

Chapter
3

Prevention and Screening



Direction

- 3.1 Prevention is better than cure. Prevention and screening of cancer, as one of the non-communicable diseases (“NCD”), share several overarching principles as advocated in the *“Towards 2025: Strategy and Action Plan to Prevent and Control Non-communicable Diseases in Hong Kong” (“SAP”)*³ –
- (a) **upstream approach** – about 40% of cancers can be prevented through adoption of healthy lifestyle including no smoking, avoiding alcohol consumption, having a balanced diet and engaging in regular physical activity;^{4, 5}
 - (b) **evidence-based strategies** – strategies and practices for the prevention and screening of cancer need to be based on the latest scientific evidence, and/or best practices. The Cancer Expert Working Group on Cancer Prevention and Screening (“CEWG”) is the platform for reviewing overseas and local scientific evidence and making recommendations on cancer prevention and screening that are appropriate to local situation;
 - (c) **primary healthcare focused** – healthcare services are being redesigned to place greater emphasis on primary care, health communication, disease prevention, screening, etc.; and
 - (d) **empowerment of people and communities** – the public should be informed of what they can do to prevent and control cancer, and empowered to gain control over decisions and actions that influence health. Through more effective health communications, we seek to encourage health-seeking behaviour and sharpen health-management skills.

³ For details of other overarching principles and approaches in tackling NCD, please refer to the SAP which is available at https://www.chp.gov.hk/files/pdf/saptowards2025_fullreport_en.pdf.

⁴ Spring, B., Moller, A. C., & Coons, M. J. (2012). Multiple health behaviours: overview and implications. *Journal of Public Health, 34* (suppl 1): i3-i10. doi: 10.1093/pubmed/fdr111.

⁵ Murray C. J., Ezzati, M., Lopez, A. D., Rodgers, A., & Hoorn, S. V. (2003). Comparative quantification of health risks: Conceptual framework and methodological issues. *Population Health Metrics, 1* (1). doi: 10.1186/1478-7954-1-1.

Strategies

A. Reducing risk factors for cancer prevention

- 3.2 Cancer prevention is an essential component of all cancer control plan as about 40% of all cancers can be prevented.^{4,5} Reducing exposure to risk factors is the key strategy of cancer prevention.
- 3.3 Cancer prevention must be considered in the context of activities to prevent other chronic diseases, especially those with which cancer shares common risk factors, such as cardiovascular diseases, diabetes, and chronic respiratory diseases. Common risk factors underlying these conditions include tobacco use, alcohol use, dietary factors such as low fruit and vegetables intake, physical inactivity, overweight and obesity. These risk factors contribute to a variety of cancer types such as lung, colorectal and breast which are prevalent in Hong Kong. Other important cancer risk factors include hepatitis B virus (“HBV”) infections, human papillomavirus (“HPV”) infections, exposure to environmental and occupational carcinogens as well as exposure to radiation, etc.
- 3.4 Strategic actions aimed at reducing the levels of exposure to the following major risk factors in the population will have a huge impact on cancer burden -

- (a) **tobacco**, through its various forms of exposure, constitutes the main cause of cancer related deaths worldwide among men, and increasingly among women. Tobacco causes a variety of cancer types, such as lung, oesophagus, larynx, oral cavity, bladder, kidney, stomach, cervix and colorectum. Reducing tobacco use is one of the key strategies for cancer prevention,

Exposure to tobacco includes active smoking, breathing second-hand tobacco smoke (passive or involuntary smoking) and smokeless tobacco. Worldwide, tobacco use was estimated to cause more than seven million deaths per year and is responsible for approximately 22% of cancer death.^{6,7} In Hong Kong, tobacco dependence is a chronic disease responsible for nearly 6 900 deaths a year. The latest reported prevalence of daily cigarette smoking is 10.0%.⁸

⁶ World Health Organization. Tobacco. Available at: <https://www.who.int/news-room/fact-sheets/detail/tobacco>.

⁷ World Health Organization. Cancer. Available at: <https://www.who.int/news-room/fact-sheets/detail/cancer>.

⁸ Census and Statistics Department, HKSAR. Thematic Household Survey Report No. 64, Available at <http://www.statistics.gov.hk/pub/B11302642018XXXXB0100.pdf#page=13>.

through implementing a comprehensive mix of interventions including protecting non-smokers from tobacco smoke exposure with further expansion of statutory no smoking areas, strengthening regulatory control to include e-cigarettes and other new smoking products, enforcing bans on advertising, imposing tax on tobacco products, implementing mass media campaign and providing effective smoking cessation service;

(b) **physical inactivity, obesity and dietary factors** play an important role as the causes of cancer.⁹

(i) **Physical inactivity** is a major contributor to the rise in the rates of overweight and obesity in many parts of the world. Moreover, some researches suggest that it independently **increases the risk of more than ten cancers like liver,**

prostate, colorectal, breast and uterine cancers. Regular physical activity reduces the risks of multiple cancers by contributing to weight control. Among dietary factors related to excess body weight, reduction of consumption of sugar sweetened beverages and high-fat food items should be a high priority.

(ii) High consumption of **red meat**, especially processed meat, is associated with risk of **colorectal cancer** which is the commonest cancer in the recent few years in Hong Kong. In this regard, promotion of having a balanced diet and reduction of consumption of red and processed meat could reduce the risk of colorectal cancer.

According to the Population Health Survey ("PHS") 2014/15, 13.0% of local adults aged 18 or above had insufficient physical activity as defined by the World Health Organization ("WHO"), while the proportion of population aged between 15 and 84 who were overweight and obese were 20.1% and 29.9% respectively. Physical inactivity is estimated to be the principal cause for approximately 21% to 25% of breast and colorectal cancer.

⁹ Because all these factors are intimately interconnected at the individual and contextual levels, estimating the specific contribution of each of these risk factors is difficult and might underestimate the cumulative potential risk.

- (iii) Ensuring an adequate intake of **fruit and vegetables** should further **reduce risk for a variety of cancer types such as oral cavity, oesophagus, stomach and colorectum.**
- (iv) There is evidence to show that the **intake of nitrosamines in preserved food** like salted fish can increase the risk of **nasopharyngeal cancer** which is more prevalent in the southern part of China including Hong Kong. Reinforcing the importance of the avoidance on consumption of foods containing nitrosamines helps reduce the risk of nasopharyngeal cancer.

In this connection, appeals for the community to practise a healthy lifestyle, including but not limited to engaging in regular physical activities and healthy eating, has been one of the approaches of the Department of Health (“DH”) in the prevention of NCD including cancer;

- (c) **alcohol** is a Group 1 carcinogen classified by the International Agency for Research on Cancer and causes many cancer types including **cancer of oral cavity, pharynx, larynx, oesophagus, liver, colorectum and breast.** There is no safe level of drinking in terms of cancer risk. Risk of cancer increases with the amount of alcohol consumed. Strategic actions for reducing harmful use of alcohol include enforcing regulations to prohibit the commercial sale and supply of intoxicating liquor to minors, strengthening public education on harmful effects of drinking, as well as advocating the use of alcohol screening and brief intervention to reduce alcohol intake in primary care setting;

For 2010, alcohol-attributable cancers were estimated to be responsible for 337 400 deaths worldwide, predominantly among men, with liver cancer accounting for the largest proportion of deaths among different tumour types.¹⁰ According to the PHS 2014/15, 50.4% of the local population aged 15 or above drank alcoholic beverages occasionally (i.e. drank in three days or less a month) and 11.1% drank regularly (i.e. drank at least once a week) in the 12 months preceding the survey.

¹⁰ World Health Organization. Cancer Prevention. Available at: <https://www.who.int/cancer/prevention/en/>.

- (d) **chronic HBV infection** (also called chronic hepatitis) is a major cause of **liver cancer**, in this locality. The most cost-effective strategy for preventing primary liver cancer is universal vaccination with the hepatitis B vaccination which has been part of the Hong Kong Childhood Immunisation Programme (“HKCIP”) since 1988. The Steering Committee on Prevention and Control of Viral Hepatitis was set up in July 2018 to draw up a local strategy to effectively prevent and control viral hepatitis. Strategic actions for reducing exposure to hepatitis B infection include continuing the universal hepatitis B vaccination and monitoring its coverage rate;
- (e) **HPV** is the world’s commonest sexually transmitted viral infection of the reproductive tract and also **causes cancers of the cervix, oral cavity, oropharynx, etc.** HPV vaccination which has been shown to provide protection against HPV infections is an effective strategy for reducing the incidence of cervical cancer. Resources have been allocated to expand the HKCIP to cover vaccination against HPV. Starting from the 2019/20 school year, eligible female primary school students of suitable ages will be provided with HPV vaccination to prevent cervical cancer; and

HBV causes about 52% of the world’s primary liver cancer, resulting in nearly 340 000 deaths per year.¹¹ HBV infections also interact with exposure to aflatoxin (through consumption of contaminated food) in increasing the risk of liver cancer. In Hong Kong, HBV causes about 80% of liver cancer.

According to the WHO, HPV infects an estimated 660 million people per year and is estimated to cause almost all cases of cervical cancer, 90% of anal cancers and 40% of cancers of the external genitalia.¹¹ In Hong Kong, cervical cancer was the seventh commonest female cancer with 510 new cases in 2016, accounting for 3.3% of all new female cancer cases. HPV-16, 18, 31, 33, 45, 52 and 58 also accounted for about 90% of cases of cervical cancer and all the above seven genotypes are included in the 9-valent HPV vaccine.

¹¹ World Health Organization. Cancer Control Knowledge into Action - Prevention. WHO Guide for Effective Programmes. Available at: https://www.who.int/cancer/publications/cancer_control_prevention/en/.

- (f) **environmental pollution** of air, water and soil with carcinogenic chemicals accounts for 1% to 4% of all cancers. Exposure to carcinogenic chemicals in the environment can occur through drinking water or pollution of indoor and ambient air. Exposure to outdoor air pollution in general, and specifically **to particulate matter**, causes **lung cancer** and diesel engine emission is still widespread in different parts of the world. **Occupational cancers** are concentrated among specific groups of the working population who are exposed to several **well-recognised carcinogens such as asbestos, polycyclic aromatic hydrocarbons and heavy metals**. Therefore, cancer prevention can be conducted in partnership with other relevant government bureaux/ departments and non-health sectors (such as urban planning, transport and environment), by advocating and promoting multiple co-benefits. For example, promoting physical activities can achieve physical and mental health benefits, energy saving, cleaner air and addressing climate change. The “Walk-in-HK” initiative by the Transport and Housing Bureau, “Hong Kong 2030+” initiative especially reinventing the public realm and the promotion of active design by the Development Bureau and the Planning Department are other relevant initiatives.

B. Providing population-based cancer screening based on evidence

- 3.5 Other than primary prevention, screening as a tool for secondary prevention is effective against some cancers such as cervical cancer and colorectal cancer. Cancer screening aims to detect early cancers or to identify precancerous disease in apparently healthy (asymptomatic) individuals, so that treatment can be carried out early and more effectively.

3.6 The CEWG regularly reviews international and local evidence and makes recommendations on cancer prevention and screening applicable to the local setting. So far, the CEWG has made recommendations on prevention and screening for nine selected cancers, namely cervix, colorectum, breast, prostate, lung, liver, nasopharynx, thyroid and ovary. The latest recommendations are summarised at **Annex 3**.

The CEWG adopted the Wilson and Jungner principles, which has been advocated by the WHO, as guiding principles in its deliberations for population based screening -

- (a) the condition sought should be an important health problem;*
- (b) there should be an accepted treatment for patients with recognised disease;*
- (c) facilities for diagnosis and treatment should be available;*
- (d) there should be a recognisable latent or early symptomatic stage;*
- (e) there should be a suitable test or examination;*
- (f) the test should be acceptable to the population;*
- (g) the natural history of the condition, including development from latent to declared disease, should be adequately understood;*
- (h) there should be an agreed policy on whom to treat as patients;*
- (i) the cost of case-finding (including diagnosis and treatment of patients diagnosed) should be economically balanced in relation to possible expenditure on medical care as a whole; and*
- (j) case-finding should be a continuing process and not a "once and for all" project.*

3.7 From the public health perspective, the Government must carefully assess a number of factors when considering whether to introduce a population-based screening programme for a specific cancer, such as local prevalence of the cancer, accuracy and safety of the screening tests, effectiveness in reducing incidence and mortality rates, feasibility of implementation of a

The Cervical Screening Programme ("CSP") was launched in March 2004 in collaboration with private and public sector to prevent cervical cancer. Over the years, the cervical cancer has been on a decreasing trend and stabilised in recent years. In December 2017, the DH launched a pilot scheme to strengthen cervical cancer screening services and cancer preventive education among low-income groups through non-governmental organisations under the Community Care Fund.

The Colorectal Cancer Screening Programme ("CRCSP") was launched, as a pilot programme initially in September 2016 and regularised in August 2018, by using a public-private partnership model to subsidise asymptomatic Hong Kong residents aged between 50 and 75 in phases to undergo screening tests to prevent colorectal cancer, the commonest cancer in Hong Kong.

screening programme, the capacity of the healthcare system with respect to resources, manpower and infrastructure, and public acceptance. The overriding concern is whether screening does more good than harm to society. Based on the above principles, over the years, the Government has launched screening programmes, namely the CSP and the CRCSP.

- 3.8 As regards population-based mammography screening proposed by some groups for the prevention of breast cancer, particularly for asymptomatic women at average risk, the Government and the medical sector need to gather more research findings and data to ascertain the appropriateness to implement population-based breast cancer screening for this group of women in Hong Kong. In this connection, the Government has commissioned The University of Hong Kong to conduct a study on risk factors associated with breast cancer for local women so as to help formulate the future strategies for breast cancer screening in Hong Kong. Funded by the Health and Medical Research Fund (“HMRF”), the study aims at developing a breast cancer risk prediction model for Hong Kong, identifying risk factors among the local population through a case-control study, as well as building a comprehensive tissue bank and clinical database. Upon completion of the study, the research should develop a personalised risk stratification tool for breast cancer in local women as well as determine and quantify potential breast cancer risk factors. The study is expected to be completed in the latter half of 2019. The Government will review and consider the type of screening to be adopted for women of different risk profiles, having regard to the scientific evidence and outcome of the study.
- 3.9 In light of the above, we will continue to review the scientific evidence on the effectiveness and efficacy of screening on cancers by the CEWG and to promote the CSP and CRCSP to encourage the uptake rate.

C. Strengthening primary healthcare services

- 3.10 Primary care, being the first level of care in the whole healthcare system, is the first point of contact in a continuing healthcare process and provides person-centred care that is comprehensive, continuing and coordinated. It covers a wide range of services, including health promotion, prevention of acute and chronic diseases (including cancers), health risk assessment and disease identification, treatment and care of acute and chronic diseases, self-management support, as well as supportive and palliative care for end-stage diseases or disabilities.
- 3.11 A good primary care system would contribute to cancer prevention through adoption of a healthy lifestyle including avoidance of smoking and drinking, adequate exercise, and healthy diet, as well as early identification of cancers and their risk factors through primary, secondary and tertiary prevention strategies. Those identified with cancer risks will be referred to network family doctors and prompt referral to specialists for treatment as appropriate.
- 3.12 The Government is committed to strengthening primary healthcare development and established the Steering Committee on Primary Healthcare Development in November 2017 to formulate the development strategy and devise a blueprint for primary healthcare services. A Primary Healthcare Office was set up under the Food and Health Bureau in March 2019. The Government will be setting up District Health Centre (“DHC”) Networks in all 18 districts of Hong Kong, and district-based primary healthcare services will be enhanced through medical-social collaboration and public-private partnership. Reducing cancer-related risk factors is one of intended objectives of the first DHC to be set up in Kwai Tsing District around the third quarter of 2019.

Expected Outcome by 2025

3.13 We seek to achieve the following –

Targets for reducing risk factors¹²

- (a) a 25% relative reduction in risk of premature mortality from NCD including cancers;
- (b) at least 10% relative reduction in prevalence of binge drinking and harmful use of alcohol among adults and in the prevalence of drinking among youth;
- (c) a 10% relative reduction in prevalence of insufficient physical activity among adolescents and adults;
- (d) a 30% relative reduction in prevalence of current tobacco use in persons aged 15 or above;
- (e) a halt to the rise in obesity;

Targets for vaccination

- (f) vaccination coverage of hepatitis B vaccine maintained at $\geq 95\%$;
- (g) interim target of 70% coverage for completion of two doses of HPV vaccination among the first cohort;¹³

Targets for cancer screening

- (h) a 10% relative increase in coverage for cervical cancer screening;¹⁴ and
- (i) a 30% relative increase in coverage for colorectal cancer screening.¹⁵

¹² For local NCD monitoring including cancers, a set of targets has been adopted in the SAP published in 2018. The baseline selected by the WHO for all global voluntary targets is 2010. However, due to local data availability, the baseline adopted by Hong Kong for each target may vary, with the most recent available data adjacent to 2010 being selected.

¹³ Target will be reviewed after the first two years of implementation.

¹⁴ It refers to percentage of women aged between 30 and 49 in Hong Kong who had been screened for cervical cancer at least once by cervical smear test.

¹⁵ It refers to percentage of asymptomatic persons aged between 50 and 75 in Hong Kong who had ever received colorectal cancer screening, namely Faecal Occult Blood Test or colonoscopy.