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The Government of the Hong Kong Special Administrative Region
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謝謝你於 2019 年 7 月 16 日就有關 2019 年 6 月 25 日小組委員會會議討論的跟進事項的來信。香港癌症資料統計中心(下稱「統計中心」)於 2018 年 12 月提交予癌症事務統籌委員會的年度報告(只備英文版)載於附件一。統計中心每年亦會把摘要報告上載於其網頁。統計中心於 2018 年 10 月發表的最新一期摘要報告(只備英文版)載於附件二。

食物及衞生局局長

(溫悅婷 代行)

2019 年 8 月 14 日

副本送：醫院管理局行政總裁（經辦人：林碧琬女士）

13th Cancer Coordinating Committee (CCC) Meeting on 3 December, 2018

Progress Report of the Hong Kong Cancer Registry

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 cancer histology of all patients diagnosed with cancer in all the public and private medical institutions in Hong Kong. Robust cancer registry data can provide the basis for government to prioritize resources in cancer control according to the burden, for health care planners and researchers in developing healthy public policies aiming to improve the quality of cancer care, prioritizing costly cancer treatments, and implementing cost-effective cancer prevention strategies such as cancer screening programs and other public health interventions.

1.2 This report updates the population-based cancer data of 2016 in Hong Kong and recaps the incidence projections of major cancers up to 2030 compared with the year of 2016. In addition, this report summarizes the progress of the HKCaR since the last meeting in April 2018.

2. Cancer statistics for 2016

2.1 This year, the HKCaR compiled over 850,000 source records from both public and private sources in the territory within 2016. After preliminary data matching of these source data, over 50,000 pre-processed records required further stringent processing and routing by the HKCaR using in-house software tools. Such data retrieved from various data sources and information systems were extensively interrogated, validated, analyzed and integrated before over 32,000 tumor records were finally reported and added to the master database of the HKCaR.

2.2 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. Table 1 summarizes the figures of the 10 most common cancers and some selected cancers diagnosed in 2016, benchmarked against those of 2015.

2.3 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. 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.

2.4 Top three cancers were colorectal (17.3%), lung (15.7%) and breast (13.1%) cancers which 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, lung cancer by 4% to 4,936 cases and female breast cancer increased by 5.3% to 4,108.

2.5 It was the first time colorectal cancer overtook lung cancer as the most common male cancer in Hong Kong. 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%).

2.6 For females, the four leading cancers were breast (26.6%), colorectum (14.7%), lung (12.0%) and corpus uteri (6.8%), accounting for just over 60% of new cancers in women.

2.7 The number of invasive breast cancer in women reached over 4,100 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.

2.8 Counting from 2005, the number of newly diagnosed thyroid cancer in both genders has increased by 65% to 889 cases, making it the 10th most frequent cancer in Hong Kong in 2016. Almost all of the increases were papillary carcinoma. Despite the rise in numbers of new cases, there were only an average of 40 to 50 deaths per year, indicating an overall good prognosis of this cancer.

2.9 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). 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.

2.10 There were 183 cancers in children and adolescents, 108 in males and 75 in females, being diagnosed in 2016 (Table 2). The three most 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.

2.11 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.

2.12 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.

3. Trends in the last decade

3.1 With over three decades of electronic cancer data, the HKCaR has been able to provide statistics describing the numbers and rates of all types of cancers diagnosed in a calendar year according to age groups and gender. In addition, the HKCaR is also able to conduct trend analysis and cancer projections with reasonable validity to guide planning of cancer services and allocating resources for both primary and secondary prevention of cancers (Figure 1).

3.2 Compared to a decade earlier, new cancer cases have jumped by about 33% or at an average annual rate of 2.9%. The annual number of cancer cases in Hong Kong rose at an average annual rate of 2.9% whereas the population grew at an average annual rate of 0.7% over the past decade.

3.3 The age-standardized incidence rate (ASI) for all cancers, which is a measure of the risk of developing cancer after accounting for the influence of age, 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 (Figure 2).

3.4 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 (Figure 3).

3.5 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.

3.6 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 (Figures 4 and 5).

3.7 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.

3.8 While the rapidly ageing population is widely believed to be the primary factor contributing to the continuous rise in the number of new cancer cases, higher prevalence of cancer in middle-aged women could amplify burden of this disease.

4. Cancer incidence projections to 2030

4.1 Projection of cancer incidences is vital in providing statistical information for planning cancer control programs, allocating health care resources and developing priorities in formulating public health policy. This report updates the cancer incidence projections (for aged 20 or above) up to the year 2030 for Hong Kong based on historical trends in cancer incidences for the 1991-2015 period. The predicted numbers are calculated by applying the extrapolated age- and gender-specific incidence rates to the projected populations in 2030 from Census data.

4.2 Compared to 2016, the projected number of new cancer cases (excluding non-melanoma skin cancer) in aged 20 and over will further increase by *40%* to an estimated total number of *42,190* cases by 2030. More adult women than men will develop cancers by 2020. The largest proportional increase will be expected in prostate cancer *(+73%* to *3,300* cases), followed by Non-Hodgkin lymphoma (*+75%* to *1,650* cases), corpus uteri cancer (*+50%* to *1,570* cases), pancreatic cancer (*+74%* to *1,220* cases), female breast cancer (*+50%* to *6,160* cases), female thyroid cancer (*+38% to 950* cases), colorectal cancer (*+38%* to *7,500* cases, not taking into account the impact of the recently launched CRC screening pilot programme), lung cancer (*+36% to 6,720* cases) and ovarian cancer (*+34% to 790* cases). The growth is expected to be modest in cervical cancer (*+20%* to *610 cases*) and liver cancer (*+13% to 2,050* cases). The decline in the number of nasopharyngeal cancer

(*-15%* to 680) is expected to continue (Table 3).

4.3 A more pronounced increase in cancer numbers, commensurate with the increase in the projected female population, will very likely reverse the current gender difference in the number of newly diagnosed cancers in the coming few years (Figure 6). This will be particularly obvious in the middle age groups in which new cases of cancer in women will substantially outnumber men.

4.4 Cancer projections are computed by statistical models based on the assumptions that past trends will continue to prevail in future and the prevalence of most risk factors remains stable over the projection period. Nevertheless, many other factors can also affect the accuracy of projections, including the actual changes in the population size and structure, potential medical advances in cancer diagnosis, unexpected changes in histological classification, as well as implementation of screening programs, to mention just a few. Notwithstanding such caveats and uncertainties, the projection of cancer numbers can still provide a rough estimate of the future burden of various cancers in the territory. Such estimates may be relevant for the health care providers in setting priorities in cancer control and cancer prevention strategies, ranging from public education, anti-smoking and anti-alcohol abuse measures, to specific cancer screening programs.

5. Recent work progress

5.1 The HKCaR has enhanced its colorectal and breast cancer registries to support the evaluation of the Colorectal Cancer Screening Pilot Programme (CRCSPP) and a breast cancer commissioned study. In July 2018, the HKCaR had submitted an interim progress report on breast cancer to the DH according to the schedule. Results of the preliminary analyses of the data gathered for these two cancers were presented.

5.2 The Registry has participated in an international study called International Incidence of Childhood Cancer which is led by the International Agency for Agency on Cancer of the WHO. This study would make widely global data on incidence of cancer in children and adolescent through publication of a monograph.

Hong Kong Cancer Registry, Hospital Authority

November 2018

Table 1. Hong Kong common cancers in 2016 in comparison with 2015

2016					2015				*2016 vs 2015*
Rank	Site	No.	Rel. freq. %	Crude rate*	Rank	No.	Rel. freq. %	Crude rate*	*% change in numbers*
1	Colorectum	5,437	17.3	74.1	1	5,036	16.6	69.1	*+8.0%*
2	Lung	4,936	15.7	67.3	2	4,748	15.7	65.1	*+4.0%*
3	Female breast	4,108	13.1	103.7	3	3,900	12.9	99.3	*+5.3%*
4	Prostate	1,912	6.1	56.6	4	1,831	6.0	54.4	*+4.4%*
5	Liver	1,810	5.7	24.7	5	1,791	5.9	24.6	*+1.1%*
6	Stomach	1,224	3.9	16.7	6	1,167	3.8	16.0	*+4.9%*
7	Non-melanoma skin	1,063	3.4	14.5	7	1,018	3.4	14.0	*+4.4%*
8	Corpus uteri	1,050	3.3	26.5	8	978	3.2	24.9	*+7.4%*
9	Non-Hodgkin lymphoma	963	3.1	13.1	9	976	3.2	13.4	*-1.3%*
10	Thyroid	889	2.8	12.1	10	801	2.6	11.0	*+11.0%*
11	Nasopharynx	805	2.6	11.0	11	876	2.9	12.0	*-8.1%*
15	Ovary etc.	598	1.9	15.1	15	578	1.9	14.7	*+3.5%*
17	Cervix	510	1.6	12.9	17	500	1.6	12.7	*+2.0%*
	All cancers except non-melanoma skin	30,405	96.6	414.4		29,300	96.6	401.8	*+3.8%*
	All cancers	**31,468**	**100.0**	**428.9**		**30,318**	**100.0**	**415.8**	***+3.8%***

Remark: *Crude rate per 100,000 persons except in cancers of corpus uteri, ovary, cervix (per 100,000 women) and prostate (per 100,000 men).

Table 2. Hong Kong cancers among children and adolescents (aged 0-19) in 2016

Rank	Site	No.	Rel. freq. %	Crude rate*
1	Leukaemia	59	*32.2*	50.4
2	Brain and spinal	29	*15.8*	24.8
3	Lymphoma	28	*15.3*	23.9
4	Germ-cell and gonadal	19	*10.4*	16.2
5	Carcinomas and epithelial neoplasms	11	*6.0*	9.4
6	Soft tissue sarcoma	10	*5.5*	8.5
7	Malignant bone	9	*4.9*	7.7
8	Sympathetic nervous system	6	*3.3*	5.1
8	Renal	6	*3.3*	5.1
10	Retinoblastoma	3	*1.6*	2.6
11	Liver	3	*1.6*	2.6
	Total	**183**	***100***	**156.2**

Remark: *Crude rate per 1,000,000 persons

Table 3. Projection of incidence of major types of cancer cases (excluding non-melanoma skin cancer and aged < 20 years) in 2030^

Site	2016 actual	*2020 projected*	*2030 projected*	Cumulative change (*2030* vs 2016)
All sites except non-melanoma skin				
Male	15,362	*16,330*	*19,320*	+26%
Female	14,861	*16,990*	*22,870*	+54%
Both	30,223	*33,320*	*42,190*	+40%
Colorectum				
Male	3,169	*3,330*	*4,290*	+35%
Female	2,267	*2,450*	*3,210*	+42%
Both	5,436	*5,780*	*7,500*	+38%
Lung				
Male	3,086	*3,180*	*3,730*	+21%
Female	1,850	*2,070*	*2,990*	+62%
Both	4,936	*5,250*	*6,720*	+36%
Liver				
Male	1,390	*1,410*	*1,470*	+6%
Female	417	*480*	*580*	+39%
Both	1,807	*1,890*	*2,050*	+13%
Non-Hodgkin Lymphoma				
Male	552	*690*	*1,060*	+92%
Female	391	*460*	*590*	+51%
Both	943	*1,150*	*1,650*	+75%
Pancreas				
Male	396	*460*	*640*	+62%
Female	306	*380*	*580*	+90%
Both	702	*840*	*1,220*	+74%
Nasopharynx				
Male	597	*590*	*530*	-11%
Female	205	*190*	*150*	-27%
Both	802	*780*	*680*	-15%
Prostate	1,912	*2,290*	*3,300*	+73%
Female Breast	4,108	*4,680*	*6,160*	+50%
Corpus uteri	1,050	*1,200*	*1,570*	+50%
Female thyroid	686	*750*	*950*	+38%
Ovary etc.	591	*650*	*790*	+34%
Cervix	510	*530*	*610*	+20%

Remark: ^Projections are based on trends in HKCaR cancer incidence from 1991 to 2015 and the latest population projections from "Mid-year Population by Age Group and Sex, 2017-2066" published by C&SD.

Projected numbers are rounded to nearest 10.

Figure 1. Incidence trends of major cancers in Hong Kong

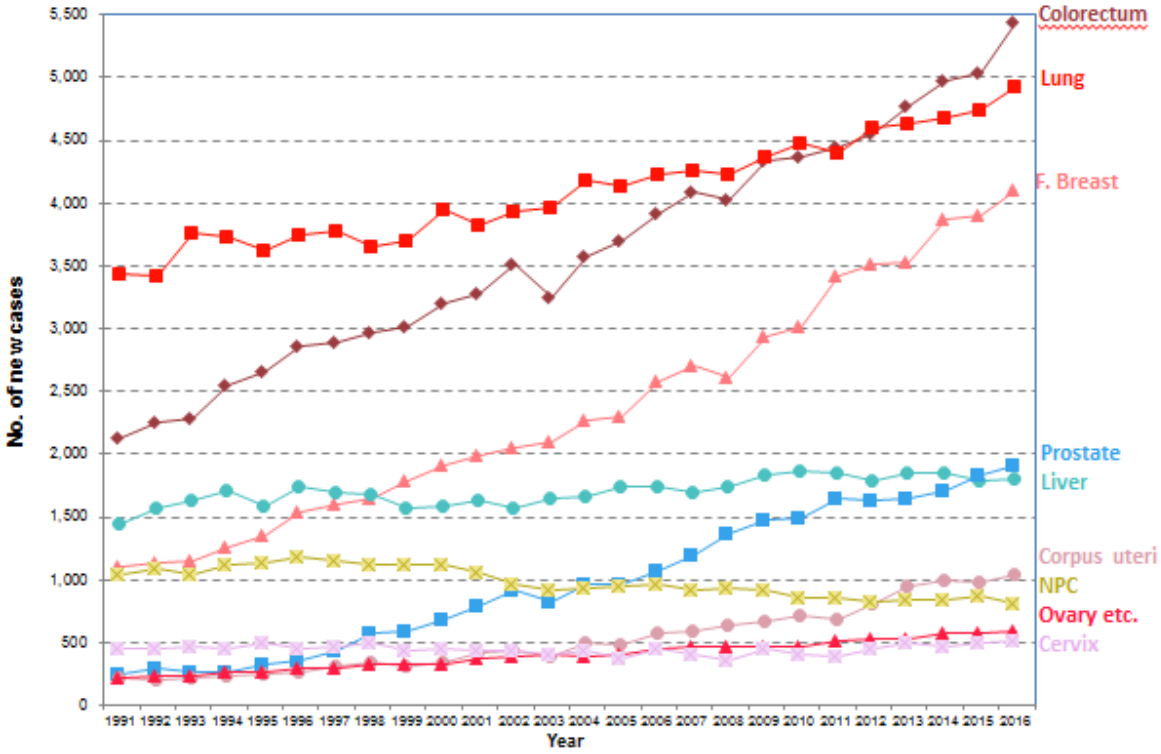
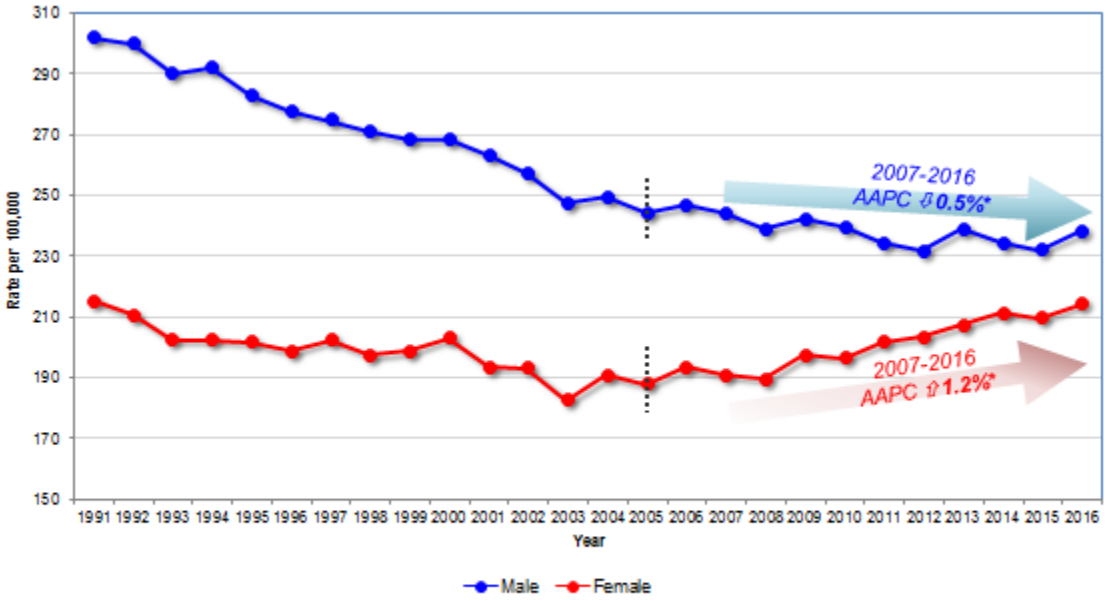


Figure 2. Trends in age-standardized incidence of all cancers for both genders



- Rates are age-adjusted to the World Standard population modified by Doll *et al.*, (1966).
- Vertical dotted bar indicates the year in which the trend significantly changed.
- **Average annual percent change (AAPC)** is used to summarize the trend over the past decade (i.e. 2007-2016).
* *Statistically significant change in trend (p<0.05)*

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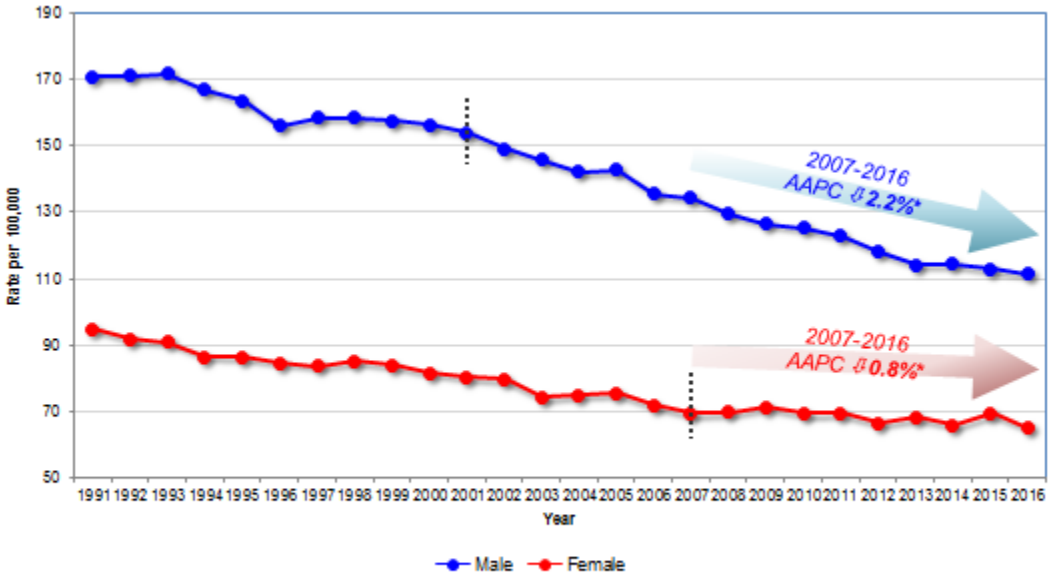
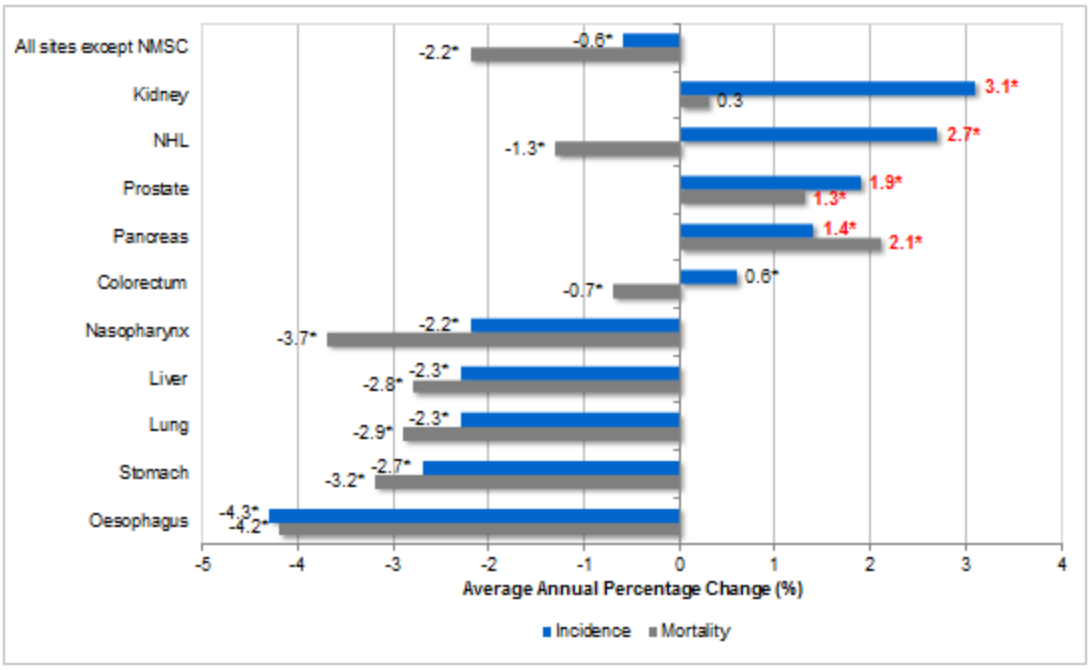
Figure 3. Trends in age-standardized mortality of all cancers for both genders



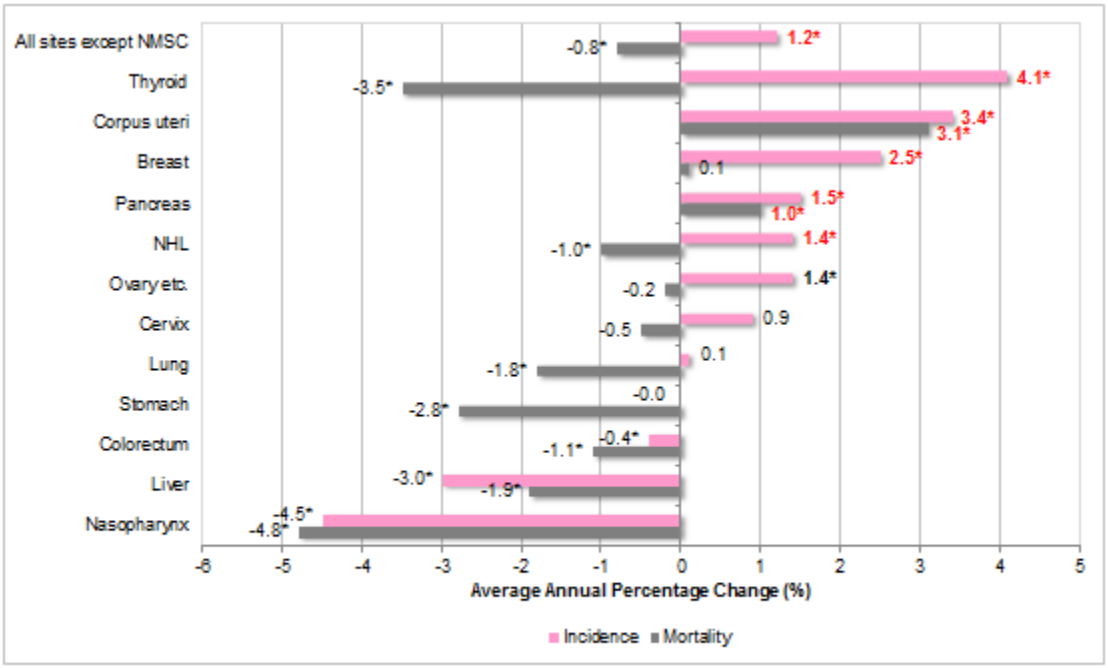
- Rates are age-adjusted to the World Standard population modified by Doll *et al.*, (1966).
- Vertical dotted bar indicates the year in which the trend significantly changed.
- **Average annual percent change (AAPC)** is used to summarize the trend over the past decade (i.e. 2007-2016).
* *Statistically significant change in trend (p<0.05)*

Figure 4. Average Annual Percent Change (AAPC) in age-standardized incidence and mortality rates of major cancers among males, 2007-2016



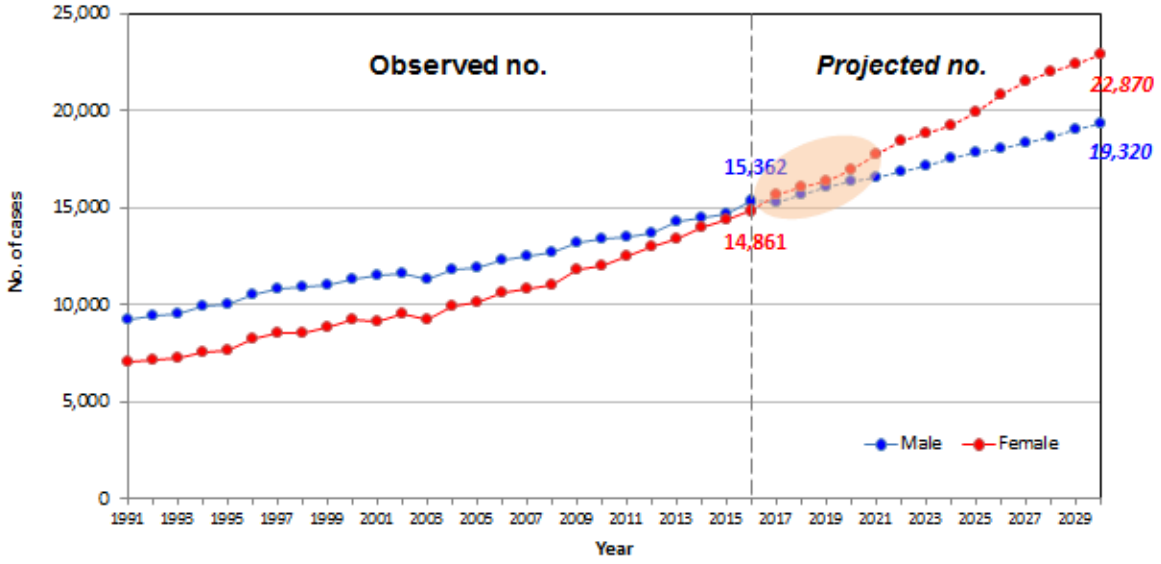
NMSC = Non-melanoma skin cancer
NHL = Non-Hodgkin Lymphoma
* AAPC is significantly different from zero (p<0.05)

Figure 5. Average Annual Percent Change (AAPC) in age-standardized incidence and mortality rates of major cancers among females, 2007-2016



NMSC = Non-melanoma skin cancer
NHL = Non-Hodgkin Lymphoma
* AAPC is significantly different from zero (p<0.05)

Figure 6. Number of new cases (excluding non-melanoma skin cancer and aged < 20 years) with projected numbers up to 2030 (data are provisional and subject to revisions)



Reversal of gender difference of new cancer numbers is probably happening

NMSC = Non-melanoma skin cancer

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.

Dr. K.H. Wong
Director, Hong Kong Cancer Registry, Hospital Authority
October 2018

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 *(rank)*	No. of new cases in 2016	*Overall change*
	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

Age 0-19*

Site	No. of cases	% of all sites
Leukaemia	28	25.9%
Lymphoma	21	19.4%
Brain and spinal tumors	20	18.5%
Germ-cell and gonadal tumors	9	8.3%
Soft tissue sarcoma	7	6.5%
All sites	**108**	**100.0%**

Age 20-44

Site	No. of cases	% of all sites
Nasopharynx	126	15.5%
Colorectum	112	13.8%
Liver	64	7.9%
Thyroid	60	7.4%
Testis	59	7.3%
All sites	**811**	**100.0%**

Age 45-64

Site	No. of cases	% of all sites
Colorectum	1,101	19.6%
Lung	1,019	18.1%
Liver	679	12.1%
Prostate	416	7.4%
Nasopharynx	357	6.4%
All sites	**5,621**	**100.0%**

Age 65-74

Site	No. of cases	% of all sites
Lung	968	21.0%
Colorectum	917	19.9%
Prostate	782	16.9%
Liver	369	8.0%
Stomach	205	4.4%
All sites	**4,617**	**100.0%**

Age 75 and Over

Site	No. of cases	% of all sites
Lung	1,058	21.7%
Colorectum	1,039	21.3%
Prostate	713	14.6%
Stomach	295	6.0%
Liver	278	5.7%
All sites	**4,878**	**100.0%**

Female

Age 0-19*

Site	No. of cases	% of all sites
Leukaemia	31	41.3%
Germ-cell and gonadal tumors	10	13.3%
Brain and spinal tumors	9	12.0%
Carcinomas and epithelial neoplasms	8	10.7%
Lymphoma	7	9.3%
All sites	**75**	**100.0%**

Age 20-44

Site	No. of cases	% of all sites
Breast	689	36.2%
Thyroid	255	13.4%
Ovary etc.	152	8.0%
Cervix	121	6.4%
Colorectum	113	5.9%
Corpus uteri	113	5.9%
All sites	**1,903**	**100.0%**

Age 45-64

Site	No. of cases	% of all sites
Breast	2,316	33.6%
Colorectum	791	11.5%
Corpus uteri	721	10.5%
Lung	694	10.1%
Thyroid	328	4.8%
All sites	**6,884**	**100.0%**

Age 65-74

Site	No. of cases	% of all sites
Breast	611	22.1%
Colorectum	510	18.4%
Lung	430	15.5%
Corpus uteri	144	5.2%
Liver	112	4.0%
All sites	**2,766**	**100.0%**

Age 75 and Over

Site	No. of cases	% of all sites
Colorectum	853	22.4%
Lung	663	17.4%
Breast	492	12.9%
Non-melanoma skin	256	6.7%
Stomach	194	5.1%
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 Rates[2] 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).