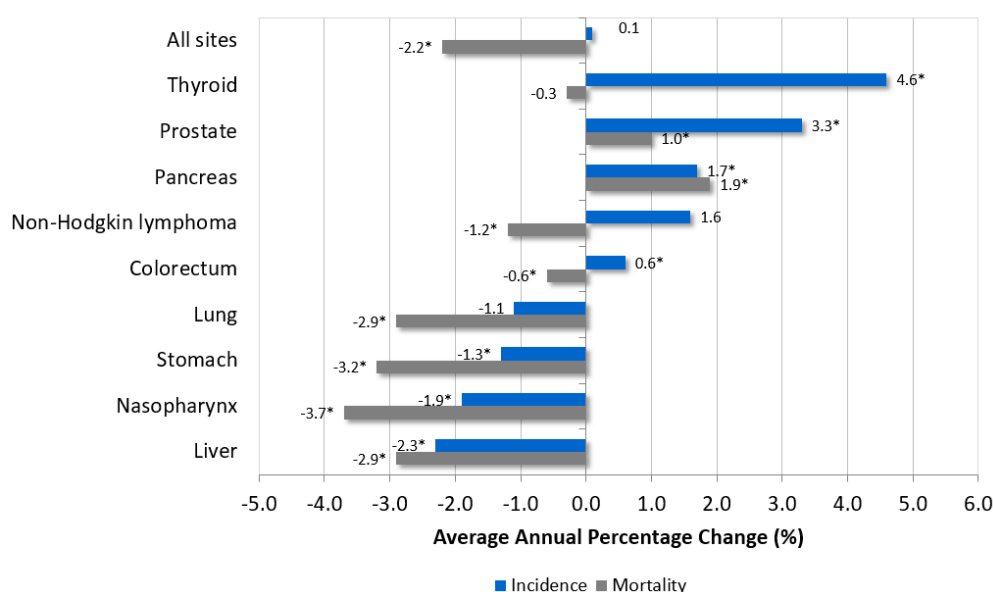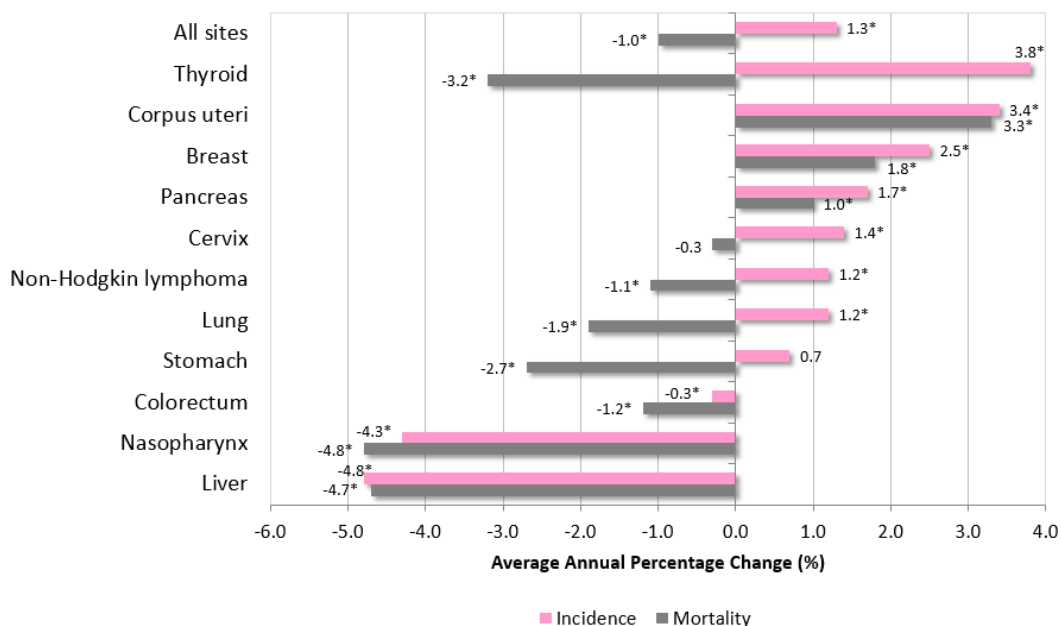
Figure 2. Average annual percent change (AAPC)[1] of age-standardised rates[2] of common cancers over the period 2010-2019, Females

Notes:
1. Average Annual Percent Change (AAPC) of age-standardised rates over the past ten years is estimated from joinpoint regression. An asterisk (*) represents the AAPC is statistically significant from zero at 5% level (*p<0.05*).
2. Rates are age-adjusted to the age distribution of the World Standard Population of Segi (1960).

# 7. Special highlights – Provision of Indicators for Cancer Disease Surveillance

7.1 Stage at diagnosis is an important prognostic factor for people diagnosed with cancer. As such, the HKCaR has made considerable efforts to improve the collection of staging data and reporting of survival by stage for more prevalent cancers at a population level.

7.2 The HKCaR has conducted the second large-scale study on the population-based cancer survival. It covered more than 24,000 patients with gynaecological and nasopharyngeal cancers diagnosed in 2010-2018, providing indicators for cancer control surveillance in the local population (Figure 3).

7.3 The overall five-year relative survival rate (RSR) for cervical cancer was 65.8%. The rate was 90.2% for those diagnosed in stage I but fell to 75.6% for stage II, 58.9% for stage III and 16.2% for stage IV.

7.4 The overall five-year RSR for corpus uteri cancer was 70.4%. The rates declined substantially from a high of 89.7% at stage I to 9.9% at stage IV.

7.5 The overall five-year RSR for epithelial ovarian and primary peritoneal cancer was 44.5%, which was the lowest among the three common types of gynaecological cancer. The five-year RSRs declined significantly across stages: 89.1% for stage I, 60.2% for stage II, 32.3% for stage III and

16.4% for stage IV. The rates also significantly differed among different histological types of ovarian cancer (type I and type II epithelial carcinoma).

7.6 The overall five-year RSR for nasopharyngeal cancer was 68.7%. The rate was high for stage I (92.7%) and stage II (83.4%). It dropped to 77.7% for stage III and 47.1 % for stage IV.

7.7 In the era of personalised medicine, HKCaR has started to routinely collect more biological factors (e.g. tumour grade, molecular markers and gene mutations) for some cancers. These include, but are not limited to, the grade and prostatic-specific antigen of prostate cancer and gene mutations in non-small cell lung cancer. Such factors provide important additional information about these specific types of cancer.

Figure 3. Five-year relative survival rates (RSR) by stage and cancer type, 2010-2018
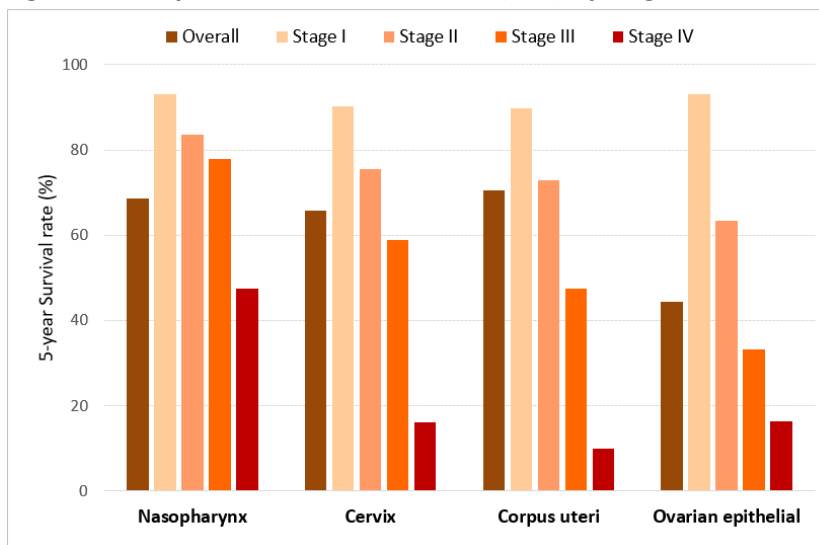
Note: The term "Ovarian epithelial" includes epithelial cancers of the ovary, fallopian tube and primary peritoneum

Figure 4. Gene mutations in non-small cell lung cancer, 2019
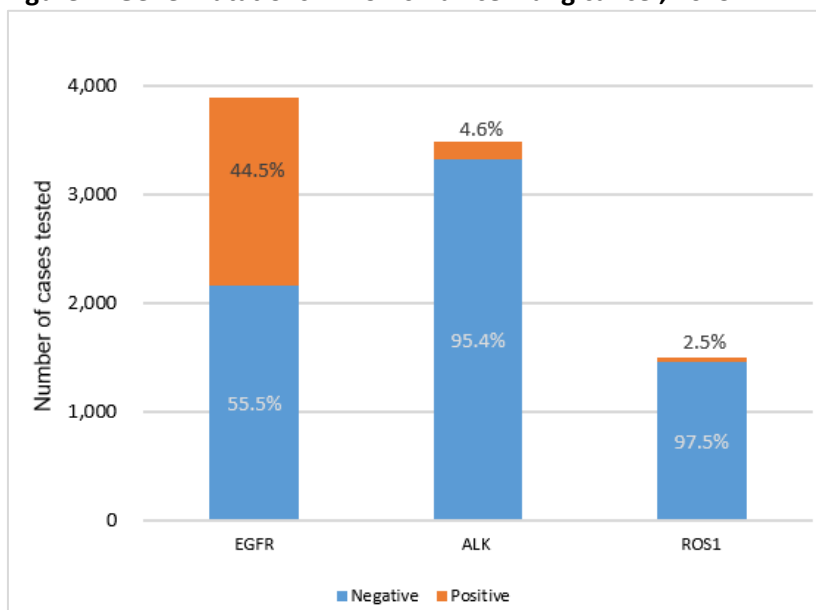
Key Messages

➤ New cancer cases reached a record high of 35,082 in 2019, up from 25,977 ten years ago (or an increase of 35% in ten years). On average, 96 people were diagnosed with cancer each day.

➤ Lung cancer has moved past colorectal cancer again to reclaim the top spot of cancer since 2012, with 5,575 lung cancer cases and 5,556 colorectal cancer cases newly diagnosed.

➤ Lung cancer was the most common cancer in men, while breast cancer was still the leading cancer in women.

➤ Compared to 2018, the increase in the number of new cancer cases in 2019 was mainly attributed to the growing numbers of prostate cancer cases in men, breast cancer cases in women, as well as lung cancer cases in both genders.

➤ After adjusting for the influence of age, the trends of overall cancer incidence seemed to be stable in men but an increasing trend of incidence was observed in women over the past decade.

➤ The trends of overall cancer mortality rates in both genders were decreasing during the same period, with the rate of decrease higher in males.

➤ The overall five-year relative survival rates for cervical, corpus uteri and epithelial ovarian cancers were 66%, 70% and 45%, respectively.

➤ Stage at diagnosis is an important prognostic factor for gynaecological cancers. The five-year survival rates were usually high for those diagnosed in stage I (about 90%), but declined substantially to 10%-16% at stage IV.

➤ For nasopharyngeal cancer, the overall five-year relative survival rate was nearly 70%. The rates were high for stage I (93%), fell to 83% for stage II and 78% for stage III. Those diagnosed stage IV nasopharyngeal cancer still had a five-year survival rate of 47%.

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Appendix 1: Leading Cancer Sites in 2019

10 Most Common Cancers

Male

Rank	Site	No. of new cases	Relative frequency	Crude incidence rate*	Median age (yr)
1	Lung	3,424	19.4%	100.0	70
2	Colorectum	3,236	18.3%	94.5	68
3	Prostate	2,532	14.3%	74.0	70
4	Liver	1,448	8.2%	42.3	66
5	Stomach	759	4.3%	22.2	70
6	Non-Hodgkin lymphoma	589	3.3%	17.2	67
7	Nasopharynx	588	3.3%	17.2	56
8	Non-melanoma skin	564	3.2%	16.5	67
8	Kidney and other urinary organs except bladder	564	3.2%	16.5	65.5
10	Pancreas	530	3.0%	15.5	68
	All sites	17,685	100%	516.7	68

Female

Rank	Site	No. of new cases	Relative frequency	Crude incidence rate*	Median age (yr)
1	Breast	4,761	27.4%	116.6	58
2	Colorectum	2,320	13.3%	56.8	69
3	Lung	2,151	12.4%	52.7	68
4	Corpus uteri	1,198	6.9%	29.3	57
5	Thyroid	823	4.7%	20.1	52
6	Ovary & peritoneum	732	4.2%	17.9	54
7	Stomach	544	3.1%	13.3	69
8	Cervix	520	3.0%	12.7	55
9	Non-melanoma skin	517	3.0%	12.7	75
10	Non-Hodgkin lymphoma	431	2.5%	10.6	64
	All sites	17,397	100%	425.9	62

Both sexes

Rank	Site	No. of new cases	Relative frequency	Crude incidence rate*	Median age (yr)
1	Lung	5,575	15.9%	74.3	69
2	Colorectum	5,556	15.8%	74.0	68
3	Breast	4,793	13.7%	63.8	58
4	Prostate	2,532	7.2%	74.0	70
5	Liver	1,876	5.3%	25.0	67
6	Stomach	1,303	3.7%	17.4	70
7	Corpus uteri	1,198	3.4%	29.3	57
8	Non-melanoma skin	1,081	3.1%	14.4	71
9	Thyroid	1,059	3.0%	14.1	52
10	Non-Hodgkin lymphoma	1,020	2.9%	13.6	66
	All sites	35,082	100%	467.3	66

10 Major Causes of Cancer Deaths

Male

Rank	Site	No. of deaths	Relative frequency	Crude mortality rate*	Median age (yr)
1	Lung	2,651	30.7%	77.4	73
2	Colorectum	1,266	14.6%	37.0	74
3	Liver	1,129	13.1%	33.0	68
4	Prostate	445	5.1%	13.0	82
5	Stomach	393	4.5%	11.5	74
6	Pancreas	392	4.5%	11.5	70
7	Oesophagus	262	3.0%	7.7	71
8	Non-Hodgkin lymphoma	247	2.9%	7.2	74
9	Nasopharynx	230	2.7%	6.7	61
10	Bladder	174	2.0%	5.1	79
	All sites	8,645	100%	252.6	72

Female

Rank	Site	No. of deaths	Relative frequency	Crude mortality rate*	Median age (yr)
1	Lung	1,382	22.2%	33.8	75
2	Colorectum	908	14.6%	22.2	78
3	Breast	852	13.7%	20.9	63
4	Liver	401	6.4%	9.8	80
5	Pancreas	348	5.6%	8.5	74
6	Stomach	303	4.9%	7.4	71
7	Ovary & peritoneum	261	4.2%	6.4	62
8	Cervix	162	2.6%	4.0	62
9	Non-Hodgkin lymphoma	156	2.5%	3.8	76
10	Leukaemia	140	2.2%	3.4	70
	All sites	6,226	100%	152.4	72

Both sexes

Rank	Site	No. of deaths	Relative frequency	Crude mortality rate*	Median age (yr)
1	Lung	4,033	27.1%	53.7	73
2	Colorectum	2,174	14.6%	29.0	75
3	Liver	1,530	10.3%	20.4	70
4	Breast	859	5.8%	11.4	63
5	Pancreas	740	5.0%	9.9	72
6	Stomach	696	4.7%	9.3	73
7	Prostate	445	3.0%	13.0	82
8	Non-Hodgkin lymphoma	403	2.7%	5.4	75
9	Oesophagus	320	2.2%	4.3	72
10	Leukaemia	298	2.0%	4.0	71
	All sites	14,871	100%	198.1	72

* All rates are expressed per 100,000 population. Rates for gender-specific sites are per 100,000 male or female population.

Statistics on the number of deaths are provided by the Department of Health of HKSAR.

Appendix 2: Five Most Common Cancers by Gender and Age Group in 2019

Male		
Age 0-19*		
Site	No. of cases	% of all sites
Lymphoma	26	23.4%
Leukaemia	23	20.7%
Brain and spinal tumours	15	13.5%
Malignant bone tumour	10	9.0%
Germ-cell and gonadal tumours	10	9.0%
Carcinomas and epithelial neoplasms	8	7.2%
All sites	**111**	**100%**
Age 20-44		
Site	No. of cases	% of all sites
Nasopharynx	123	14.0%
Colorectum	115	13.1%
Testis	81	9.2%
Thyroid	72	8.2%
Liver	60	6.8%
All sites	**876**	**100%**
Age 45-64		
Site	No. of cases	% of all sites
Colorectum	1,095	19.1%
Lung	1,044	18.2%
Liver	594	10.3%
Prostate	534	9.3%
Nasopharynx	334	5.8%
All sites	**5,743**	**100%**
Age 65-74		
Site	No. of cases	% of all sites
Prostate	1,183	20.9%
Lung	1,156	20.4%
Colorectum	1,003	17.7%
Liver	471	8.3%
Stomach	240	4.2%
All sites	**5,671**	**100%**
Age 75 and Over		
Site	No. of cases	% of all sites
Lung	1,168	22.1%
Colorectum	1,022	19.4%
Prostate	813	15.4%
Liver	322	6.1%
Stomach	281	5.3%
All sites	**5,280**	**100%**

Female		
Age 0-19*		
Site	No. of cases	% of all sites
Leukaemia	25	29.4%
Lymphoma	12	14.1%
Germ-cell and gonadal tumours	11	12.9%
Brain and spinal tumours	10	11.8%
Carcinomas and epithelial neoplasms	10	11.8%
Sympathetic nervous system tumour	7	8.2%
All sites	**85**	**100%**
Age 20-44		
Site	No. of cases	% of all sites
Breast	699	36.2%
Thyroid	248	12.8%
Ovary & peritoneum	165	8.5%
Corpus uteri	127	6.6%
Colorectum	125	6.5%
All sites	**1,931**	**100%**
Age 45-64		
Site	No. of cases	% of all sites
Breast	2,613	34.0%
Lung	798	10.4%
Colorectum	795	10.3%
Corpus uteri	781	10.2%
Thyroid	441	5.7%
All sites	**7,688**	**100%**
Age 65-74		
Site	No. of cases	% of all sites
Breast	839	23.7%
Lung	589	16.7%
Colorectum	552	15.6%
Corpus uteri	204	5.8%
Stomach	135	3.8%
All sites	**3,537**	**100%**
Age 75 and Over		
Site	No. of cases	% of all sites
Colorectum	848	20.4%
Lung	704	16.9%
Breast	609	14.7%
Non-melanoma skin	260	6.3%
Stomach	205	4.9%
All sites	**4,156**	**100%**

* The classification of cancers in children and adolescents (0-19 years) is based on the morphology according to the "International Classification for Childhood Cancer 1996, IARC Technical Report No. 29: Lyon, 1996.", rather than the site of tumour.

Note on the use of data:

The numbers of new cases and deaths are important parameters to measure the burden of cancer on local healthcare system. One should keep in mind that the figures are subject to random fluctuations from year to year. Experience tells us that a more reliable comment on the trends of incidence and mortality can only be made after observing over a longer period of preferably at least 5 years or more.

Suggested citation:

Hong Kong Cancer Registry. *Overview of Hong Kong Cancer Statistics of 2019*. Hong Kong Hospital Authority; Oct 2021. Available at: https://www3.ha.org.hk/cancereg (accessed [date]).

More cancer statistics are available on the website of Hong Kong Cancer Registry:
https://www3.ha.org.hk/cancereg