Taking Care of Your Breasts – Breast Cancer Prevention and Screening

**Key Facts**

- Breast cancer is the most common cancer among women, both globally and locally.
- In Hong Kong, the numbers of new cases and deaths attributed to breast cancer among women have increased substantially in the past decades. In 2011, there were 3,419 new cases of female breast cancer. In 2012, breast cancer was the third leading cause of cancer deaths in females, killing 601 women.
- Breast cancer risk can be reduced through adoption of healthy lifestyle. Lives could be saved by measures including early recognition of breast cancer symptoms and appropriate use of breast cancer screening tests. When detected early and treated according to best practice, breast cancer has a high cure rate.

**Breast Cancer Prevention Tips**

*Adopting healthy lifestyle and measures*

- Maintain an optimal body weight and waist circumference; be physically active; have a balanced diet; do not drink alcohol; do not smoke and avoid secondhand smoke.
- Have a childbirth at an earlier age and breastfeed each child for a longer duration.

*Appropriate use of breast cancer screening*

- Women who are at increased risk of developing breast cancer (such as with family history of breast cancer; being a carrier of certain gene mutations, e.g., BRCA1 or BRCA2) should seek advice from doctors about whether they should receive breast cancer screening, starting age and the frequency of screening.
- The Cancer Expert Working Group on Cancer Prevention and Screening concludes that there is insufficient evidence to recommend for or against mass mammography screening for general female in Hong Kong.

*Be breast aware - recognising breast cancer symptoms early*

- Breast lump; a change in the size or shape of the breast; a change in skin texture of the breast or nipple; a rash around the nipple(s); in-drawing of the nipple(s); discharge from one or both nipples; new and persistent discomfort or pain in one of the breast or armpit; or a new lump or thickening in the armpit.
- Women should promptly report any abnormal breast changes to their doctors.
Taking Care of Your Breasts – Breast Cancer Prevention and Screening

Breast cancer is a malignant tumor that develops in the breast tissue, primarily in the milk ducts (ductal carcinoma) or glands (lobular carcinoma). It is by far the most common cancer among women. Men can but rarely get it too. In 2012, there were over 1.67 million incident cases of female breast cancer globally. Besides, breast cancer is an important cause of cancer-related death, killing about 522,000 women worldwide in 2012 (Table 1).

Table 1: Global burden of female breast cancer, 2012

<table>
<thead>
<tr>
<th>Number of incident cases</th>
<th>1,677,000</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age-standardised incidence rate*</td>
<td>43.3</td>
</tr>
<tr>
<td>Number of deaths</td>
<td>522,000</td>
</tr>
<tr>
<td>Age-standardised death rate*</td>
<td>12.9</td>
</tr>
<tr>
<td>Ranking (defined by total number of cases among females)</td>
<td>1</td>
</tr>
</tbody>
</table>

Note: *Per 100,000 world standard population.

Risk Factors of Breast Cancer

Breast cancer usually begins as a lump. While most lumps (such as fibroadenomas or cysts) are benign, approximately 10% of breast lumps ultimately lead to the diagnosis of breast cancer. In terms of risk, a number of non-modifiable, modifiable and probable factors influence the development of breast cancer (Box 1). In women, established non-modifiable risk factors are advancing age, having a family history of or genetic susceptibility to breast cancer, early menarche (<12 years of age) or late menopause (>55 years of age), dense breast tissues on mammogram, personal history of breast cancer, ovarian or endometrial cancer, and certain breast diseases (such as atypical hyperplasia or lobular carcinoma in situ). For modifiable risk factors, they include never having given birth, having first child at an older age (>30 years of age), not breastfeeding, use of hormonal replacement therapy or oral contraceptives, history of radiation therapy to the chest at young age (such as <30 years of age), being overweight or obese after menopause, alcohol consumption, and physical inactivity. Epidemiological studies have also identified some probable risk factors, such as smoking (active or passive), diabetes and night shift work. Dietary factors including fat intake on breast cancer risk have also been assessed. However, findings are generally inconclusive.

Box 1: Risk factors of breast cancer in women

### Non-modifiable Risk Factors

**Advancing age** – The incidence of breast cancer is very low in females below the age of 15, but increases very steeply (in the order of about a hundred-fold) by the age of 45.

**Family history of breast cancer** – Compared with women who had no affected relative, those who had one first-degree relative (such as mother and sisters) with breast cancer would have about twice the risk of having the same disease. For those who had one second-degree relative (such as grandmother and aunts) having breast cancer, the corresponding risk would also increase by 50%. Besides, the risk increased with increasing number of first-degree relative(s) who had breast cancer and younger the age at which the first-degree relative(s) developed breast cancer.

**Hereditary predisposition** – About 5% to 10% of breast cancer cases are thought to be hereditary. The two most common causes of hereditary breast cancer are an inherited deleterious mutation in the BRCA1 and BRCA2 genes.

**Early menarche (<12 years of age) or late menopause (>55 years of age)** – The breast cancer risk increased by about 5% for 1-year younger at menarche and 2.9% for 1-year delay in age at menopause.

**Dense breast tissues** – Women can examine their breast tissue density by using mammography. Dense breast tissues as seen on a mammogram means they have more fibrous and glandular tissues and less fatty tissues. Compared with women whose breasts had a density of <5% of the total breast tissues, women whose breasts had a density of 5% – 24%, 25% – 49%, 50% – 74%, and 75% or more were about 1.8, 2.1, 2.9, and 4.6 times as likely to develop breast cancer respectively.
Box 1: Risk factors of breast cancer in women (continued)

Previous breast cancer – Woman with cancer in one breast would have 3- to 4-fold increased risk of developing a new cancer in the other breast or in another part of the same breast.4

Breast diseases – Atypical hyperplasia means the cells in the ducts or lobules develop in an unusual and distorted pattern. Women with atypical hyperplasia were about 3 times as likely to develop breast cancer.16 Compared with the general population, women with lobular carcinoma in situ were about 8- to 10-times as likely to develop breast cancer.17,18

Modifiable Risk Factors

Never having given birth or having first child late in life – Compared with women having live birth, women without childbirth was associated with a 30% increase in breast cancer risk. Compared with women who had first birth before the age of 20 years, those giving first birth after the age of 35 years had 40% increased risk of breast cancer.19

Not breastfeeding – Breastfeeding protects women against developing breast cancer. The risk of having breast cancer in ever-breastfed women was 14% lower than never-breastfed women. Besides, the longer a woman breastfeeds, the lower her risk of breast cancer.20

Use of hormonal replacement therapy (HRT) or oral contraceptives – Compared with women who never used HRT, women who ever used HRT were 23% more likely to have breast cancer. Ever users of oral contraceptives had approximately 10% increased risk of breast cancer than never users.20

History of receiving radiation therapy to the chest before age 30 – Women treated for certain cancer (such as Hodgkin’s lymphoma) at young age with moderate- to high-dose chest radiation (≥20 Gy) had elevated risk of breast cancer. The cumulative incidence of breast cancer for these women by 40 to 45 years of age ranged from 13 to 20% while the cumulative incidence among general population by age 45 was only 1%.21

Being overweight or obese after menopause – Compared with normal weight women, the risk of breast cancer was about 50% higher for overweight women and more than twice for obese women.22

Alcohol consumption – Compared with no drinking, light drinking (consuming ≤1 drink or ≤ 12.5g of ethanol per day) was associated with 4% increased risk of breast cancer, and heavy drinking (consuming ≥3 drinks per day) with 40% to 50% increased risk.23

Physical inactivity – Globally, physical inactivity was estimated to be the main cause for approximately 21% to 25% of breast cancer.24

Probable Risk Factors

Smoking – Compared with never smokers, current and ex-smokers had a respective 12% and 9% increased risk of breast cancer. For women who initiated smoking before first birth, the relative breast cancer risk was 21% higher.8 In premenopausal women, the risk of breast cancer among those who had regular exposure to environmental tobacco smoke was 68% to 120% higher.9

Diabetes – Compared with non-diabetic women, postmenopausal women with type 2 diabetes had about 12% increased risk of breast cancer. No increased risk was shown for women at premenopausal ages or with type 1 diabetes.7,22

Night shift work – Ever exposure to night shift work was associated with 19% increase in breast cancer risk. For each increment of 5-year night shift, there would be a corresponding 3% increased risk of female breast cancer.10 This might be due to changes in levels of certain hormones, such as melatonin whose production is affected by the body’s exposure to light.4,25
Burden of Breast Cancer in Hong Kong

In Hong Kong, there had been a gradual increase in both incidence and death rates of breast cancer among women since the early 1980s (Figure 1).\textsuperscript{26,27} After adjusting for population ageing, however, the age-standardized incidence and death rates of breast cancer among women in Hong Kong were lower than that reported in many Western countries (Figure 2).\textsuperscript{1}

**Figure 1: Incidence and death rates of breast cancer among women, 1983-2011**

![Incidence and death rates of breast cancer among women, 1983-2011](image)

Sources: Hong Kong Cancer Registry of Hospital Authority, Department of Health, and Census and Statistics Department.

**Figure 2: International comparison of age-standardised incidence and death rates of female breast cancer, 2012**

<table>
<thead>
<tr>
<th>Country</th>
<th>Age-standardised incidence rates (per 100,000 world standard population)</th>
<th>Age-standardised death rates (per 100,000 world standard population)</th>
</tr>
</thead>
<tbody>
<tr>
<td>United Kingdom</td>
<td>95.0</td>
<td>17.1</td>
</tr>
<tr>
<td>United States of America</td>
<td>92.9</td>
<td>17.1</td>
</tr>
<tr>
<td>Germany</td>
<td>91.6</td>
<td>15.5</td>
</tr>
<tr>
<td>Finland</td>
<td>89.4</td>
<td>15.5</td>
</tr>
<tr>
<td>Australia</td>
<td>86.0</td>
<td>14.9</td>
</tr>
<tr>
<td>New Zealand</td>
<td>85.0</td>
<td>14.4</td>
</tr>
<tr>
<td>Sweden</td>
<td>80.4</td>
<td>14.0</td>
</tr>
<tr>
<td>Canada</td>
<td>79.8</td>
<td>13.9</td>
</tr>
<tr>
<td>Austria</td>
<td>68.0</td>
<td>13.6</td>
</tr>
<tr>
<td>Singapore</td>
<td>65.7</td>
<td>13.4</td>
</tr>
<tr>
<td>Hong Kong*</td>
<td>61.0</td>
<td>9.8</td>
</tr>
<tr>
<td>Korea</td>
<td>52.1</td>
<td>9.5</td>
</tr>
<tr>
<td>Japan</td>
<td>51.5</td>
<td>6.1</td>
</tr>
</tbody>
</table>

Note: * Age-standardised incidence rate in 2011.
Sources: Globocan 2012, International Agency for Research on Cancer; Hong Kong Cancer Registry of Hospital Authority, Department of Health, and Census and Statistics Department.
In 2011, the Hong Kong Cancer Registry of Hospital Authority recorded 3,419 new cases of female breast cancer, accounting for 26.4% of all new cancers among women in that year. While 81.7% of new cases of female breast cancer occurred in people aged 45 and above, the median age of first diagnosis was 54 years.26

Stage of diagnosis is an important prognostic factor of breast cancer. In Hong Kong, the 5-year relative survival rate for women diagnosed with stage I breast cancer was 98%, but survival rate declined to 66% for stage III (i.e. when cancer has spread to nearby tissues or lymph nodes) and 19% for stage IV (i.e. when cancer has spread to distant organs, such as the lungs, bones, liver or brain).28 In 2011, over one-fifth of all new female breast cancer cases were diagnosed at stage III (14.6%) or stage IV (6.8%).26 In 2012, breast cancer was the third most common cause of cancer deaths among women, killing 601 women and resulting in 8,842 potential years of life lost (PYLL) at age 75 (Table 2).27

<table>
<thead>
<tr>
<th>Table 2: Fast statistics on female breast cancer</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>New cases, 2011</strong></td>
</tr>
<tr>
<td>Number of new cases:</td>
</tr>
<tr>
<td>Crude incidence rate*:</td>
</tr>
<tr>
<td>Age-standardised incidence rate**:</td>
</tr>
<tr>
<td>Proportion of all new cancers in women:</td>
</tr>
<tr>
<td>Median age of first diagnosis (years):</td>
</tr>
<tr>
<td>Lifetime risk before age 75:</td>
</tr>
<tr>
<td><strong>Deaths, 2012</strong></td>
</tr>
<tr>
<td>Number of registered deaths:</td>
</tr>
<tr>
<td>Crude death rate*:</td>
</tr>
<tr>
<td>Age-standardised death rate**:</td>
</tr>
<tr>
<td>Proportion of all registered cancer deaths in women:</td>
</tr>
<tr>
<td>Median age of death (years):</td>
</tr>
<tr>
<td>Potential years of life lost at age 75:</td>
</tr>
</tbody>
</table>

Notes: *Per 100,000 population; **Per 100,000 world standard population.
Sources: Hong Kong Cancer Registry of Hospital Authority, Department of Health, and Census and Statistics Department.
Breast Cancer Prevention and Detection

While some risk factors of breast cancer may not be amenable to change (such as age and genetic predisposition), breast cancer risk can potentially be prevented or reduced by adopting a healthy lifestyle. Lives could be saved by appropriate use of breast cancer screening tests, and early recognition of breast cancer symptoms for early detection and prompt treatment.

Adopting Healthy Lifestyle and Measures to Prevent or Lower Breast Cancer Risk

Primary prevention through adoption of a healthy lifestyle remains crucial to breast cancer prevention. Globally, an estimated 21% of all breast cancer deaths in 2001 could have been prevented by avoiding overweight and obesity, being physically active and refraining from alcohol use. Thus, members of the public are urged to:

* Maintain an optimal body weight and waist measurement. For Asian women, aim for a body mass index (BMI) between 18.5 and 22.9. Irrespective of BMI, they should also keep their waist circumference below 80 cm (~ 32 in).
* Be physically active and limit sedentary habits (such as TV watching). For overall breast cancer risk, physical activity was associated with 15 to 20% decreased risk and a 6% risk reduction for each additional hour of physical activity per week. Adult should do at least 150 minutes of moderate-intensity physical activity (e.g. brisk walking, swimming slowly or cycling leisurely) or 75 minutes of vigorous-intensity physical activity (e.g. jogging, fast swimming or rope jumping), or equivalent amounts throughout the week.
* Do not drink alcohol. As supported by sufficient scientific evidence, alcohol is a Group 1 carcinogen (cancer-causing substance), belonging to the highest risk category as tobacco smoke. Besides, there is no safe level for alcoholic consumption when it comes to cancer risk. The cancer risk is the same for beer, wine or spirits, and the risk rises with increasing alcohol use.
* Have a balanced diet with at least 5 servings of fruit and vegetables a day. Eat more whole-grains or unprocessed cereals. As reported in a meta-analysis based on prospective studies, every 10 g of dietary fibre increment per day was associated with 5% decreased risk of breast cancer. It is also important to limit consumption of foods that are high in fat.
* Do not smoke and avoid secondhand smoke. Current smokers can call the Integrated Smoking Cessation Hotline of the Department of Health (DH) at 1833 183 for free quit smoking advice and help.
* Have a childbirth at an earlier age and breastfeed each child for longer duration.

For more information about healthy living, please visit the Central Health Education Unit website of DH at http://www.cheu.gov.hk, or call the 24-hour Health Education Hotline at 2833 0111.

Appropriate Use of Breast Cancer Screening

Cancer screening means examining people without symptoms in order to detect cancer and offer them earlier treatment. Mammography has been the standard screening modality for women at increased risk of breast cancer. In many counties, however, there are increasing concerns over its effectiveness to prevent breast cancer deaths. Based on the existing evidence, the Government’s Cancer Expert Working Group on Cancer Prevention and Screening (CEWG) recommends that:

* Women who are at increased risk of developing breast cancer (such as with family history of breast cancer; being a carrier of certain gene mutations, e.g. BRCA1 or BRCA2) should seek advice from doctors about whether they should receive breast cancer screening, starting age and the frequency of screening.
* There is insufficient evidence to recommend for or against mass mammography screening for general female in Hong Kong.
It is noteworthy that every screening test, together with the subsequent confirmatory tests and treatments, has associated potential risks which sometimes may outweigh the benefits. Besides, all screening tests have their limitations and they are not 100% accurate. There are false positive and false negative results. When a woman with abnormal screening test result may in fact do not have breast cancer (false positive result), she may be subjected to unnecessary anxiety, investigations, treatments and its complications. It was estimated that mammography screening resulted in 30% increase in over-diagnosis and over-treatment. On the other hand, a woman with normal screening test result may indeed have breast cancer (false negative result) but she will be falsely reassured leading to delay in seeking appropriate treatment. Thus, women considering mammography screening should obtain full information from doctors on potential benefits and risks of having the test.


**Be Breast Aware - Recognising Breast Cancer Symptoms Early**

Increasing awareness of the signs and symptoms of breast cancer contributes to detection of the disease in early stages and improves its chance of cure. Although breast cancer may have no or subtle symptoms in its early stage of development, in many cases it is still possible to recognise symptoms early.

Here are some changes in the breast which can be a symptom of breast cancer:

* Breast lump;
* A change in the size or shape of the breast;
* A change in skin texture of the breast or nipple;
* A rash around the nipple(s);
* In-drawing of the nipple(s);
* Discharge from one or both nipples;
* New and persistent discomfort or pain in one of the breast or armpit; and
* A new lump or thickening in the armpit.

Keep in mind that not all breast changes point to cancer. In order to spot unusual changes early on, women need to be familiar with the normal look, feel and cyclical changes of their breasts. If any irregular change is detected, women should promptly report to their family doctors for proper examination.

**Seeking Appropriate Treatment and Supportive Services**

The diagnosis of breast cancer is not a death sentence. In fact, breast cancer has high cure rate if it is detected early and treated according to best practice. Largely dependent on the stage of the disease, treatment modalities may include one or combination of the following: surgery, chemotherapy, radiation therapy, hormonal therapy and targeted therapy. Thus, breast cancer patients should face the disease positively by understanding the disease and its treatment; leading a healthy lifestyle; working closely with the health care professionals involved in the care; and taking part in support groups to enhance the ability to self-care and for mutual support.
References


Alcohol use is one of the most important known causes of human cancer, including breast cancer in women. In fact, there is no ‘safe’ level for alcohol consumption when it comes to cancer risk. The more alcohol a woman drinks, the higher her risk of developing cancer. In Hong Kong, a certain proportion of women reported alcohol consumption. According to the Behavioural Risk Factor Surveillance System of DH, the proportion of community-dwelling women aged 18-64 who reported to have consumed at least one alcoholic drink in the 30 days before enumeration between 2005 and 2012 ranged from 17.1% (in 2006) to 26.2% (in 2007). In 2012, 19.3% of women reported so.

Apart from increasing cancer risk, there are many other reasons that women should control their drinking or should not drink at all. For example, female heavy chronic drinkers are prone to suffer from menstrual problems, infertility and early menopause. Pregnant women who drink alcohol have higher chance of spontaneous abortion or giving birth to babies with birth defects, growth and developmental problems. Heavy drinking can make women more vulnerable to violence, including sexual assault. Under the influence of alcohol, women would also have a higher risk of unprotected sex, thereby increasing their risk of contracting sexually transmitted diseases or having unplanned pregnancy. Thus, women should carefully consider various risks associated with drinking, and the best way to protect against alcohol-related harms is not to drink at all.
Joyful Fruit Month

DH has launched the annual “Joyful Fruit Day” since the school year 2006/07 as one of the highlights of the EatSmart@school.hk Campaign to promote daily fruit eating habit among teachers and students. Moreover, DH has raised the profile of the event to “Joyful Fruit Month” since the school year 2012/13 to promote fruit eating in schools throughout the month of April.

This year, under the theme “Enjoy Fruit Every Day”, DH designated April again as “Joyful Fruit Month”. Extending the promotion beyond schools to the community by having the Ocean Park as a special partner, it is hoped more members of the public would develop a good habit of eating fruit daily. For details, please refer to the Joyful Fruit Month webpage of EatSmart@school.hk Campaign website (http://school.eatsmart.gov.hk/en/template/index.asp?pid=2008&id=3175). The webpage also contains interesting information about the fruit-eating habits of the Ocean Park animals.

Let’s support Joyful Fruit Month, and remind your family and friends to “Enjoy Fruit Every Day”!