衞生防護中心
Centre for Health Protection

2016 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 2014, there were 29,618 newly diagnosed cancer cases. The three most commonly diagnosed cancers were those of the colorectum (18.8%), lung (15.8%) and breast (13.1%).[1] The ten most common cancers in Hong Kong in 2014 are listed in Table 1 (Annex I).

2. In 2015, cancer claimed 14,316 lives, accounting for about one third of the total deaths of the population, making it the top killer in Hong Kong.[2] Lung, colorectal and liver cancers topped the list, accounting for 53.7% of all cancer deaths. Ten leading causes of cancer deaths in Hong Kong in 2015 are listed 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 been rising due to a growing and ageing population. Cancer remains a major public health threat to our citizen as well as a heavy burden on our healthcare system.

Coordinating mechanism in prevention and control of cancer

4. In 2001, the **Cancer Coordinating Committee (CCC)** was set up to steer the direction of work and advise the strategies on cancer prevention and control. It is 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. In 2002, the **Cancer Expert Working Group on Cancer Prevention and Screening (CEWG)** was established under the CCC 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.

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 local recommendations on cancer prevention and screening for seven common cancers in Hong Kong, namely cervical, colorectal, breast, prostate, lung, liver, and nasopharyngeal cancers.[3] These cancers were selected for review based on 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 kept a close watch over emerging evidence of primary and secondary prevention of major cancers and updated its recommendations from time to time. The CEWG last met in June 2016 reviewed the local epidemiology, latest scientific evidence, local and overseas practices of screening for persons at increased risk of the aforementioned seven major cancers as well as for average risk with deliberation on the applicability in the local context. The latest recommendations and the rationale are presented in seven single documents. An overview of the latest recommendations is at Annex II.

8. Separate sets of leaflets or booklets on the CEWG recommendations targeting the lay public are also available at www.chp.gov.hk/en/content/9/25/31932.html to help the public make 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. Screening tests 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.

11. In examining whether to introduce a population-based screening programme for a specific disease, the Government needs to carefully consider a number of factors, including the seriousness and prevalence of the disease locally, accuracy and safety of the screening tests for the local population, as well as 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.

12. 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. For details, please visit the websites of Cervical Screening Programme at: www.cervicalscreening.gov.hk and Colorectal Cancer Screening Pilot Programme at: www.colonscreen.gov.hk.[5,6]

13. 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 including strong family history, genetic mutations or other personal risk factors.

Cancer Expert Working Group on Cancer Prevention and Screening
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Annex I

Table 1. Ten commonest cancers in Hong Kong in 2014

Both Sexes			Male			Female		
Rank	Site	No.	Rank	Site	No.	Rank	Site	No.
1	Colorectum	4,979	1	Lung	3,014	1	Breast	3,868
2	Lung	4,674	2	Colorectum	2,862	2	Colorectum	2,117
3	Breast	3,883	3	Prostate	1,709	3	Lung	1,660
4	Liver	1,847	4	Liver	1,369	4	Corpus uteri	997
5	Prostate	1,709	5	Stomach	681	5	Thyroid	648
6	Stomach	1,146	6	Nasopharynx	614	6	Ovary etc.	576
7	Corpus uteri	997	7	Non-melanoma skin	516	7	Liver	478
8	Non-melanoma skin	941	8	Non-Hodgkin lymphoma	492	8	Cervix	472
9	Non-Hodgkin lymphoma	918	9	Kidney and other urinary organs except bladder	448	9	Stomach	465
10	Nasopharynx	834	10	Lip, oral cavity and pharynx except nasopharynx	381	10	Non-Hodgkin lymphoma	426
	All sites	**29,618**		**All sites**	**15,101**		**All sites**	**14,517**

Source: Hong Kong Cancer Registry, Hospital Authority

Table 2. Ten leading causes of cancer deaths in Hong Kong in 2015

Both Sexes			Male			Female		
Rank	Site	No.	Rank	Site	No.	Rank	Site	No.
1	Lung	4,031	1	Lung	2,604	1	Lung	1,427
2	Colorectum	2,073	2	Colorectum	1,177	2	Colorectum	896
3	Liver	1,571	3	Liver	1,139	3	Breast	637
4	Pancreas	691	4	Stomach	410	4	Liver	432
5	Stomach	669	5	Prostate	404	5	Pancreas	346
6	Breast	637	6	Pancreas	345	6	Stomach	259
7	Prostate	404	7	Nasopharynx	259	7	Ovary	208
8	Non-Hodgkin lymphoma	358	8	Oesophagus	242	8	Cervix uteri	169
9	Leukaemia	341	9	Non-Hodgkin lymphoma	198	9	Non-Hodgkin lymphoma	160
10	Nasopharynx	327	10	Leukaemia	185	10	Leukaemia	156
	All sites	**14,316**		**All sites**	**8,345**		**All sites**	**5,971**

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

Updated CEWG recommendations on cancer screening for seven selected cancers

Cancer	For asymptomatic population at average risk	For persons at increased risk
A. 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.
B. 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 three to 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.

<table>
<tr><th>Cancer</th><th>For asymptomatic population at average risk</th><th>For persons at increased risk</th></tr>
<tr><td></td><td></td><td>* 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.</td></tr>
<tr><td>C. 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 benefits and harms.</td><td>
<table>
<tr><th colspan="2">Local definition of increased risk of female breast cancer</th></tr>
<tr><td>High risk (with any one of the risk factors)</td><td>(a) Carriers of BRCA1/2 deleterious mutations confirmed by genetic testing
(b) Family history of breast cancer (BC)/ovarian cancer, such as
– any 1° female relative being a confirmed carrier of BRCA1/2 deleterious mutations;
– any 1° or 2° female relative with both BC and ovarian cancer;
– any 1° female relative with bilateral BC;
– any male relative with history of BC;
– two 1° female relatives with breast cancer AND one of them being diagnosed age ≤50;
– two or more 1° or 2° female relatives with ovarian cancer;
– three or more 1° or 2° female relatives with breast cancer OR a combination of BC and ovarian cancer
(c) Personal risk factors
– history of radiation 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
– history of lobular carcinoma in situ
– history of atypical ductal hyperplasia or atypical lobular hyperplasia</td></tr>
<tr><td>Moderate risk</td><td>Family history of only 1 first-degree female relative with breast cancer diagnosed at or below 50 years of age; or 2 first-degree female relatives diagnosed to have breast cancer after the age of 50.</td></tr>
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Cancer	For asymptomatic population at average risk	For persons at increased risk
		5. <u>Women at high risk</u> should see a cancer specialist, 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; – consider additional annual screening by magnetic resonance imaging (MRI) if they are confirmed carriers of *BRCA1/2* deleterious mutations, or had radiation to the chest for treatment between age 10 and 30 years (e.g. for Hodgkin's disease). 6. <u>Women at moderately increased risk</u> should discuss with their doctors about the pros and cons of breast cancer screening before deciding whether to start mammography screening every two to three years. MRI is not recommended. * *Recommendation on genetic testing for BRCA1/2 mutations* – *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 counseling, 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 counseling.*

Cancer	For asymptomatic population at average risk	For persons at increased risk
D. 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 to seek advice from doctors conversant with the pros and cons of the screening test as well as subsequent clinical management, 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.
E. 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.	
F. Liver cancer	1. Routine screening with alpha-fetoprotein (AFP) or ultrasonography (USG) for asymptomatic persons at average risk is not recommended.	2. People at higher risk of hepatocellular carcinoma (HCC), namely carriers of hepatitis B virus (HBV) or hepatitis C virus (HCV), and those with cirrhosis regardless of cause, may consider receiving periodic screening (e.g. every 6-12 months) with AFP and USG in consultation with doctors with relevant expertise.
G. Nasopharyngeal cancer (NPC)	1. There is insufficient evidence to recommend a population-based NPC screening programme using IgA against specific Epstein-Barr virus (EBV) viral antigens and EBV DNA test.	2. Family members of nasopharyngeal cancer (NPC) patients may consider to seek advice from doctors with relevant expertise before making an informed decision about screening.

References

[1] Hong Kong Cancer Registry, Hospital Authority. Overview of Hong Kong Cancer Statistics of 2014. Available from: www3.ha.org.hk/cancereg/pdf/overview/Summary%20of%20CanStat%202014.pdf.

[2] Department of Health, Hong Kong SAR Government. Number of Deaths by Leading Causes of Death by Sex by Age in 2015. Available from: www.chp.gov.hk/en/data/4/10/27/340.html.

[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, 2017.

[6] Colorectal Cancer Screening Pilot Programme. Hong Kong SAR: Department of Health, 2017.