

(1) Colorectal Cancer

(incidence ranked 1st in 2016, mortality ranked 2nd in 2018*)

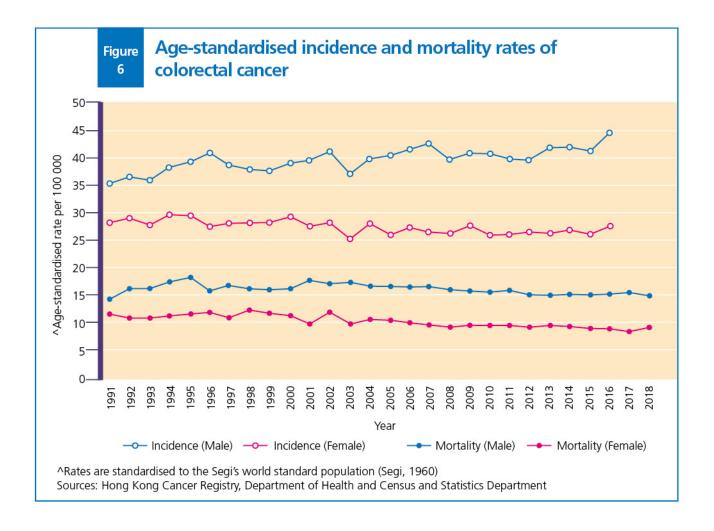
Cancer epidemiology

- 1. Colorectal cancer is the commonest cancer in Hong Kong. It accounted for 17.3% of all new cancer cases diagnosed in Hong Kong in 2016.
- 2. In 2016, there were 5 437 new cases of colorectal cancer, with 3 169 cases of male and 2 268 cases of female, the majority of which was people aged over 50. The median age at diagnosis of colorectal cancer was 68 in male and 69 in female. The age-specific incidence rates increased significantly from age 50 onwards. It is more common in males. The male to female ratio was about 1.4 to 1 in 2016.
- 3. Colorectal cancer is the second leading cause of cancer deaths in Hong Kong. In 2018, a total of 2 279 people died from this cancer, accounting for 15.8% of all cancer deaths.*
- 4. After adjusting for the effect of population ageing by using age-standardised rates, the incidence rates increased in men and decreased slightly in women from 1991 to 2016, while the mortality rates for both sexes have slightly decreased over the years (Figure 6).

Prevention, education and awareness raising

5. Risk factors for colorectal cancer include low fibre intake, high consumption of red meat and processed meat, lack of physical activity, obesity, alcohol consumption and smoking.

^{*} Provisional figures



- 6. Individuals with the following risk factors are at increased risk of colorectal cancer
 - (a) some hereditary bowel diseases, e.g. familial adenomatous polyposis ("FAP") or Lynch Syndrome;
 - (b) long history of inflammation of the bowel, e.g. ulcerative colitis;
 - (c) history of colonic polyps; and
 - (d) family history of colorectal cancer, particularly in first-degree relatives (i.e. parents, siblings or children).

7. To reduce the chance of getting colorectal cancer, one should eat more food rich in fibre, eat less red meat and processed meat, have regular physical activities, maintain a healthy body weight and waist circumference, and abstain from drinking alcohol and smoking.

Early detection and screening

- 8. Early colorectal cancer may have no symptoms. Common symptoms of colorectal cancer may include change in bowel habits, blood or mucus in stool, persistent urge after passing stool, abdominal discomfort, or weight loss and tiredness with unknown reason. An individual with symptoms should promptly seek medical advice.
- 9. Separately, since colorectal cancer arises predominantly from precancerous adenomatous polyps developed over a long latent and asymptomatic period, it is one of the few cancers that can be effectively prevented through well organised and evidence-based screening.
- 10. When considering screening, people are classified into "average risk" and "increased risk" groups. According to screening recommendations made by the Cancer Expert Working Group on Cancer Prevention and Screening ("CEWG"), people with

Check out **Annex 3** for the detailed recommendations of the CEWG in respect of the five cancers set out in this Annex.

"increased risk" refer to individuals who have a significant family history, such as those with a first-degree relative diagnosed with colorectal cancer at the age of 60 or below; or those who have more than one first-degree relatives diagnosed with colorectal cancer irrespective of age at diagnosis; or those who have first-degree relatives diagnosed with hereditary bowel diseases. People with "average risk" refer to individuals aged between 50 and 75 who do not have the aforesaid family history.

Screening for general population at average risk

- 11. Since 2010, the CEWG recommends that people at average risk aged between 50 and 75 should consult their doctors to consider one of the following screening methods
 - (a) annual or biennial faecal occult blood test ("FOBT");
 - (b) sigmoidoscopy every five years; and
 - (c) colonoscopy every ten years.
- 12. Since September 2016, the Government has launched a Pilot Programme to provide subsidised screening in phases to average risk Hong Kong residents aged between 61 and 70. Participants would first receive subsidised Faecal Immunochemical Test ("FIT"), a new version of FOBT, from enrolled primary care doctor and if the FIT result is positive, would receive subsidised colonoscopy examination service from enrolled colonoscopy specialist. In August 2018, the Pilot Programme was regularised and named as "Colorectal Cancer Screening Programme" ("CRCSP") which would progressively extend its coverage to Hong Kong residents aged between 50 and 75 in accordance with the CEWG's screening recommendation.

Screening for individuals at increased risk

- 13. In 2017, the CEWG updated the colorectal cancer screening recommendations for individuals at increased risk, with the key change relating to the interval for colonoscopy screening among individuals with significant family history of colorectal cancer but without mutated gene. At present, the screening recommendations for increased risk individuals are as follows
 - (a) for carriers of mutated gene of Lynch Syndrome, the CEWG recommends screening for colorectal cancer by colonoscopy every one to two years from the age of 25 onwards;
 - (b) for carriers of mutated gene of FAP, the CEWG recommends screening by sigmoidoscopy every two years from the age of 12; and

- (c) for individuals with one first-degree relative diagnosed with colorectal cancer at the age of 60 or below or more than one first-degree relatives with colorectal cancer, irrespective of age at diagnosis, colonoscopy should be performed every five years beginning at the age of 40 or ten years prior to the age at diagnosis of the youngest affected relative, but not earlier than the age of 12.
- 14. For colorectal cancer patients with identifiable genetic mutations (i.e. the Lynch Syndrome and FAP), the CEWG recommends two-tier screening for their family members. Genetic testing should first be conducted followed by endoscopic examination at specified and shorter intervals if genetic test is positive. This is to reduce the number of unnecessary investigations among those with strong family history but without proven gene mutation to reduce the risk of potential complications arising from repeated endoscopic procedures.
- 15. At present, patients with colorectal cancer and their first-degree relatives may be referred for genetic counselling and testing provided in certain centres run by
 - (a) the Hereditary Gastrointestinal Cancer Genetic Diagnosis Laboratory of The University of Hong Kong;²¹
 - (b) Clinical Genetic Service of the Department of Health ("DH");²² and
 - (c) the private sector. While referral criteria for testing may differ between these testing services, commonly adopted criteria include strong family history, occurrence of multiple cancers in a single individual, early onset of disease, presence of pathogenic mutation in the cancer predisposition gene and/or clinically suspected hereditary cancer syndrome.
- 16. The service model for screening this group of high risk individuals and families will be further discussed.

²¹ For details of the services provided by the Hereditary Gastrointestinal Cancer Genetic Diagnosis Laboratory, please refer to http://www.patho.hku.hk/colonreg.htm.

²² For details of the services provided by Clinical Genetic Service of the DH, please refer to https://www.dh.gov.hk/english/main/main_cgs/main_cgs.html.

Diagnosis, treatment and care

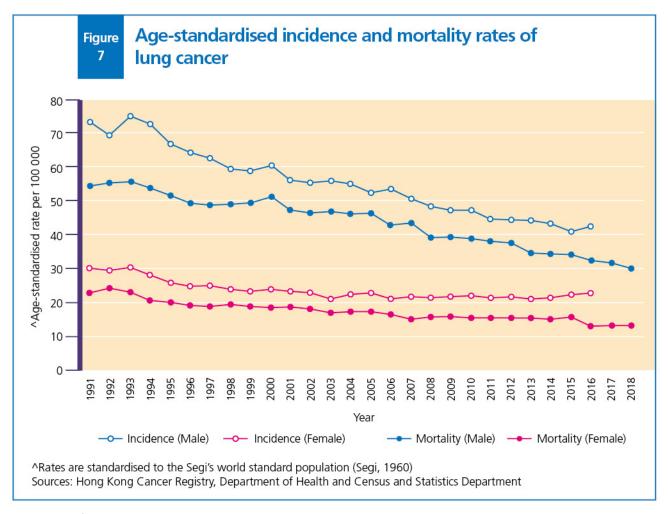
- 17. As a substantial proportion of the patients with colorectal cancer is now curable, a timely multi-disciplinary management is the key to success. Patients with early disease have a high rate of cure with surgery alone while selected patients may require chemotherapy and/or chemoradiotherapy in the perioperative setting. On the other hand, advancement in diagnosis and treatment has created an unprecedented opportunity of cure even in the metastatic setting: those with limited number and extent of metastasis should be considered for aggressive local therapy in addition to conventional systemic therapy and this approach has proven survival benefit. The remaining patients with widespread metastatic disease should be treated in a personalised manner guided by specific patient and tumour factors.
- 18. A further step forward is to anticipate the increased number of patients being diagnosed with early disease who need immediate access to cancer service as a result of the screening. The role of Cancer Case Managers is to facilitate the diagnostic and treatment process. On the other hand, as there are molecular biomarkers which are known to be useful to disease management, international guidelines of molecular biomarkers should be introduced in a timely manner to the public sector. The strategy in introducing relevant molecular diagnostic service will also be explored.

2 Lung Cancer

(incidence ranked 2nd in 2016, mortality ranked 1st in 2018*)

Cancer epidemiology

- 19. Lung cancer is the second commonest cancer in men and the third commonest in women, after breast cancer and colorectal cancer. It accounted for 15.7% of new cancer cases in 2016.
- 20. In 2016, there were 4 936 new cases of lung cancer, with 3 086 cases of males and 1 850 cases of females, the majority of which was people of age over 50. Lung cancer was also the first leading cause of cancer deaths in Hong Kong. In 2018, a total of 3 812 people died from this cancer, accounting for 26.4% of all cancer deaths.* The age-standardised incidence rates had a downward trend in men between 1991 and 2016 and levelled off in women in recent years, while the age-standardised mortality rate for both sexes also had a downward trend (Figure 7).



^{*} Provisional figures

- 21. The risk factors for lung cancer are well recognised and include
 - (a) smoking or inhaling second hand smoke;
 - (b) air pollution, including outdoor and indoor;
 - (c) exposure to radon gas (a kind of radioactive gas that is released from rocks and soil and accumulates in the buildings);
 - (d) occupational exposure to certain chemicals or building materials (e.g. asbestos, arsenic, chromium, nickel, etc.);
 - (e) radiation exposure;
 - (f) family history of lung cancer; and
 - (g) weaken immunity, e.g. being infected with human immunodeficiency virus.
- 22. To reduce the chance of getting lung cancer, the single most important prevention strategy is to avoid smoking and second hand smoke. Besides, it is also important to observe the relevant Ordinances such as Occupational Safety and Health Ordinance (Cap. 509) and Air Pollution Control Ordinance (Cap. 311) to reduce exposure to carcinogenic substances in workplaces and daily environment.

- 23. The symptoms of lung cancer may not be easily noticed at an early stage. Common symptoms include persistent cough, coughing up blood-stained sputum, repeated chest infections, hoarseness, chest discomfort or pain when coughing or taking a deep breath and non-specific symptoms like loss of appetite and weight. One should see a doctor as soon as possible if any of the above symptoms develop.
- 24. Common lung cancer screening tests include chest X-ray, sputum cytology and low-dose computed tomography ("LDCT"). All screening tests have their limitations and they are not 100% accurate. Individuals who consider lung cancer screening should be adequately informed about the benefits and risks.

The current scientific evidence is that routine screening for lung cancer with chest X-ray or sputum cytology is not recommended for both general and high risk population. There is also insufficient evidence to recommend for or against lung cancer screening by LDCT in asymptomatic persons or as mass screening.

25. In any case, smoking is the major risk factor for lung cancer and smokers should quit smoking and consult doctors about the need for lung cancer screening.

Diagnosis, treatment and care

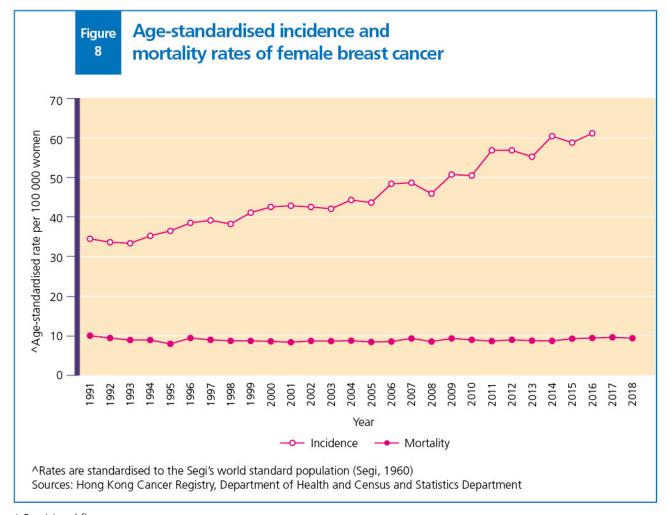
- 26. With the advancement of genetic medicine, technologies and medications, the management landscape of lung cancer has been changing. For patients with early and locally advanced lung cancer who are potentially curable, the treatment aim is to cure the disease by means of radical surgery, radical radiotherapy or combination of surgery, radiotherapy and chemotherapy and to maintain the functional health of the survivors. A significant proportion of metastatic lung cancer are treatable, for which the treatment goals are to prolong the survival and improve quality of life by various systemic cancer treatments and radiotherapy based on the histology, genetic diagnostics and patient's physical condition. When the disease is beyond cure and treatment, timely holistic family-centred palliative care will be offered for symptom control and family support.
- 27. The majority of lung cancer patients in Hong Kong are managed by various clinical units of the Hospital Authority ("HA") along their cancer care journey including clinical oncology, cardiothoracic surgery, respiratory medicine, medical oncology and palliative medicine with support from pathology, radiology and allied healthcare professionals. With current resource and workflow, working up cases with lung nodules for early diagnosis of lung cancer can be challenging. Hence, the referral and diagnostic pathway especially radiological investigation and tissue biopsy should be streamlined. Besides, there are rapid developments in molecular biomarkers for managing lung cancer patients, e.g. EGFR, ROS1 for targeted therapy and PD-L1 for immunotherapy. Timely introduction of various advanced diagnostic technologies, cost-effective anti-cancer therapies and coordinated and multi-disciplinary care are important in the management of patients with lung cancer.

Breast Cancer

(incidence ranked 3rd in 2016, mortality ranked 4th in 2018*)

Cancer epidemiology

28. Breast cancer is on the rise in the past few decades and the disease burden affect females disproportionately. In 2016, there were 4 108 new cases of female breast cancer and 15 new cases of male breast cancer diagnosed. It was the commonest cancer among females in Hong Kong (26.6% of all new cancers in females diagnosed in 2016) and the third leading cause of cancer deaths among females in Hong Kong in 2018* (749 deaths or 12.5% of all cancer deaths in females). The age-standardised incidence rate of female breast cancer had an upward trend for the period between 1991 and 2016 while the age-standardised mortality rate did not change significantly (Figure 8).



^{*} Provisional figures

- 29. Most of the risk factors for female breast cancer are related to lifestyle, which include
 - (a) lack of physical activity;
 - (b) alcohol consumption;
 - (c) obesity after menopause;
 - (d) advancing age;
 - (e) no childbirth, late first live birth (after the age of 30) or no breastfeeding;
 - (f) early menarche (before the age of 12) or late menopause (after the age of 55);
 - (g) history of breast, ovarian or endometrial cancer;
 - (h) history of benign breast conditions or lobular carcinoma in situ;
 - (i) receiving hormonal replacement therapy; and
 - (j) using combined oral contraceptives.
- 30. Further, women with family history of breast cancer or ovarian cancer, especially with first-degree relative (i.e. mother, sister or daughter) diagnosed with breast cancer before the age of 50, or those with confirmed carrier (or family history) of certain gene (e.g. *BRCA1* or *BRCA2*) mutations and a history of receiving radiation therapy to the chest before the age of 30 are considered at increased risk of breast cancer.

31. To reduce the chance of getting breast cancer, members of the public, with women in particular, are recommended to have regular physical activities, avoid alcohol drinking and maintain a healthy body weight and waist circumference. If possible, they are advised to have childbirth at an earlier age and breastfeed each child for a longer duration.

- 32. The symptoms of breast cancer may not be easily noticed at an early stage and include presentation with breast lump, change in the size or shape, skin texture of the breast or nipple or even development of rash around, or in-drawing of, or discharge from the nipple. In some cases, there may also be new and persistent discomfort or pain in the breast or armpit and new lump(s) or thickening in the armpit. Therefore, women are advised to stay breast aware and be familiar with the normal look, feel and cyclical changes of their breasts so as to seek advice from doctor as soon as unusual changes in the breast are noticed.
- 33. Mammography is a widely used screening tool which is an X-ray examination of the breasts. At present, there is insufficient scientific evidence to recommend for or against population-based mammography for local asymptomatic women at average risk in Hong Kong. Women at moderate risk of breast cancer should discuss with doctors the pros and cons of breast cancer screening before making an informed decision about mammography screening every two to three years. Women at high risk (e.g. carriers of confirmed *BRCA1* or *BRCA2* gene mutations, those with family history of breast cancer or ovarian cancer, and those with history of receiving radiation therapy to the chest before the age of 30) should seek doctor's advice for annual mammography screening and starting age for screening.
- 34. All screening tests have their limitations and they are not 100% accurate. There are false-positive and false-negative results. Given the lack of justification from the public health perspectives as supported by scientific evidence, the Government at present does not have plans to introduce a population based mammography screening programme. The Government and the medical sector need to gather more research findings and data to explore whether it is appropriate to implement population-based breast cancer screening for asymptomatic women at average risk in Hong Kong. Before a conclusion is drawn, all women who consider taking

breast cancer screening should be adequately informed about the benefits and risks.

- 35. At present, mammography screening for women at increased risk of breast cancer is available in
 - (a) DH: three Women Health Centres and ten Maternal and Child Health Centres on a sessional basis and women with abnormal mammographic findings will be referred to specialists for follow-up. The DH's Clinical Genetic Service accepts referral for genetic counselling and testing service for patients and family members with suspected hereditary breast and ovarian cancer syndrome;
 - (b) Local non-governmental organisations ("NGOs"): NGO like Hong Kong Hereditary Breast Cancer Family Registry has established the Hong Kong Hereditary and High Risk Breast Cancer Programme since 2007 which is a multi-disciplinary breast care programme (including genetic counselling and testing) to help identify high risk groups and data collection;^{23, 24} and
 - (c) Private sector: the practice and protocols for screening modalities may vary.

Diagnosis, treatment and care

36. Breast cancer has been the commonest cancer among women in Hong Kong since 1994, with an increase of around 5% in number annually. In half of them, the onset age is between 40 and 55. Modern breast cancer management emphasises early diagnosis, multi-disciplinary approach incorporating precision medicine, as well as personalised therapy recognising patient's unique physical and psychosocial needs. Surgery is the mainstay of treatment in achieving cure for breast cancer, with Systemic therapy and Local Regional Radiotherapy as adjuvant or neoadjuvant therapy to improve the overall outcome of the patient.

²³ For details of the services provided by the Hereditaty Breast Cancer Family Registry, please refer to https://www.asiabreastregistry.com/en/.

For details of the services provided by the Hong Kong Hereditary and High Risk Breast Cancer Programme, please refer to http://www.hrbcp.org/eng/index.htm.

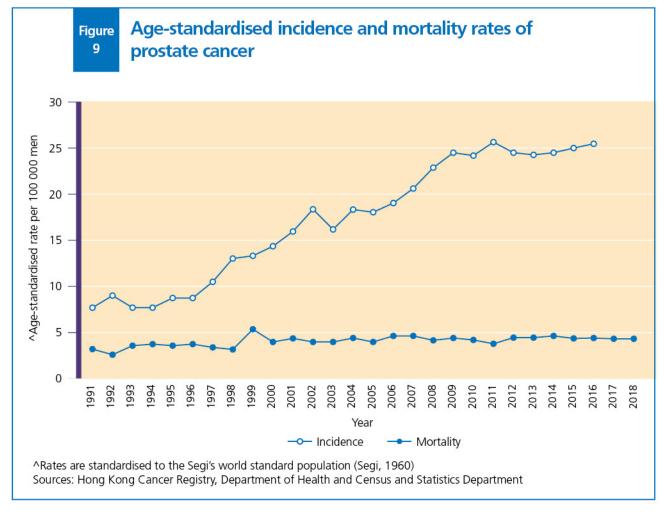
37. As the number of cases with breast symptoms and breast cancer cases are on the rise, an effective triage system for new referrals, selecting out the high-risk patients for streamlined diagnostic workup is necessary. Again, the timely introduction and development of molecular diagnostics e.g. HER2 and related targeted therapy are important. The expertise in the management of complicated case, e.g. cases requiring breast reconstruction and surgery for recurrent/locally advanced cancer should be built up. As the long term survival for breast cancer patients is good, survivorship programme including facilities and protocol for surveillance should be developed.

4 Prostate Cancer

(incidence ranked 4th in 2016, mortality ranked 7th in 2018*)

Cancer epidemiology

38. Prostate cancer recorded the largest increase in incidence rate among the common male cancers in Hong Kong over the past two decades. In 2016, 1 912 new cases of prostate cancer were diagnosed, making it the third commonest cancer in men that accounted for 11.9% of all new cancer cases in males that year. Also, prostate cancer is the fourth leading cause of male cancer deaths in Hong Kong in 2018, causing death to 466 men which was 5.5% of male cancer deaths in the same year.* Both the age-standardised incidence and mortality rates for the period between 1991 and 2016 showed an upward trend, although the magnitude of change is less in the latter (Figure 9).



^{*} Provisional figures

- 39. The causes for prostate cancer are not yet fully understood. However, several risk factors for prostate cancer are identified, which include advancing age, a family history of prostate cancer (especially in first-degree relatives like father, brother or son), being African American and obese.
- 40. In general, adopting a healthy lifestyle (e.g. regular physical activities, maintaining a healthy body weight and waist circumference, having well balanced diet and avoiding smoking and alcohol consumption) may lower risk of prostate cancer.

- 41. Early prostate cancer often goes unnoticed as it usually has no symptoms. Common presentation of prostate cancer includes difficulty or delay in urination, slow or weak stream of urine, urinary frequency especially at night, blood in urine and pain in the lower back, pelvis and hips. Since most of these symptoms are very similar to those of benign prostatic hyperplasia which is not cancer, one should consult a doctor as soon as possible if the above symptoms develop.
- 42. Two common screening tests for prostate cancer are digital rectal examination ("DRE") and prostate-specific antigen ("PSA") test. If the screening test is abnormal, further diagnostic investigation is needed. DRE and PSA test have their limitations and they are not 100% accurate. One should discuss with the doctor about the benefits and potential risks about screening to make an informed choice.
- 43. At present, there is insufficient scientific evidence to recommend for or against population-based prostate cancer screening for asymptomatic men in Hong Kong. Men at increased risk of prostate cancer (e.g. with first-degree relative diagnosed with prostate cancer before the age of 65) should consider seeking advice from doctors about their screening need and approach. The PSA test should start at an age not earlier than 45 until 70, and the interval should not be more frequent than once every two years.

Diagnosis, treatment and care

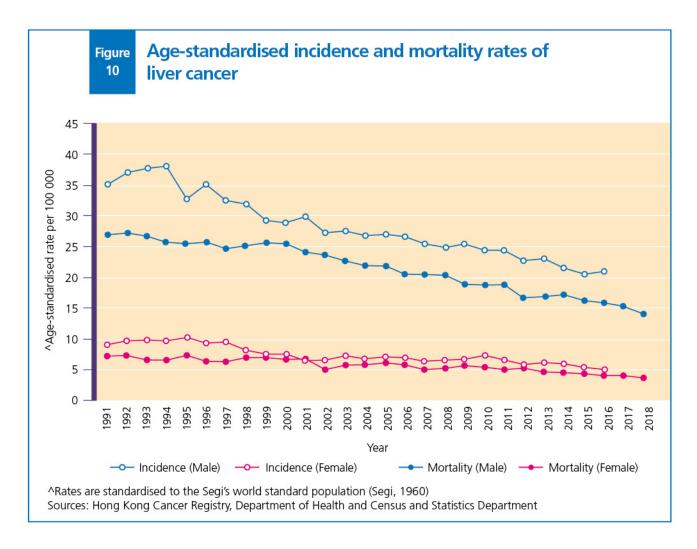
- 44. With the advancement of technology, biomarkers and medications, the management landscape of prostate cancer has been changing. The accurate diagnosis and staging of prostate cancer has been markedly improved by serum biomarkers, Magnetic Resonance Imaging ("MRI") and fusion ultrasound and MRI targeted biopsy. Hence, introducing more specific markers such as Prostate Health Index and enhancing the availability of advanced imaging will increase the accuracy and positive yield of prostate biopsies and reduce unnecessary invasive procedures.
- 45. For patients with very low risk prostate cancer, active surveillance is the management of choice while for the other risk groups, robotic radical prostatectomy, radical radiotherapy or a combination of both could be adopted with the aim of complete cure of the disease. For metastatic prostatic cancer patients who can survive for years, the treatment goals are to prolong the survival and improve quality of life by various systemic cancer treatments with or without radiotherapy based on the site of metastases and patient's physical condition. When the disease is beyond cure and effective control, timely holistic family-centred palliative care will be offered for symptom control and family support.

5 Liver Cancer

(incidence ranked 5th in 2016, mortality ranked 3rd in 2018*)

Cancer epidemiology

46. In 2016, there were 1 810 new cases of liver cancer (5.8% of all new cancer cases), ranking it the fifth commonest cancer in Hong Kong. Among them, 1 391 cases were males and 419 cases were females. Liver cancer was the third leading cause of cancer deaths in Hong Kong. In 2018, a total of 1 481 people died from this cancer, accounting for 10.3% of all cancer deaths.* Both the agestandardised incidence and mortality rates for both sexes between 1991 and 2016 had a downward trend (Figure 10).



^{*} Provisional figures

47. Major risk factors identified for liver cancer include chronic infection with hepatitis B virus ("HBV") and hepatitis C virus ("HCV"), cirrhosis, alcohol consumption and ingestion of food contaminated with aflatoxin (a toxin found in some food, such as mouldy peanuts and grains), although other risk factors like diabetes, obesity, smoking and certain hereditary conditions such as haemochromatosis, glycogen storage disease and Wilson's disease are also implicated. Locally, HBV vaccination has been given to all babies born since 1984 as an important preventive measure.

- 48. Usually, early stage of liver cancer has no symptoms and may not be easily noticed. Common symptoms include unexplainable weight loss, skin and eye yellowing, nausea, dark urine, abdominal pain and swelling. Hence, one should consult a doctor as soon as possible if the above symptoms develop.
- 49. To reduce the chance of getting liver cancer, it is important to get vaccinated against HBV, avoid drinking alcohol and tobacco smoking. Avoidance of unprotected sexual intercourse, sharing needles and food possibly tainted with aflatoxins and maintaining healthy diet and body weight would also help reducing the risk of developing liver cancer.
- 50. Two more widely-adopted tests for liver cancer screening are alpha-fetoprotein ("AFP") test and abdominal ultrasonography ("USG"). However for AFP test, the blood AFP level is frequently normal during early stage and it could also be raised in conditions other than liver cancer, rendering it not very reliable for detecting small liver cancer. The performance of abdominal USG is more operator dependent and could be affected by factors like abdominal fatness. Therefore, it may not be able to detect small liver tumour and may be used in conjunction with the AFP test to give more informative results.
- 51. Currently, the CEWG considered that routine liver cancer screening is not recommended for persons at average risk. At the same time, people with chronic HBV or HCV infection or liver cirrhosis regardless of the cause are at increased risk of hepatocellular carcinoma. Depending on certain criteria such as age, family

history, presence of cirrhosis and other clinical parameters, some subgroups are at higher risk and should consider receiving periodic cancer surveillance (e.g. every six to 12 months) with AFP and USG. People with chronic HBV or HCV infection, or liver cirrhosis should thus seek advice from doctors to determine their need for and approach of cancer surveillance.

Diagnosis, treatment and care

52. Liver cancer can be diagnosed by imaging alone (like contrast-enhanced computed tomography ("CT"), MRI) and treatment strategy depends on disease staging; hence, diagnostic facility forms an important part of disease management. Most liver cancer patients present late and have poor prognosis. For those with early operable disease, surgery is the mainstay of curative treatment. In selected patients, liver transplant may also offer chance of cure. For the majority of patients, treatment is largely of palliative intent. There are a variety of palliative treatment modalities offered by different specialties (like transarterial chemoembolisation, radiofrequency ablation, drug treatment, e.g. targeted therapy and immunotherapy). A multi-disciplinary team approach for management decision and coordination is important. Palliative care is also important for liver cancer in view of the high mortality and most patients will develop symptoms during late phase. The capacity and expertise in managing liver cancer cases, including oncology, diagnostic and interventional radiology, liver surgery and liver transplant should be strengthened. After all, as there are effective treatments for hepatitis B and selected hepatitis C, the overall management of this group of patients should be further enhanced to reduce the development of complications including liver cancer.