衞生防護中心
Centre for Health Protection

Recommendations of Cancer Expert Working Group on Cancer Prevention and Screening – An Overview for Health Professionals

Burden of cancer in Hong Kong

1. Cancer is one of the major non-communicable diseases in Hong Kong. In 2015, there were 30,318 newly diagnosed cancer cases. The three most commonly diagnosed cancers were those of the colorectum (16.6%), lung (15.7%) and breast (12.9%).[1] The ten most common cancers in Hong Kong in 2015 are listed in Table 1 (Annex I).

2. Cancer is also the top killer in Hong Kong.[2] In 2016, cancer claimed 14,209 lives, accounting for about one third of the total deaths of the population. Among all, lung cancer, colorectal cancer and liver cancer topped the list and took up 52.1% of all cancer deaths. The ten leading causes of cancer deaths in Hong Kong in 2016 could be found in Table 2 (Annex I).

3. Despite a steady decline in the age-standardised incidence rates in the past three decades, the actual number of new cancer cases has continued to rise largely because of the growing and ageing population. Collectively, cancer remains both a major public health threat to our citizen and a heavy burden to our healthcare system.

Coordinating structures in prevention and control of cancer

4. In 2001, a high-level **Cancer Coordinating Committee (CCC)** was set up to steer the direction of work and advise the strategies on cancer prevention and control. The committee has been chaired by the Secretary for Food and Health, with membership include government and non-government experts in various specialties comprising cancer experts, academics, physicians from the public and private sectors, and public health professionals.

5. Under the auspice of CCC, the **Cancer Expert Working Group on Cancer Prevention and Screening (CEWG)** was also established in 2002 to review local and

international scientific evidence, assess and formulate local recommendations for cancer prevention and screening. Its membership comprises public health practitioners, clinicians, and research experts from public, private and academic sectors.

Development of local recommendations on cancer prevention and screening

6. In 2004, the CEWG published the "Report of Cancer Expert Working Group on Cancer Prevention and Screening" with recommendations on cancer prevention and screening for seven common cancers in Hong Kong, namely cervical cancer, colorectal cancer, breast cancer, prostate cancer, lung cancer, liver cancer, and nasopharyngeal cancer.[3] These cancers were selected for review after taking into account of their disease burden (in terms of incidence, mortality and potential years of life lost), availability of screening test and effectiveness of clinical interventions, prevailing practices, and degree of concern among the medical profession and the community. The CEWG adopted World Health Organization (WHO)'s Wilson and Jungner principles as guiding principles in its deliberations (Table 3 in Annex I).[4]

7. The CEWG has been keeping a close watch over emerging evidence on primary and secondary prevention of major cancers and reviewed its recommendations as appropriate. From time to time, the CEWG members exchanged views and held meetings to review the local epidemiology, latest scientific evidence, local and overseas practices of screening for persons at increased and average risk of the locally important cancers. In 2017, the CEWG reaffirmed its screening recommendations for breast cancer, colorectal cancer and liver cancer and for the first time, formulated recommendations on prevention and screening for thyroid cancer and ovarian cancer. An overview of these latest recommendations could be found at Annex II.

8. The latest CEWG recommendations on prevention and screening for nine selected cancers have been placed online at the Centre for Health Protection (CHP) website www.chp.gov.hk/en/content/9/25/31932.html for health professionals. Separate sets of leaflets or booklets targeting the lay public are also available online to facilitate them in making informed choices about cancer screening.

Population-based cancer screening in Hong Kong

9. Population-based cancer screening refers to the systematic use of simple tests offered to all asymptomatic and apparently healthy individuals in a defined target group to identify those with abnormalities suggestive of a specific cancer or pre-cancerous lesion, and refer them promptly for treatment or when feasible for diagnosis and treatment.

10. Besides, it is important to recognize that population-based cancer screening is different from selective or high risk cancer screening approach targeted at individuals identified as at increased or high risk of developing certain cancers due to various factors (e.g. strong family history, genetic mutations or other personal risk factors).

11. Screening tests have their limitations and they are not 100% accurate. There are false-positive and false-negative results. False-positive result may cause anxiety, unnecessary investigation and medical intervention which may be harmful. False-negative result may lead to false reassurance. Healthcare professionals should provide information on benefits and potential harms of screening to individuals considering cancer screening to facilitate informed choice.

12. In examining whether to introduce a population-based screening programme for a specific disease, the Government needs to carefully consider a basket of factors, in particular the seriousness and prevalence of the disease locally, accuracy and safety of the screening tests for the local population and their effectiveness in reducing disease incidence and mortality. The Government also needs to give due consideration to the actual circumstances, such as the feasibility, equity, cost-effectiveness of the screening programme and public acceptance.

13. To date, there are concrete scientific evidence to show that cervical cancer screening and colorectal cancer screening for average risk individuals are the two population-based screening programmes which, when organised systematically, are considered safe and effective in reducing cancer burden and mortality in Hong Kong. For details, please visit the websites of Cervical Screening Programme[5] at: www.cervicalscreening.gov.hk and Colorectal Cancer Screening Pilot Programme[6] at: www.colonscreen.gov.hk.

Cancer Expert Working Group on Cancer Prevention and Screening
June 2018

Annex I

Table 1: Ten commonest cancers in Hong Kong in 2015

Both Sexes			Male			Female		
Rank	Site	No.	Rank	Site	No.	Rank	Site	No.
1	Colorectum	5,036	1	Lung	2,930	1	Breast	3,900
2	Lung	4,748	2	Colorectum	2,891	2	Colorectum	2,145
3	Breast	3,920	3	Prostate	1,831	3	Lung	1,818
4	Prostate	1,831	4	Liver	1,356	4	Corpus uteri	978
5	Liver	1,791	5	Stomach	686	5	Thyroid	641
6	Stomach	1,167	6	Nasopharynx	648	6	Ovary etc.	578
7	Non-melanoma skin	1,018	7	Non-Hodgkin lymphoma	562	7	Cervix	500
8	Corpus uteri	978	8	Non-melanoma skin	531	8	Non-melanoma skin	487
9	Non-Hodgkin lymphoma	976	9	Kidney and other urinary organs except bladder	438	9	Stomach	481
10	Nasopharynx	876	10	Lip, oral cavity and pharynx except nasopharynx	411	10	Liver	435
	All sites	**30,318**		**All sites**	**15,372**		**All sites**	**14,946**

Source: Hong Kong Cancer Registry, Hospital Authority

Table 2: Ten leading causes of cancer deaths in Hong Kong in 2016

Both Sexes			Male			Female		
Rank	Site	No.	Rank	Site	No.	Rank	Site	No.
1	Lung	3,780	1	Lung	2,529	1	Lung	1,251
2	Colorectum	2,089	2	Colorectum	1,208	2	Colorectum	881
3	Liver	1,540	3	Liver	1,135	3	Breast	702
4	Stomach	710	4	Stomach	427	4	Liver	405
5	Breast	704	5	Prostate	410	5	Pancreas	310
6	Pancreas	678	6	Pancreas	368	6	Stomach	283
7	Prostate	410	7	Oesophagus	273	7	Ovary	227
8	Non-Hodgkin lymphoma	388	8	Nasopharynx	252	8	Non-Hodgkin lymphoma	152
9	Oesophagus	335	9	Non-Hodgkin lymphoma	236	9	Cervix uteri	151
10	Nasopharynx	327	10	Leukaemia	192	10	Corpus uteri	133
	All sites	**14,209**		**All sites**	**8,447**		**All sites**	**5,762**

Sources: Department of Health; Census and Statistics Department

Table 3: Wilson and Junger's principles of screening

1.	The condition sought should be an important health problem.
2.	There should be an accepted treatment for patients with recognized disease.
3.	Facilities for diagnosis and treatment should be available.
4.	There should be a recognizable latent or early symptomatic stage.
5.	There should be a suitable test or examination.
6.	The test should be acceptable to the population.
7.	The natural history of the condition, including development from latent to declared disease, should be adequately understood.
8.	There should be an agreed policy on whom to treat as patients.
9.	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.
10.	Case-finding should be a continuing process and not a "once and for all" project.

Source: World Health Organization, 1968

Annex II

Prevailing CEWG recommendations on cancer screening for nine selected cancers in Hong Kong (as of June 2018)

Cancer	For asymptomatic population at average risk	For persons at increased risk
1. Cervical cancer	1. Women aged 25 to 64 who ever had sexual experience are recommended to have cervical cancer screening by cytology every three years after 2 consecutive normal annual smears. 2. Screening may be discontinued in women aged 65 or above if three previous consecutive smears within 10 years are normal. 3. Women at or above 65 years of age who have never had a cervical smear should have the test.	Risk factors for HPV acquisition/persistence or cervical cancer (a) early first sexual intercourse (b) multiple sexual partners (c) tobacco use (d) chronic immunosuppression, such as HIV-infected individuals, recipients of organ transplant (e) increasing parity (f) younger age at full term pregnancy (g) long term use of oral contraceptive pills for more than five years (h) co-infection with sexually-transmitted diseases (such as chlamydia infection). 4. Women aged 21 to 24 years who ever had sexual experience and with risk factors for HPV acquisition/persistence or cervical cancer are considered at increased risk. They may be screened by cytology every three years after 2 consecutive normal annual smears, depending on doctor's assessment. 5. Other women at high risk of developing cervical cancer may require more frequent screens based on doctor's assessment.
2. Colorectal cancer	1. Individuals aged 50 to 75 years should consider screening by one of the screening methods including : – annual or biennial faecal occult blood test (FOBT); or – sigmoidoscopy every 5 years; or – colonoscopy every 10 years.	2. For carriers of mutated gene of Lynch Syndrome, the CEWG recommends screening for colorectal cancer (CRC) by colonoscopy every one to two years from age 25 onwards. 3. For carriers of mutated gene of familial adenomatous polyposis (FAP), the CEWG recommends screening by sigmoidoscopy every two years from age 12. 4. For individuals with one first degree relative diagnosed with CRC at or below 60 years of age, or more than one first degree relatives with CRC 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 12 years of age. * *Recommendation on genetic testing for CRC* – *For CRC patients with identifiable genetic mutations, two-tier screening by genetic testing followed by endoscopic examination can be offered to their family members to reduce the number of unnecessary investigations, as well as to reduce the risk of potential complications.*

<table>
<tr><th>Cancer</th><th>For asymptomatic population at average risk</th><th>For persons at increased risk</th></tr>
<tr><td>3. Breast cancer</td><td>1. There is insufficient evidence to recommend for or against population-based mammography screening for asymptomatic women at average risk in Hong Kong.

2. There is insufficient evidence to recommend regular breast self-examination as a screening tool. Women are advised to be breast aware (be familiar with the normal look and feel of their breasts) and visit doctors promptly if suspicious symptoms appear.

3. There is insufficient evidence to recommend clinical breast examination.

4. Individuals considering breast cancer screening should be adequately informed by doctors about the benefits and harms.</td><td>
<table>
<tr><th colspan="2">Local definition of increased risk of female breast cancer</th></tr>
<tr><td>Moderate risk</td><td>1. Family history of only one first-degree female relative with breast cancer diagnosed at ≤50 years of age; <u>or</u>
2. Two first-degree female relatives diagnosed with breast cancer after the age of 50 years</td></tr>
<tr><td>High risk (with any one of the risk factors)</td><td>1. Carriers of BRCA1/2 deleterious mutations confirmed by genetic testing
2. Family history of breast cancer / ovarian cancer, such as
• any first-degree female relative is a confirmed carrier of BRCA1/2 deleterious mutations;
• any first- or second-degree female relative with both breast cancer and ovarian cancer;
• any first-degree female relative with bilateral breast cancer;
• any male relative with history of breast cancer;
• 2 first-degree female relatives with breast cancer AND one of them being diagnosed age ≤50;
• ≥2 first- or second-degree female relatives with ovarian cancer;
• ≥3 first- or second-degree female relatives with breast cancer OR a combination of breast cancer and ovarian cancer
3. Personal risk factors
• history of radiation therapy to chest for treatment between age 10 and 30 years, e.g. for Hodgkin’s disease
• history of breast cancer including ductal carcinoma in situ (DCIS); lobular carcinoma
• history of atypical ductal hyperplasia or atypical lobular hyperplasia</td></tr>
</table>
5. <u>Women at moderate risk</u> should discuss with their doctors the pros and cons of breast cancer screening before deciding whether to start mammography screening every two to three years. Magnetic resonance imaging (MRI) is not recommended.

6. <u>Women at high risk</u> should seek advice from doctors, and:
– have mammography screening every year;
– begin screening at age 35 or 10 years prior to the age at diagnosis of the youngest affected relative (for those with family history), whichever is earlier, but not earlier than age 30;
– for confirmed carriers of BRCA1/2 deleterious mutations or women who had radiation therapy to the chest for treatment between age 10 and 30 years (e.g. for Hodgkin’s disease), consider additional annual screening by MRI .
</td></tr>
</table>

Cancer	For asymptomatic population at average risk	For persons at increased risk
		* *Recommendation on genetic testing* – *Women who have any first-degree female relative with confirmed BRCA1/2 deleterious mutations should be offered genetic testing to confirm or refute their carrier status.* – *For women at high risk due to other types of family history who wish to clarify their genetic risk or that of their family, referral to a specialist cancer clinic for advice, counselling and management should be discussed and considered.* – *Genetic testing should be performed by specialised cancer centres with expertise in genetic counselling, which should be provided before genetic testing. Health care professionals should discuss with their clients in detail about the uncertainties and implications of the test results. Confirmed carriers of BRCA1/2 deleterious mutations who wish to consider prophylactic surgery / chemoprevention should also be referred to a specialist cancer clinic for advice and counselling.*
4. Prostate cancer	1. There is insufficient scientific evidence to recommend for or against population-based prostate cancer screening in asymptomatic men by Prostate Specific Antigen (PSA) and/or Digital Rectal Examination (DRE). 2. For asymptomatic men considering prostate cancer screening, CEWG encourages them to discuss with their doctor about individual circumstances and make informed decision on whether or not to go for prostate cancer screening.	3. Men at increased risk, namely African American men or those with one or more first-degree relatives diagnosed with prostate cancer before age 65, should consider seeking advice from doctors regarding the need for and approach of screening. While the screening blood test to be considered is PSA, the DRE may also be done as part of screening. The PSA screening should start at an age not earlier than 45 until age 70, and the interval should not be more frequent than once every two years.
5. Lung cancer	For general or high risk populations : 1. Routine screening for lung cancer with chest X-ray or sputum cytology is not recommended. 2. There is insufficient evidence to recommend for or against lung cancer screening by low dose computed tomography (LDCT) in asymptomatic persons or for mass screening.	

Cancer	For asymptomatic population at average risk	For persons at increased risk
6. Liver cancer	1. Routine screening with alpha-fetoprotein (AFP) or ultrasonography (USG) for asymptomatic persons at average risk is not recommended.	2. People with chronic hepatitis B virus (HBV) or hepatitis C virus (HCV) infection, or liver cirrhosis regardless of the cause are at increased risk of hepatocellular carcinoma (HCC). 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 surveillance (e.g. every 6-12 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.
7. Nasopharngeal cancer	1. There is insufficient evidence to recommend a population-based nasopharyngeal cancer (NPC) screening programme using IgA against specific Epstein-Barr virus (EBV) viral antigens and EBV DNA test.	2. Family members of NPC patients may consider seeking advice from doctors before making an informed decision about screening.
8. Thyroid cancer	1. Screening for thyroid cancer is not recommended in asymptomatic persons at average risk.	2. Persons at increased risk, including those with a history of head or neck irradiation in infancy or childhood, familial thyroid cancer or family history of multiple endocrine neoplasia type 2 (MEN2), should consider seeking advice from doctors regarding the need for and approach of screening.
9. Ovarian cancer	1. Screening for ovarian cancer is not recommended in asymptomatic women at average risk.	2. Women at increased risk, such as with strong family history of ovarian / breast cancer or inherited deleterious gene mutations (e.g. BRCA1/2, Lynch syndrome), should consider seeking advice from doctors for assessment of their ovarian cancer risk and the need for and approach of screening.

References

[1] Hong Kong Cancer Registry, Hospital Authority. Leading Cancer Sites in Hong Kong in 2015. Available from: http://www3.ha.org.hk/cancereg/pdf/top10/rank_2015.pdf.

[2] Department of Health and Census and Statistics Department, HKSAR. Mortality Statistics, 2016.

[3] Report of Cancer Expert Working Group on Cancer Prevention and Screening. Hong Kong SAR: Department of Health. December 2004.

[4] Wilson JMG, Jungner G. *Principles and Practice of Screening for Disease*. World Health Organization Public Health Papers, No. 34; 1968. Available from: http://apps.who.int/iris/bitstream/10665/37650/17/WHO_PHP_34.pdf.

[5] Cervical Screening Programme. Hong Kong SAR: Department of Health, 2018.

[6] Colorectal Cancer Screening Pilot Programme. Hong Kong SAR: Department of Health, 2018.