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Overview of Hong Kong Cancer Statistics of 2016

This report summarizes the key cancer statistics of Hong Kong for the year of 2016, which is now available on the website of [Hong Kong Cancer Registry](#).

Cancer Registration in Hong Kong

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 cancer histology of all patients diagnosed with cancer in all the public and private medical institutions in Hong Kong. Vast amount of cancer-related data is collated and uploaded each year into a huge database. The raw data will be validated by various crosschecking procedures via the locally-designed Cancer Case Audit System, and scrutinized by multiple quality control processes commensurate with the recommendations by the International Agency for Research on Cancer (IARC) of World Health Organization. Queries and “unusual cases” are referred to a clinical oncologist for revalidation. Once all these necessary procedures are completed, statistics describing the numbers and incidence rates of all types of cancers diagnosed within a calendar year according to age groups and gender will be published on the web on an annual basis.

With the zealous support of healthcare professionals and medical institutions, we have managed to collect high quality cancer data from both the private and public hospitals and laboratories. Although reporting of cancer cases by the medical profession is not mandatory, the completeness of registration by the HKCaR is reckoned to be 97% or higher. As close to 90% of the cases can be morphologically verified and the proportion of cancer cases based solely on information from death certificates constituted less than 0.5% in recent years, the data quality reported by the HKCaR has been rated to be of the highest standard according to the IARC’s review.

The increasing availability of electronic clinical data in both the public and private hospitals has certainly enhanced our ability to provide more accurate and complete data in a timely fashion to the public, the medical profession and healthcare administrators. To further leverage on the current core cancer data the HKCaR has been providing, we are piloting the collection of additional pertinent data elements such as molecular characteristics, cancer stage, clinico-pathological prognostic factors, and clinical cancer outcomes for selected cancers with a view to better serving the medical profession and contributing towards cancer control and surveillance in Hong Kong. This is only made possible through the collaboration of both public and private healthcare sectors in meeting requests for supplementary information. We certainly cherish feedbacks from readers and visitors, which we believe will help refine and shape our current services.

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Key findings

New cancer cases and deaths in 2016:

- A total of 31,468 new cancer cases were diagnosed in Hong Kong in 2016, hitting a record high with 1,150 more cases or a rise of 3.8% compared with 2015.
- Of these new cancers diagnosed, 16,035 were diagnosed in males, and 15,433 in females. The numbers have increased by 663 (or 4.3%) for males and 487 (or 3.3%) for females compared to 2015. The crude annual incidence rates of cancer per 100,000 were 475.1 for males and 389.6 for females in 2016.
- There were 14,209 deaths due to cancer in 2016 (with 107 less deaths or decreased slightly by 0.7% compared to 2015). More than half of cancer deaths were males (8,447 cases or 59%). The crude annual mortality rates of cancer per 100,000 were 250.3 for males and 145.5 for females in 2016.

Most common cancers:

- Top three cancers - colorectum (17.3%), lung (15.7%) and breast (13.1%) - contributed about half of the cancer burden in Hong Kong in 2016. Compared with the preceding year, colorectal cancer rose by 8% to reach a historical high of 5,437 cases, female breast cancer increased by 5.3% to 4,108 and lung cancer by 4% to 4,936 cases.
- In 2016, most of the increase in new cancer cases was attributed to the growing numbers of lung and stomach cancers in men, breast and corpus uteri cancers in women, as well as colorectal and thyroid cancers in both genders.
- For males, colorectal cancer moved past lung cancer to claim the top spot of most common male cancer in Hong Kong for the first time. Top four cancers comprised nearly 60% of new cancers in men. They were cancers of the colorectum (19.8%), lung (19.2%), prostate (11.9%) and liver (8.7%).
- For females, the four leading cancers were breast (26.6%), colorectum (14.7%), lung (12.0%) and corpus uteri (6.8%), accounting for over 60% of new cancers in women.
- Number of invasive breast cancer in women reached over 4,100 for the first time in 2016. This marked a 5.3% increase in the numbers compared to the previous year. There were a further 599 cases of in-situ breast cancer (i.e. stage 0 breast cancer or called pre-cancer) reported during 2016.
- Compared to 2015, there was an increase of 23.1% and 8% in the number of newly diagnosed thyroid cancer in men and women respectively. Almost all of this increase was in papillary type carcinoma. Altogether, 889 new cases of thyroid cancer were diagnosed in 2016, making it the 10th most frequent cancer in Hong Kong. During the same period, there were only 50 reported deaths, indicating an overall good prognosis of this cancer.
- For more information on selected common cancers, see the fact sheets, all in PDF format, on the Cancer Registry website which provides descriptive data on incidence and mortality.

Leading cancer types (both genders combined)

Rank in 2016	Cancer type	No. of new cases in 2006 (<i>rank</i>)	No. of new cases in 2016	<i>Overall change</i>
	All cancers	23,750	31,468	32.5%
1	Colorectum	3,918 (2)	5,437	38.8%
2	Lung	4,233 (1)	4,936	16.6%
3	Breast	2,595 (3)	4,123	58.9%
4	Prostate	1,068 (5)	1,912	79.0%
5	Liver	1,745 (4)	1,810	3.7%

- Compared to a decade earlier, new cancer cases have jumped by about 33% or at an average annual rate of 2.9%.
- During the same period, the population grew slowly at an average rate of 0.7% per year, but the population aged 65 and older increased at 3.2% per year. As cancer rates increase sharply with age, the overall increasing burden of cancer is largely driven by an ageing and growing population, along with changes in cancer risks as well as the improvements in diagnostic practices.
- The type and order of five leading cancers have remained more or less the same over the years. The biggest increases were in prostate cancer among men and breast cancer with the vast majority diagnosed in women, with 79% and about 60% increases in the number of new cases, respectively.
- Colorectal cancer has overtaken lung cancer as the most prevalent cancer since 2012. There has been a substantial rise of this cancer over the past decade whereas a slight recent increase in the number of lung cancer was observed. The annual number of new cases of liver cancer has remained stable in recent years.

Most common causes of cancer deaths:

- Deaths from cancer accounted for more than 30% of all deaths in Hong Kong. Over the past decade, the number of cancer deaths rose at an average rate of 1.5% per year.
- In 2016, the cancers causing most cancer deaths were lung cancer (26.6%), colorectal cancer (14.7%) and liver cancer (10.8%), which accounted for over half of all cancer deaths.
- For males, cancers of the lung (29.9%), colorectum (14.3%) and liver (13.4%) accounted for nearly 60% of cancer deaths.
- The cancers causing most deaths in females were lung cancer (21.7%), colorectal cancer (15.3%) and breast cancer (12.2%), accounting for nearly half of all cancer deaths.
- Over the past decade, the ranking of top five deadliest cancers has remained almost unchanged. There was a marked increase of over 50% in the number of deaths from breast cancer. The increase was much less pronounced in colorectal cancer (28.3%) and stomach cancers (11.8%).

Leading cancer deaths (both genders combined)

Rank	Cancer type	No. in 2006	No. in 2016	Overall change
	All cancers	12,093	14,209	17.5%
1	Lung	3,531	3,780	7.1%
2	Colorectum	1,628	2,089	28.3%
3	Liver	1,462	1,540	5.3%
4	Stomach	635	710	11.8%
5	Breast	465	704	51.4%

- The increase in the number of new cancer cases and cancer deaths was primarily attributed to an ageing and growing population. As long as the current demographic trends continue in Hong Kong, we shall be witnessing a corresponding increase in the 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 2016.

Cancer and gender:

- More men developed cancer than women. In 2016, there were 104 men for every 100 women but this male to female ratio has narrowed gradually since the mid-1990s. With the prevailing trends in incidence and population structure, it will not be surprising the gender ratio will be reversed in the coming few years.
- Cancers with the highest male to female ratio were cancers of the larynx (male to female ratio=12:1), oesophagus (4:1) and liver (3.3:1).
- 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 which just a mere 0.4% developed in men.
- More men died from cancer (8,447) than women (5,762), with a male to female ratio of 1.5 to 1.

Cancer and age:

- Cancer is primarily a disease of older people. Half of cancers occurred in people over the age of 65, whereas only a mere 0.6% of cancers being diagnosed in children and adolescents (i.e. aged 0-19 years).
- Women are more prone to cancer than men among adults between the ages of 20 and 59 years, mainly due to the relatively high incidence 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 cancers in women was more than twice of that in men.
- The median age of patients at diagnosis of cancer was 67 years in men and 61 years in women and the median age at death was 72 years in both men and women.

Among the common cancers in males, the median age at diagnosis was 69 years for lung cancer, 68 years for colorectal cancer, 71 years for prostate cancer, 64 years for liver cancer, and 71 years for stomach cancer.

- Among the common cancers in females, the median age at diagnosis was 56 years for breast cancer, 69 years for colorectal cancer, 67 years for lung cancer, 56 years for cancer of the corpus uteri, and 49 years for thyroid cancer.
- There were 183 cancers in children and adolescents, 108 in males and 75 in females, being diagnosed in 2016. The more common children and adolescent cancers were leukaemias (32.2%), malignant brain tumors (15.8%) and lymphomas (15.3%). Top three cancers constituted 63.3% of all cancers in children and adolescents.
- In young adults aged 20–44 years, the most common cancer was nasopharyngeal cancer for males and breast cancer for females. Colorectal cancer has climbed to second place in men.
- In adults aged 45-64 years, the most common cancer was colorectal cancer for males and breast cancer for females.
- In elderly people aged 65-74 years, the most common cancer was lung cancer for males and breast cancer for females.
- In very elderly people aged 75 or older, the most common cancer was lung cancer for males and colorectal cancer for females.

Appendix 2 displays the relative frequency of the five most common cancers by gender and age groups in 2016.

Risk of developing or dying from cancer before age 75

A person's risk of developing or dying from cancer is age-dependent. Based on the cancer statistics collected in 2016,

- approximately 1 in 4 men and 1 in 5 women will develop cancer before the age of 75.
- approximately 1 in 9 men and 1 in 15 women will die from cancer before the age of 75.

Trends in incidence and mortality in the last decade (2007 to 2016):

- Age-standardized rate (ASR) is a statistical measure of the risk of cancer after accounting for the influence of age, which allows comparison of a population over time or between two different populations. Average Annual Percent Change (AAPC) of ASR was estimated using cancer registry data from 1991-2016 to summarize the trends over the past decade. A p-value of less than 0.05 ($p < 0.05$) was considered statistically significant.
- In the most recent period (2007-2016), the age-standardized incidence rate (ASI) for all cancers has been falling slightly at 0.5% ($p < 0.05$) per year in males, while the initial decline of ASI in females observed in the early years has reverted to an upward trend at an annual rate of 1.2% ($p < 0.05$) in the last decade.

- The age-standardized mortality rates (ASM) are decreasing for both genders, at -2.2% per year ($p<0.05$) among males and -0.8% per year among females ($p<0.05$) during the 10-year period.
- Among the common cancers, a significant trend of decreasing incidence (ASI) over the past decade was most apparent in cancers of the nasopharynx (AAPC: -2.2% in men; -4.5% in women) and liver (AAPC: -2.3% in men; -3% in women) in both genders, as well as the stomach (AAPC: -2.7%) and lung (AAPC: -2.3%) in males.
- A significant trend of rising incidence (ASI) was observed for cancers of the thyroid (AAPC: +2.4% in men; +4.1% in women), pancreas (AAPC: +1.4% in men; +1.5% in women) and non-Hodgkin lymphoma (AAPC: +2.7% in men; +1.4% in women) in both genders, breast (AAPC: +2.5%), corpus uteri (AAPC: +3.4%) and ovary (AAPC: +1.4%) in females, as well as the prostate (AAPC: +1.9%) and colorectum (AAPC: +0.6%) in males.
- In terms of mortality (ASM), a significant decreasing trend was observed in most cancers, with the exception of pancreatic cancer (AAPC: +2.1% in men; +1% in women) in both genders, prostate cancer (AAPC: +1.3%) in males and cancers of the corpus uteri (AAPC: +3.1%) in females. No significant changes were observed in cancers of the breast, cervix and ovary in females.
- Due to an ageing population, cancer burden will continue to increase even if age-specific rates remain constant.

Appendix 3 displays the Average Annual Percent Change (AAPC) of age-standardized incidence and mortality rates for common cancers during 2007-2016.

Key Messages

- New cancer cases jumped by 3.8% in a year, reaching 31,468 in 2016, with colorectal cancer increasing by 8% and breast cancer increasing by 5.2%.
- Colorectal cancer superseded lung cancer as the most common male cancer for the first time, while breast cancer was still the leading cancer in women.
- In prostate cancer of males, breast, corpus uteri and ovarian cancer of females, age-standardized incidence rates have increased over the past decade but death rates did not decrease, indicating the increasing numbers of these cancers in the local population could only be partially attributable to population ageing.

Note on the use of data

The numbers of new cases and deaths are important measures of cancer burden 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 of the trend of incidence and mortality can only be made after observing over a longer period of preferably at least 5 years or more.

Appendix 1: Leading Cancer Sites in 2016

10 Most Common Cancers				
Male				
Rank	Site	No. of new cases	Relative frequency	Crude incidence rate*
1	Colorectum	3,169	19.8%	93.9
2	Lung	3,086	19.2%	91.4
3	Prostate	1,912	11.9%	56.6
4	Liver	1,391	8.7%	41.2
5	Stomach	750	4.7%	22.2
6	Nasopharynx	599	3.7%	17.7
7	Non-Hodgkin lymphoma	569	3.5%	16.9
8	Non-melanoma skin	565	3.5%	16.7
9	Kidney and other urinary organs except bladder	429	2.7%	12.7
10	Lip, oral cavity and pharynx except nasopharynx	422	2.6%	12.5
	All sites	16,035	100.0%	475.1
Female				
Rank	Site	No. of new cases	Relative frequency	Crude incidence rate*
1	Breast	4,108	26.6%	103.7
2	Colorectum	2,268	14.7%	57.3
3	Lung	1,850	12.0%	46.7
4	Corpus uteri	1,050	6.8%	26.5
5	Thyroid	692	4.5%	17.5
6	Ovary etc.	598	3.9%	15.1
7	Cervix	510	3.3%	12.9
8	Non-melanoma skin	498	3.2%	12.6
9	Stomach	474	3.1%	12.0
10	Liver	419	2.7%	10.6
	All sites	15,433	100.0%	389.6
Both Sexes				
Rank	Site	No. of new cases	Relative frequency	Crude incidence rate*
1	Colorectum	5,437	17.3%	74.1
2	Lung	4,936	15.7%	67.3
3	Breast	4,123	13.1%	56.2
4	Prostate	1,912	6.1%	56.6
5	Liver	1,810	5.8%	24.7
6	Stomach	1,224	3.9%	16.7
7	Non-melanoma skin	1,063	3.4%	14.5
8	Corpus uteri	1,050	3.3%	26.5
9	Non-Hodgkin lymphoma	963	3.1%	13.1
10	Thyroid	889	2.8%	12.1
	All sites	31,468	100.0%	428.9

10 Major Causes of Cancer Deaths				
Male				
Rank	Site	No. of deaths	Relative frequency	Crude mortality rate*
1	Lung	2,529	29.9%	74.9
2	Colorectum	1,208	14.3%	35.8
3	Liver	1,135	13.4%	33.6
4	Stomach	427	5.1%	12.7
5	Prostate	410	4.9%	12.1
6	Pancreas	368	4.4%	10.9
7	Oesophagus	273	3.2%	8.1
8	Nasopharynx	252	3.0%	7.5
9	Non-Hodgkin lymphoma	236	2.8%	7.0
10	Leukaemia	192	2.3%	5.7
	All sites	8,447	100.0%	250.3
Female				
Rank	Site	No. of deaths	Relative frequency	Crude mortality rate*
1	Lung	1,251	21.7%	31.6
2	Colorectum	881	15.3%	22.2
3	Breast	702	12.2%	17.7
4	Liver	405	7.0%	10.2
5	Pancreas	310	5.4%	7.8
6	Stomach	283	4.9%	7.1
7	Ovary etc.	229	4.0%	5.8
8	Non-Hodgkin lymphoma	152	2.6%	3.8
9	Cervix	151	2.6%	3.8
10	Corpus uteri	133	2.3%	3.4
	All sites	5,762	100.0%	145.5
Both Sexes				
Rank	Site	No. of deaths	Relative frequency	Crude mortality rate*
1	Lung	3,780	26.6%	51.5
2	Colorectum	2,089	14.7%	28.5
3	Liver	1,540	10.8%	21.0
4	Stomach	710	5.0%	9.7
5	Breast	704	5.0%	9.6
6	Pancreas	678	4.8%	9.2
7	Prostate	410	2.9%	12.1
8	Non-Hodgkin lymphoma	388	2.7%	5.3
9	Oesophagus	335	2.4%	4.6
10	Nasopharynx	327	2.3%	4.5
	All sites	14,209	100.0%	193.7

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

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

Appendix 2: Relative Frequency of the Five Most Common Cancers by Gender and Age Group in 2016

Male			Female		
Age 0-19*			Age 0-19*		
Site	No. of cases	% of all sites	Site	No. of cases	% of all sites
Leukaemia	28	25.9%	Leukaemia	31	41.3%
Lymphoma	21	19.4%	Germ-cell and gonadal tumors	10	13.3%
Brain and spinal tumors	20	18.5%	Brain and spinal tumors	9	12.0%
Germ-cell and gonadal tumors	9	8.3%	Carcinomas and epithelial neoplasms	8	10.7%
Soft tissue sarcoma	7	6.5%	Lymphoma	7	9.3%
All sites	108	100.0%	All sites	75	100.0%
Age 20-44			Age 20-44		
Site	No. of cases	% of all sites	Site	No. of cases	% of all sites
Nasopharynx	126	15.5%	Breast	689	36.2%
Colorectum	112	13.8%	Thyroid	255	13.4%
Liver	64	7.9%	Ovary etc.	152	8.0%
Thyroid	60	7.4%	Cervix	121	6.4%
Testis	59	7.3%	Colorectum	113	5.9%
All sites	811	100.0%	All sites	1,903	100.0%
Age 45-64			Age 45-64		
Site	No. of cases	% of all sites	Site	No. of cases	% of all sites
Colorectum	1,101	19.6%	Breast	2,316	33.6%
Lung	1,019	18.1%	Colorectum	791	11.5%
Liver	679	12.1%	Corpus uteri	721	10.5%
Prostate	416	7.4%	Lung	694	10.1%
Nasopharynx	357	6.4%	Thyroid	328	4.8%
All sites	5,621	100.0%	All sites	6,884	100.0%
Age 65-74			Age 65-74		
Site	No. of cases	% of all sites	Site	No. of cases	% of all sites
Lung	968	21.0%	Breast	611	22.1%
Colorectum	917	19.9%	Colorectum	510	18.4%
Prostate	782	16.9%	Lung	430	15.5%
Liver	369	8.0%	Corpus uteri	144	5.2%
Stomach	205	4.4%	Liver	112	4.0%
All sites	4,617	100.0%	All sites	2,766	100.0%
Age 75 and Over			Age 75 and Over		
Site	No. of cases	% of all sites	Site	No. of cases	% of all sites
Lung	1,058	21.7%	Colorectum	853	22.4%
Colorectum	1,039	21.3%	Lung	663	17.4%
Prostate	713	14.6%	Breast	492	12.9%
Stomach	295	6.0%	Non-melanoma skin	256	6.7%
Liver	278	5.7%	Stomach	194	5.1%
All sites	4,878	100.0%	All sites	3,805	100.0%

* 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 tumor.

Appendix 3: Average Annual Percent Change (AAPC)¹ of Age-standardized Rates² of Common Cancers over the Period 2007-2016

Cancer site	Incidence		Mortality	
	Male	Female	Male	Female
Breast	-	+2.5%*	-	+0.1%
Cervix	-	+0.9%	-	-0.5%
Colorectum	+0.6%*	-0.4%*	-0.7%*	-1.1%*
Corpus uteri	-	+3.4%*	-	+3.1%*
Liver	-2.3%*	-3.0%*	-2.8%*	-1.9%*
Lung	-2.3%*	+0.1%	-2.9%*	-1.8%*
Nasopharynx	-2.2%*	-4.5%*	-3.7%*	-4.8%*
Non-Hodgkin lymphoma	+2.7%*	+1.4%*	-1.3%*	-1.0%*
Ovary etc.	-	+1.4%*	-	-0.2%
Pancreas	+1.4%*	+1.5%*	+2.1%*	+1.0%*
Prostate	+1.9%*	-	+1.3%*	-
Stomach	-2.7%*	-0.0%	-3.2%*	-2.8%*
Thyroid	+2.4%*	+4.1%*	-0.4%	-3.5%*
All sites	-0.5%*	+1.2%*	-2.2%*	-0.8%*

Notes:

1. Average Annual Percent Change (AAPC) of age-standardized rates over the past ten years is estimated from joinpoint regression (Reference: Clegg LX, Hankey BF, Tiwari R, Feuer EJ, Edwards BK. Estimating average annual percent change in trend analysis. *Statistics in Medicine* 2009; 28(29): 3670-82.), based on the available data from 1991 to 2016. An asterisk (*) represents the AAPC is statistically significant from zero at 5% level ($p < 0.05$).
2. Rates are standardized to the age distribution of the World Standard Population of Segi (1960).