Non-Communicable Diseases Watch
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衞生防護中心 Centre for Health Protection
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Cancer Risk and Screening

Key Messages

※ All people are at risk for cancer, but some people are at increased risk for cancer, such as those with a family history of cancer or carriers of certain gene mutations.

※ Ascertaining whether personal risk level for cancer is 'average' or 'increased' can help individuals take appropriate cancer-preventive actions, such as lifestyle and behaviour changes or accepting a cancer screening test as recommended.

※ The Hong Kong Government's Cancer Expert Working Group on Cancer Prevention and Screening (CEWG) has made recommendations on the appropriateness, method and frequency of screening for people at average and increased risk of developing certain cancers.

※ Individuals considering a cancer screening test should seek advice from family doctors about their own needs, especially in the context of their personal and family medical history, and obtain full information on the potential risks and benefits of having the screening test.

※ Adoption of a healthy lifestyle and other cancer prevention measures can substantially reduce individual's risk of developing cancer. For more information about cancer screening and prevention, please visit www.chp.gov.hk/en/content/9/25/31932.html.

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Cancer Risk and Screening

Cancer is a diverse group of diseases in which body cells multiply out of control. These abnormal cells invade and spread to other parts of the body to cause damage. While all people are at risk for cancer, the risk is not uniform throughout the population and some people are at increased risk for cancer.

Categories of Personal Risk for Cancer

Many factors can increase an individual's risk of developing cancer. To assess an individual's susceptibility of developing specific cancer, doctors would consider family and personal medical history, lifestyle factors (such as smoking and drinking) and exposure to carcinogens (such as asbestos and ultraviolet radiation). Based on the number of significant risk factors an individual has and how these risk factors increase the odds of developing cancer, personal risk for cancer can generally be categorised into 'average' (i.e. the chance of developing cancer is the same as or very similar to that of the general population) or 'increased' (i.e. the chance of developing cancer is higher than the general population), for which the recommended screening and risk reduction measures are different.

Family History and Inherited Cancer Genes

Positive family history is one of the most important but non-modifiable risk factors for many cancers. The more blood relatives who have had the same or related types of cancer and the younger they were at diagnosis, the stronger one's family history is. For example, having one first-degree relative (such as mother or sister) with breast cancer would double a woman's risk of having breast cancer, whereas having an affected second-degree relative (such as grandmother or aunt) would increase her risk by 50%.[1] Men who had first-degree relatives (such as father or brother) with prostate cancer were also about twice as likely to develop prostate cancer compared with men in the general population. The lifetime risk would be more than 4 times if the first-degree relative was younger than 60 years when diagnosed.[2] Compared with individuals who did not have a family history of colorectal cancer, those having at least one first-degree relative with colorectal cancer were about twice as likely to develop the same disease. The corresponding risk increased to about 4 times as likely with at least two affected first-degree relatives.[3]

Less often, some people are at high risk of particular types of cancer and developing the disease at an earlier age because they have inherited a deleterious gene. *BRCA* gene mutation (change) is one of the most common genetic risk factors linked with an increased risk of several cancers, including cancers of the breast, ovary and prostate. Mutations in *BRCA1* or *BRCA2* genes are associated with an approximately 40% to 85% lifetime risk of female breast cancer, being the most common cause of hereditary breast cancer.[4-6] Women inheriting a deleterious *BRCA1* or *BRCA2* gene might also face up to a 63% lifetime risk for ovarian cancer. The risks were much higher than the general female population risk of about 12% for breast cancer and 1-2% for ovarian cancer.[7, 8] For men, carriers of *BRCA1* mutation would have 3.8 times increased risk of prostate cancer up to age 65 years than the general male population; the corresponding risk for *BRCA2* mutation carriers could be 5-7 times higher.[9]

Lynch Syndrome (formerly known as Hereditary Non-polyposis Colorectal Cancer) and familial adenomatous polyposis are inherited conditions that give a person a higher risk of cancers, in particular colorectal cancer. For carriers of the mutated gene for Lynch syndrome, lifetime risk of colorectal cancer is estimated to be as high as 50-80%. For carriers of the mutated gene for familial adenomatous polyposis, there is nearly 70-100% lifetime risk of colorectal cancer.[10] People who think their family history is of concern could talk to a doctor. If necessary, the doctor may refer them for genetic counselling and further advice.

Early Detection in Individuals at High Risk for Cancer

Cancer screening aims to detect early cancer or pre-cancerous changes before symptoms appear, so that early treatment can be initiated. However, not all screening tests are 100% accurate. In some situations, screening would confer more harms than benefits. The potential harms can be anxiety or complications due to unnecessary investigation for false positive results.

Ascertaining whether personal risk level for cancer is 'average' or 'increased' can help individuals take appropriate cancer preventive actions, such as lifestyle and behaviour changes or receiving recommended cancer screening. Based on review of local and international evidence and practices, the Hong Kong Government's Cancer Expert Working Group on Cancer Prevention and Screening (CEWG) makes recommendations on the appropriateness, method and frequency of screening for people at average and increased risk of developing certain cancers.

For colorectal cancer, CEWG recommends that average risk individuals aged 50 to 75 should consult their doctors to consider screening by one of the screening methods including: annual or biennial faecal occult blood test; or sigmoidoscopy every 5 years; or colonoscopy every 10 years. Individuals at increased risk of colorectal cancer, such as those with a family history of colorectal cancer among first-degree relatives, or those who are known carriers of mutated genes of hereditary colorectal cancer syndromes should receive regular and more frequent colon surveillance through endoscopy examination starting at younger age (Table 1).[11]

As to breast cancer screening, there is insufficient evidence to recommend for or against population-based mammography screening for asymptomatic women at average risk in Hong Kong. For women at high risk of breast cancer—including those who have a BRCA mutations, or with strong family history of breast or ovarian cancer, they are recommended to have mammography screening every year (Table 1).[11]

Individuals considering cancer screening should seek advice from their family doctors about their own needs and obtain full information on the potential risks and benefits of having the screening test.

Table 1: Examples of CEWG's recommendation on colorectal cancer screening and breast cancer screening for people at *HIGH* risk[11]

Cancer Type	High Risk Individuals	Recommendations
Colo-rectal cancer	Individuals with one first-degree relative diagnosed with colorectal cancer at or below 60 years of age	• Colonoscopy should be performed every 5 years beginning at the age of 40 or 10 years prior to the age at diagnosis of the youngest affected relative, but not earlier than 12 years of age
	Individuals with more than one first-degree relatives with colo-rectal cancer irrespective of age at diagnosis	
	Carriers of mutated gene of Lynch Syndrome	• Colonoscopy every 1-2 years from age 25 onwards
	Carriers of mutated gene of familial adenomatous polyposis	• Sigmoidoscopy every 2 years from age 12
Breast cancer	Carriers of *BRCA1* or *BRCA2* deleterious mutations confirmed by genetic testing	• Seek a breast cancer specialist for advice; • 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), which-ever is earlier, but not earlier than age 30; • Consider additional annual screening by magnetic resonance imaging if they are confirmed carriers of *BRCA1* or *BRCA2* deleterious mutations, or had radiation to the chest for treatment between age 10 and 30 years.
	Family history of breast cancer or ovarian cancer, such as women with any first-degree female relative being a confirmed carrier of *BRCA1* or *BRCA2* deleterious mutations	
	Individuals with personal risk factors, such as - 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 or lobular carcinoma in situ; - history of atypical ductal hyper-plasia or atypical lobular hyperplasia	

Focus on Primary Prevention of Cancer

It is noteworthy that having a family history of cancer or carrying deleterious gene mutations does not mean that a person will definitely get cancer. In fact, hereditary cancers are much less common than cancers due to unhealthy lifestyle practices (such as smoking). According to the World Health Organization, between 30-50% of all cancers can currently be prevented by modifying or avoiding risk factors and implementing evidence-based prevention strategies.[12] An individual's risk of developing cancer can substantially be reduced by adoption of a healthy lifestyle and other cancer prevention measures (Box 1). For more information about cancer screening and prevention, please visit www.chp.gov.hk/en/content/9/25/31932.html. You are most welcome to visit and share the Healthy League Facebook page (www.fb.com/HealthyLeague) to prevent cancer together with Captain Anti-Cancer and other Healthy League members.

Box 1: Cancer Prevention Measures[13]

- ✓ Do not smoke, and avoid secondhand smoke
- ✓ Avoid alcohol consumption
- ✓ Have a balanced diet, avoid processed meat and limit red meat and foods high in salt
- ✓ Be physically active in everyday life
- ✓ Maintain a healthy body weight and waist circumference
- ✓ Get vaccinated against hepatitis B virus (HBV) and human papillomavirus (HPV)
- ✓ Protect against excessive sunlight exposure
- ✓ Observe occupational safety and health rules to minimise occupational exposure of cancer-causing substances
- ✓ Practise safer sex

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(Captain Anti-Cancer and other Healthy League members)

World Diabetes Day 2017
"Diabetes and Women - Our Right to a Healthy Future"

The World Diabetes Day (WDD) is celebrated every year on 14 November. It was designated in 1991 by the International Diabetes Federation (IDF) and the World Health Organization to address the growing concerns about the escalating health threat that diabetes poses. The theme for WDD this year is "**Diabetes and Women - Our Right to a Healthy Future**". The Department of Health and Diabetes Hongkong had organized a publicity/educational event on 14 November 2017 with the Director of Health officiating the opening of the event. Endocrinologists and dietitians shared with about 60 participants on prevention of diabetes, as well as food labeling in making healthy food choices. It was followed by a supermarket tour to offer practical advice to empower women to have a positive impact on their families.

Women are often the caretakers of the family. Women can create tasty yet healthy dishes for their loved ones especially those with diabetes. Healthy dishes do taste good. The key is to pick the right ingredients and cooking methods, some delicious diabetes-friendly recipes are available at http://www.pco.gov.hk/tc_chi/resource/files/DM_Recipe_booklet.pdf (Chinese version only). Exercise is equally important in the control and prevention of diabetes. Not only can women act as role models to lead an active lifestyle and encourage their family members to incorporate exercise into their everyday life, women can also be a good partner to keep family members with diabetes motivated and adhere to the habit of exercising. In fact, both will benefit from regular exercise.

Women are key motivators for their family members to take control of their health and well-being, and your family doctor would be your good companion in health. Family doctors provide patients with continuous, comprehensive care, offer you practical advice on how to support and take care of your family members or friends with chronic diseases like diabetes. Do not hesitate to find a family doctor if you don't already have one! You may wish to try finding one suiting your needs at the Department of Health's Primary Care Directory at www.familydoctor.gov.hk

Data Brief:
Leading Cancer Sites in Hong Kong in 2015

In 2015, there were 30 318 new cancer cases diagnosed in Hong Kong. Cancers of the colorectum (16.6% of all new cancer cases), lung (15.7%), breast (12.9%), prostate (6.0%) and liver (5.9%) were the most frequent newly diagnosed cancers. In men, lung cancer (19.1%) was the most common newly diagnosed cancer. In women, the most common newly diagnosed cancer was breast cancer (26.1%). For more information about local cancer statistics, please visit the Hong Kong Cancer Registry website at http://www3.ha.org.hk/cancereg/default.asp.

Top 5 leading cancer sites by sex, 2015

Rank	Male			Female		
	Site	Number	Relative frequency	Site	Number	Relative frequency
1	Lung	2 930	19.1%	Breast	3 900	26.1%
2	Colorectum	2 891	18.8%	Colorectum	2 145	14.4%
3	Prostate	1 831	11.9%	Lung	1 818	12.2%
4	Liver	1 356	8.8%	Corpus uteri	978	6.5%
5	Stomach	686	4.5%	Thyroid	641	4.3%
	Other Sites	5 678	36.9%	Other Sites	5 464	36.6%
	All Sites	15 372	100.0%	All Sites	14 946	100.0%

Source: Hong Kong Cancer Registry, Hospital Authority.

Non-Communicable Diseases (NCD) WATCH *is dedicated to promote public's awareness of and disseminate health information about non-communicable diseases and related issues, and the importance of their prevention and control. It is also an indication of our commitments in responsive risk communication and to address the growing non-communicable disease threats to the health of our community. The Editorial Board welcomes your views and comments. Please send all comments and/or questions to so_dp3@dh.gov.hk.*