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Overview of Hong Kong Cancer Statistics of 2015

This report summarizes the key cancer statistics of Hong Kong for the year of 2015, 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 cancer data such as molecular characteristics, cancer stage, types of cancer treatment modalities patients received, 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.

We are also much delighted that the revamped HKCaR website has further improved the access to local cancer statistical data, serving as an information portal to facilitate public education and knowledge transfer, healthcare service planning, and research on cancer. The number of visitors to the website has increased rapidly since the revamp in November 2016. We are currently receiving around 2,900 visitors per month to our website while there were about 1,600 visitors recorded per month in 2015/16. We certainly cherish feedbacks from readers and visitors to our website, which we believe will help refine and shape our current services.

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Summary of Cancer Incidence and Mortality for 2015

New cases and deaths:

- Number of new cases of cancer in Hong Kong hit a historical high of 30,318 in 2015 (with 700 more cases or increased by 2.4% compared to 2014), surpassing the 30,000 mark for the first time in history.
- A total of 15,372 cancers were diagnosed in males and 14,946 in females. The numbers have increased by 271 (1.8%) for males and 429 (3.0%) for females compared to 2014.
- There were 14,316 deaths due to cancer in 2015 (with 513 more deaths or increased by 3.7% compared to 2014). More than half of cancer deaths were males (8,345 cases or 58%)

Most frequent cancers:

- The most frequent cancers diagnosed for both genders combined in Hong Kong in 2015 were cancers of the colorectum (16.6% of all new cancer cases), lung (15.7%), breast (12.9%), prostate (6.0%) and liver (5.9%). These 5 leading cancers comprised over half (57.1%) of all new cancers.
- Compared to a decade earlier, new cases of lung, colorectal, breast and prostate cancers showed a substantial rise, largely due to an ageing and growing population, while the increase in number of liver cancers was relatively modest.
- Among the top 5 cancer sites, colorectal cancer has become the most common cancer in Hong Kong. Prostate cancer, ranked 6th in 2005, has now overtaken liver cancer for the first time to become the fourth common cancer, but the difference of 40 cases was relatively small.

Leading cancer types (*both genders combined*)

Rank	Site	No. in 2015	No. in 2005 (<i>rank</i>)
	All sites	30,318	22,775
1	Colorectum	5,036	3,706 (2)
2	Lung	4,748	4,135 (1)
3	Breast	3,920	2,320 (3)
4	Prostate	1,831	970 (6)
5	Liver	1,791	1,749 (4)

- During the past decade (2005-2015), the number of new cancer cases in HK rose 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 2.9% per year.
- It was the third consecutive year colorectal cancer superseded lung cancer to claim the top spot in the overall ranking of number of new cancer cases, and the difference of about 300 cases in 2015 between the two cancers was almost unchanged compared with 2014.
- Compared to 2014, most of the increase in new cancer cases was attributed to the growing number of prostate cancer and non-Hodgkin lymphoma in men, lung and cervical cancers in women, as well as pancreatic cancers in both genders.

- Lung (19.1%), colorectal (18.8%) and prostate (11.9%) cancers comprised almost half of all the new cancer cases in males. The number of newly diagnosed prostate cancer increased by 7.1% to 1,831 cases in 2015, which has doubled since 2005. With the prevailing trends of incidence for the two cancers, colorectal cancer is expected to surpass lung cancer as the top cancer in men in Hong Kong within years.
- For females, the three leading cancers were breast (26.1%), colorectum (14.4%) and lung (12.2%), accounting for over half of all female cancer cases in 2015.
- Number of invasive breast cancer in women in 2015 increased barely by 0.8% to 3,900 cases compared to the previous year. There were a further 575 cases of in-situ breast cancer reported during 2015, with 45 more cases or an increase of 8.5% compared to 2014. Since 2005, the number of invasive female breast cancer has increased by 70%, significantly higher than the overall increase of 40% for all female cancers combined.
- Compared to 2014, the number of women newly diagnosed with cervical cancer went up again to 500 cases (or increased by 5.9%) in 2015, while the number diagnosed with cancers of the corpus uteri or ovary remained largely unchanged.
- The annual number of new cases of lung cancer in men has remained stable in recent years but an increase of 9.5% was observed for women newly diagnosed with lung cancer in 2015. Most of these increases occurred in adenocarcinomas.
- Compared to 2014, there was an increase of 14% and 20% in the number of newly diagnosed pancreatic cancer in men and women respectively. Since 2005, the number of new cases has increased by 80% to 766 cases. Although pancreatic cancer only being the 12th most frequent cancer, it was the 4th leading cause of cancer deaths in Hong Kong with nearly 700 deaths recorded in 2015, indicating an overall poor prognosis of this cancer.
- There has been a drop in the number of cancers diagnosed in children and adolescents in 2015. A total of 191 cases aged from 0 to 19 years were diagnosed of cancer, which decreased by 2.6% compared to 2014. Cancer at this age is a rare disease and the annual variation in the number of cancer cases of different histological types in this age group could be considerable.

Most common causes of cancer deaths:

- In 2015, the cancers causing most cancer deaths were lung cancer (28.2%), colorectal cancer (14.5%) and liver cancer (11%), which accounted for over half of all cancer deaths.
- For males, lung (31.2%), colorectal (14.1%) and liver cancer (13.6%) accounted for nearly 60% of cancer deaths.
- The cancers causing most deaths in females were lung cancer (23.9%), colorectal cancer (15%) and breast cancer (10.7%), accounting for nearly half of all cancer deaths.

Leading cancer deaths (both genders combined)

Rank	Site	No. in 2015	No. in 2005 (rank)
	All sites	14,316	12,310
1	Lung	4,031	3,686 (1)
2	Colorectum	2,073	1,614 (2)
3	Liver	1,571	1,506 (3)
4	Pancreas	691	394 (7)
5	Stomach	669	635 (4)

- 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.
- Compared to a decade ago, there was a marked increase of 75% in the number of deaths from pancreatic cancer, ranking pancreatic cancer as the fourth most fatal cancer in 2015. The increase was much less pronounced in colorectal cancer (28.4%) and other leading cancers (<10%).
- 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 2015.

Cancer and gender:

- More men were diagnosed with cancer (15,372) than women (14,946), with a male to female ratio of 1.03 to 1. This ratio was 1.18 to 1 in 2005. 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=10:1), oesophagus (3.6:1) and liver (3.1:1).
- The only two cancers that were more common in women than men were thyroid cancer (female to male ratio=4:1), and breast cancer which was 195 times more common in women than men.
- More men died from cancer (8,345) than women (5,971), with a male to female ratio of 1.4 to 1.

Cancer and age:

- Cancer is primarily a disease of older people, with 64% of new cancer cases and 78% of cancer deaths occurring in people over the age of 60.
- The median age of patients at diagnosis of cancer was 68 years in men and 62 years in women and the median age at death was 72 years in men and 73 years in women.

- Among the common cancers in males, the median age at diagnosis was 70 years for lung cancer, 68 years for colorectal cancer, 71 years for prostate cancer, 65 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, 70 years for colorectal cancer, 69 years for lung cancer, 55 years for cancer of the corpus uteri, and 49 years for thyroid cancer.
- Although cancer in children and adolescents (aged 0-19 years) represented a mere 0.6% of all new cancers, it stayed as a significant focus of attention in the mass media. In recent years (2011-2015), about 200 new cancer cases were diagnosed within this age bracket each year. The more common childhood and adolescent cancers were leukaemias (28.3%), carcinomas and epithelial neoplasms (12.2%), lymphomas (11.7%), malignant brain tumors (11.3%), and germ-cell and gonadal cancers (11.3%). These 5 cancers constituted nearly 75% 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.
- 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.
- Cancer was more common in women than in men between the age group of 20-64 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.

Appendix 2 displays the relative frequency of the five most common cancers by gender and age groups in 2015.

Risk of developing of 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 2015,

- 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 14 women will die from cancer before the age of 75.

Trends in incidence and mortality in the last decade (2006 to 2015):

- 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 1991-2015 to summarize the trends over the past decade. A p-value of less than 0.05 ($p < 0.05$) was considered statistically significant.
- The overall age-standardized incidence rate (ASI) for all cancers has been falling slightly at 0.5% ($p < 0.05$) per year during the period of 2006-2015 for men, 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.
- For the overall age-standardized mortality rate (ASM), a decreasing trend was observed for both males (AAPC = -2.2%, $p < 0.05$) and females (AAPC = -0.8%, $p < 0.05$) during the period.
- Among the common cancers, a significant trend of decreasing ASI over the past decade was most apparent in cancers of the nasopharynx and liver in both genders, as well as the stomach and lung in males; while rising ASI was observed for cancers of the thyroid, corpus uteri, breast, ovary and non-Hodgkin lymphoma in females, as well as the prostate and colorectum in males.
- In terms of ASM, a decreasing trend was observed in most cancers, with the exception of prostate cancer in men (AAPC = +1.3%, $p < 0.05$) and cancers of the corpus uteri (+2.8% per year, $p < 0.05$) and cervix (AAPC = -0.9%, $p = 0.35$).
- 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 rates for common cancers during 2006-2015.

Key Messages:

- Over 30,000 new cancer cases were diagnosed in 2015.
- Colorectal cancer was the leading cancer overall regarding the number of new cases diagnosed in 2015, while lung cancer and breast cancer was the leading cancer in men and women respectively.
- Prostate cancer has overtaken liver cancer for the first time to become the 4th commonest cancer.
- In thyroid and pancreatic cancer of both genders, breast, corpus uteri and ovarian cancer of females, prostate and colorectal cancer of males, a rising age-standardized incidence rate has been observed during the past decade, indicating the increasing numbers of these cancers in the local population could not be fully explained by population growth or ageing.
- A reversal of gender ratio in the next few years is expected, with females surpassing males in the number of new cancer cases.

Note on the use of data

The number 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 2015

10 Most Common Cancers				
Male				
Rank	Site	No. of new cases	Relative frequency	Crude incidence rate*
1	Lung	2,930	19.1%	87.1
2	Colorectum	2,891	18.8%	85.9
3	Prostate	1,831	11.9%	54.4
4	Liver	1,356	8.8%	40.3
5	Stomach	686	4.5%	20.4
6	Nasopharynx	648	4.2%	19.3
7	Non-Hodgkin lymphoma	562	3.7%	16.7
8	Non-melanoma skin	531	3.5%	15.8
9	Kidney and other urinary organs except bladder	438	2.8%	13.0
10	Lip, oral cavity and pharynx except nasopharynx	411	2.7%	12.2
	All sites	15,372	100.0%	456.7
Female				
Rank	Site	No. of new cases	Relative frequency	Crude incidence rate*
1	Breast	3,900	26.1%	99.3
2	Colorectum	2,145	14.4%	54.6
3	Lung	1,818	12.2%	46.3
4	Corpus uteri	978	6.5%	24.9
5	Thyroid	641	4.3%	16.3
6	Ovary etc.	578	3.9%	14.7
7	Cervix	500	3.3%	12.7
8	Non-melanoma skin	487	3.3%	12.4
9	Stomach	481	3.2%	12.3
10	Liver	435	2.9%	11.1
	All sites	14,946	100.0%	380.7
Both Sexes				
Rank	Site	No. of new cases	Relative frequency	Crude incidence rate*
1	Colorectum	5,036	16.6%	69.1
2	Lung	4,748	15.7%	65.1
3	Breast	3,920	12.9%	53.8
4	Prostate	1,831	6.0%	54.4
5	Liver	1,791	5.9%	24.6
6	Stomach	1,167	3.8%	16.0
7	Non-melanoma skin	1,018	3.4%	14.0
8	Corpus uteri	978	3.2%	24.9
9	Non-Hodgkin lymphoma	976	3.2%	13.4
10	Nasopharynx	876	2.9%	12.0
	All sites	30,318	100.0%	415.8

10 Major Causes of Cancer Deaths				
Male				
Rank	Site	No. of deaths	Relative frequency	Crude mortality rate*
1	Lung	2,604	31.2%	77.4
2	Colorectum	1,177	14.1%	35.0
3	Liver	1,139	13.6%	33.8
4	Stomach	410	4.9%	12.2
5	Prostate	404	4.8%	12.0
6	Pancreas	345	4.1%	10.3
7	Nasopharynx	259	3.1%	7.7
8	Oesophagus	242	2.9%	7.2
9	Non-Hodgkin lymphoma	198	2.4%	5.9
10	Leukaemia	185	2.2%	5.5
	All sites	8,345	100.0%	247.9
Female				
Rank	Site	No. of deaths	Relative frequency	Crude mortality rate*
1	Lung	1,427	23.9%	36.4
2	Colorectum	896	15.0%	22.8
3	Breast	637	10.7%	16.2
4	Liver	432	7.2%	11.0
5	Pancreas	346	5.8%	8.8
6	Stomach	259	4.3%	6.6
7	Ovary etc.	214	3.6%	5.5
8	Cervix	169	2.8%	4.3
9	Non-Hodgkin lymphoma	160	2.7%	4.1
10	Leukaemia	156	2.6%	4.0
	All sites	5,971	100.0%	152.1
Both Sexes				
Rank	Site	No. of deaths	Relative frequency	Crude mortality rate*
1	Lung	4,031	28.2%	55.3
2	Colorectum	2,073	14.5%	28.4
3	Liver	1,571	11.0%	21.5
4	Pancreas	691	4.8%	9.5
5	Stomach	669	4.7%	9.2
6	Breast	637	4.4%	8.7
7	Prostate	404	2.8%	12.0
8	Non-Hodgkin lymphoma	358	2.5%	4.9
9	Leukaemia	341	2.4%	4.7
10	Nasopharynx	327	2.3%	4.5
	All sites	14,316	100.0%	196.3

* 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 2015

Male			Female		
Age 0-19*			Age 0-19*		
Site	No. of cases	% of all sites	Site	No. of cases	% of all sites
Leukaemia	49	38.9%	Carcinomas and epithelial neoplasms	18	27.7%
Lymphoma	15	11.9%	Leukaemia	16	24.6%
Germ-cell and gonadal tumors	13	10.3%	Lymphoma	8	12.3%
Carcinomas and epithelial neoplasms	13	10.3%	Germ-cell and gonadal tumors	8	12.3%
Brain and spinal tumors	9	7.1%	Brain and spinal tumors	5	7.7%
Soft tissue sarcoma	9	7.1%			
All sites	126	100.0%	All sites	65	100.0%
Age 20-44			Age 20-44		
Site	No. of cases	% of all sites	Site	No. of cases	% of all sites
Nasopharynx	124	16.8%	Breast	648	34.7%
Colorectum	87	11.8%	Thyroid	242	13.0%
Lung	56	7.6%	Cervix	143	7.7%
Non-Hodgkin lymphoma	56	7.6%	Ovary etc.	132	7.1%
Liver	51	6.9%	Corpus uteri	122	6.5%
All sites	740	100.0%	All sites	1,866	100.0%
Age 45-64			Age 45-64		
Site	No. of cases	% of all sites	Site	No. of cases	% of all sites
Colorectum	1,028	19.3%	Breast	2,206	33.7%
Lung	904	17.0%	Colorectum	725	11.1%
Liver	621	11.7%	Corpus uteri	671	10.3%
Prostate	414	7.8%	Lung	654	10.0%
Nasopharynx	372	7.0%	Ovary etc.	336	5.1%
All sites	5,313	100.0%	All sites	6,542	100.0%
Age 65-74			Age 65-74		
Site	No. of cases	% of all sites	Site	No. of cases	% of all sites
Lung	891	20.9%	Breast	561	22.4%
Colorectum	794	18.6%	Colorectum	429	17.1%
Prostate	721	16.9%	Lung	397	15.9%
Liver	353	8.3%	Liver	119	4.8%
Stomach	207	4.9%	Corpus uteri	116	4.6%
All sites	4,264	100.0%	All sites	2,502	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	1,077	21.9%	Colorectum	888	22.4%
Colorectum	980	19.9%	Lung	712	17.9%
Prostate	694	14.1%	Breast	485	12.2%
Liver	330	6.7%	Non-melanoma skin	252	6.3%
Stomach	273	5.5%	Liver	193	4.9%
All sites	4,929	100.0%	All sites	3,971	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 2006-2015

Cancer sites	Incidence		Mortality	
	Male	Female	Male	Female
Breast	-	+2.4%*	-	+0.0%
Cervix	-	+0.3%*	-	-0.9%
Colorectum	+0.5%*	-0.4%*	-0.7%*	-1.1%*
Corpus uteri	-	+3.4%*	-	+2.8%*
Liver	-2.3%*	-2.3%*	-2.8%*	-1.8%*
Lung	-2.4%*	-0.5%*	-2.9%*	-1.4%*
Nasopharynx	-2.1%*	-4.5%*	-3.8%*	-4.9%*
Ovary etc.	-	+1.3%*	-	-0.4%
Prostate	+2.3%*	-	+1.3%*	-
Stomach	-2.8%*	-0.2%	-3.2%*	-3.5%*
Thyroid	+2.3%*	+4.1%*	-0.5%	-3.6%*
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 recent 25 years of available data .
* $p < 0.05$ represents the AAPC is statistically significant from zero.
2. Rates are standardized to the age distribution of the World Standard Population of Segi (1960).