



# **Cancer Prevention and Screening – Hong Kong Perspective**

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# Outline

1. Coordinating Mechanism in Prevention and Control of Cancer
  - a) Cancer Coordinating Committee
  - b) Cancer Expert Working Group on Prevention and Control
  
2. 2012 CEWG Recommendations on Prevention and Screening of
  - a) Breast Cancer
  - b) Colorectal Cancer
  - c) Prostate Cancer

# **Coordinating Mechanism in Prevention and Control of Cancer**

# Cancer Coordinating Committee

- Set up in **2001**
- Chaired by Secretary for Food and Health
- To review local and international scientific evidence
- To formulate strategies and make recommendations for cancer prevention and control
  
- Under the Committee, **four** Cancer Expert Working Groups (CEWGs) has been set up:
  1. Cancer data and priorities
  2. Cancer prevention and screening
  3. Cancer treatment services standards
  4. Cancer research and development

# Cancer Expert Working Group on Prevention and Screening

- Cancer Expert Working Group (CEWG) on Cancer Prevention and Screening was established in **2002**
  - ▶ Review scientific evidence and provide local recommendations
  - ▶ Provide health advice on cancer prevention and screening for healthcare professionals and general public



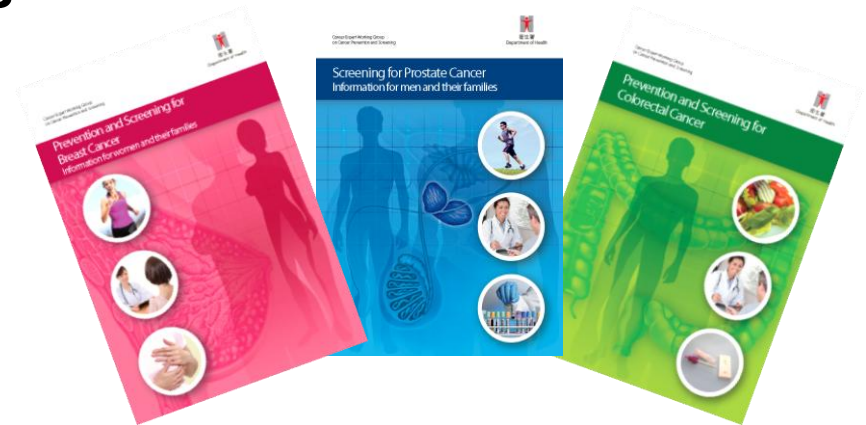
# Recommendations on Prevention and Screening

- ▶ CEWG issued “**Report of Cancer Expert Working Group on Cancer Prevention and Screening**” in **2004**
- ▶ Local recommendations for prevention and screening of **seven cancers**:
  1. Lung Cancer
  2. Colorectal Cancer
  3. Breast Cancer
  4. Liver Cancer
  5. Nasopharyngeal Cancer
  6. Cervical Cancer
  7. Prostate Cancer



# Recommendations on Prevention and Screening

- ▶ CEWG released updated recommendations on the prevention and screening of 3 cancers, namely **breast, colorectal and prostate** cancers in **2012**
- ▶ Three sets of **cancer booklets** in bilingual versions for general public were produced to promote public awareness and early detection



- The recommendations and booklets are available at the following website: <http://www.chp.gov.hk/>

# **2012 CEWG Recommendations on Prevention and Screening for Breast Cancer**



# For ALL Females

- Be **breast aware** (being familiar with normal look, feel & cyclical changes of breasts so that unusual changes can be noticed)
- Breast awareness is different from offering training for BSE which is regular, formally taught and ritual self examination performed at the same time each month



# For General Female Population

- Teaching women how to perform **breast self-examination** (e.g. at a monthly interval) is NOT recommended
- Insufficient evidence to recommend **clinical breast examination**
- Insufficient evidence to recommend for or against population-based **mammography** screening

# For Women at HIGH Risk

Local Definition of high risk	Recommendations
<ol style="list-style-type: none"> <li>1. <b>Carrier of BRCA1/2 deleterious mutations</b> confirmed by genetic testing</li> <li>2. <b>Family history of</b> <ol style="list-style-type: none"> <li>a. <b>Any 1° female relative</b> being a confirmed carrier of BRCA1/2 deleterious mutations;</li> <li>b. <b>Any 1° or 2° female relative*</b> with both breast &amp; ovarian cancer (in the same person) regardless of age at diagnosis;</li> <li>c. <b>Any 1° female relative</b> with bilateral breast cancer;</li> <li>d. <b>Any male relative</b> with a history of breast cancer;</li> <li>e. <b>Two 1° female relatives</b> diagnosed to have breast cancer AND one of them being diagnosed <math>\leq</math> 50 years of age;</li> <li>f. <b>Two or more 1° or 2° female relatives</b> with ovarian cancer regardless of age at diagnosis;</li> <li>g. <b>Three or more 1° or 2° female relatives</b> with breast cancer OR a combination of breast cancer &amp; ovarian cancer, regardless of age at diagnosis.</li> </ol> </li> <li>3. <b>Personal risk factors</b> <ol style="list-style-type: none"> <li>a. History of radiation to chest for treatment (not Chest X-ray) between age 10 &amp; 30 years e.g. for Hodgkin's disease;</li> <li>b. History of breast cancer, including ductal carcinoma in situ (DCIS);</li> <li>c. History of lobular carcinoma in situ (LCIS);</li> <li>d. History of atypical ductal hyperplasia (ADH) or atypical lobular hyperplasia (ALH)</li> </ol> </li> </ol>	<p>Women should see a doctor, and</p> <ul style="list-style-type: none"> <li>• Have <b>mammography screening</b> every year;</li> <li>• Begin screening <b>at age 35 or 10 years prior</b> to the age at diagnosis of the youngest affected relative (for those with a family history), whichever is earlier, but <b>not earlier than 30 years of age</b></li> </ul> <p>For <b>confirmed carriers of BRCA1/2 deleterious mutations and women with radiation to chest for treatment between age 10 and 30</b> (e.g. for Hodgkin's disease),</p> <ul style="list-style-type: none"> <li>• <b>Additional annual screening by supplementary MRI</b> should be considered</li> </ul>

\* 1° female relatives include mother, daughter and sister

2° female relatives include grandmother, granddaughter, aunt, niece and half-sister

# For Women at Moderately Increased Risk

Local Definition of moderately increased risk	Recommendations
<p>Family history of</p> <p>a. <b>Only 1° female relative</b> with breast cancer diagnosed at or below 50 years of age; <u>or</u></p> <p>b. <b>Two 1° female relatives</b> diagnosed to have breast cancer after the age of 50</p>	<ul style="list-style-type: none"><li>• Women should <b>discuss with their doctors</b> about the pros and cons of BC screening before deciding whether to start screening by <b>mammography every two to three years</b></li><li>• <b>MRI is not recommended</b> for them</li></ul>

# Genetic Testing

- Genetic testing should be performed by specialised centres with expertise in **genetic counselling** which **should be provided before genetic testing**
- Healthcare professionals should **discuss with their clients** about **uncertainties and implications of tests results**

Target population: High risk due to family history	Recommendations for: Genetic testing
<ul style="list-style-type: none"><li>• Women with any <b>1° female relative with confirmed BRCA1/2 deleterious mutations</b></li></ul>	<ul style="list-style-type: none"><li>• Genetic testing should be performed to confirm or refute their carrier status</li><li>• Confirmed carriers who wish to consider prophylactic surgery/chemoprevention should be referred to a specialist clinic for advice &amp; counselling</li></ul>
<ul style="list-style-type: none"><li>• Women at high risk due to <b>family history other than</b> having any 1° female relative with confirmed BRCA1/2 carrier status</li></ul>	<ul style="list-style-type: none"><li>• If they wish to clarify their genetic risk or that of their family, referral to a specialist clinic for advice, counselling and management should be discussed and considered</li></ul>

# Primary Prevention for female breast cancer

- Primary prevention measures are important in lowering the risk of developing breast cancer
- Women are advised to:
  - Have regular physical activities
  - Avoid alcohol
  - Maintain a healthy body weight
  - Breastfeed each child for longer duration
  - Have childbirth at an earlier age
- ▶ Health promotion on breast cancer prevention should also be enhanced to raise the awareness of breast cancer in the public



# Benefits and harms of population-based mammography screening

- **Mortality Reduction**

- Overseas studies show controversial result : Ranging from 15-20% reduction to no mortality reduction with launching of screening programme
- Impact on cancer mortality in Asian population is not available at the moment

- **False Positives**

- Cochrane review (2011)<sup>1</sup>: 10 healthy women would be falsely labeled as having breast cancer and treated unnecessarily
- Local modeling study (2008)<sup>2</sup>:
  - Local women aged 50-74 screened every 2 years
  - Result in 33,700 false positives per year

- **Over-diagnosis and treatment**

- Cochrane review (2011) <sup>1</sup> : MMG leads to 30% over-diagnosis and over-treatment of BC
- UK Panel on Breast Cancer Screening (2012)<sup>3</sup> : 3 over-diagnosed cases for every 1 breast cancer death prevented

1. Gotzsche PC, Nielsen M. (2011)

2. Leung GM, Woo PP, Cowling BJ, et al. (2008)

3. The Independent UK Panel on Breast Cancer Screening. (2012)

# Should Hong Kong introduce population-based MMG screening?

- **Local acceptance**

- Population Health Survey (2003-2004)<sup>4</sup>: Only 13.3% of asymptomatic women aged  $\geq 35$  had mammography
- Thematic Household Survey (2008)<sup>5</sup>: 24% of females in Hong Kong had mammogram during the past twelve months

- **Cost effectiveness**

- Local modeling study (2010)<sup>6</sup>: MMG for HK Chinese women may not be cost-effective
- Evaluate cost-effectiveness of mass MMG in HK (2012)<sup>7</sup>: Mass MMG screening of women aged 40-69 is the least cost-effective strategy compared with enhanced treatment and adjuvant therapy due to lower prevalence of breast cancer in HK

4. Population Health Survey 2003-2004. Department of Health

5. Thematic Household Survey, Census and Statistics Department (2008)

6. Wong IOL, Kuntz KM, Cowling BJ, et al. (2010)

7. Wong IOL, Tsang JWH, Cowling BJ, Leung GM. (2012)



# Should Hong Kong introduce population-based MMG screening?

- **Consider different aspect of factors:**

- Age-standardised breast cancer incidence rate is rising in HK, but still much lower than those in Western countries
- Performance of population-based MMG screening remains controversial in overseas countries (even those with much higher prevalence)
- Harms, such as false positives and over-diagnosis may outweigh benefits
- Positive predictive value of MMG (4.9%) would be lower than Western populations
  - generate harms related to unnecessary follow-up investigations
  - increase waiting time for symptomatic patients for further investigation and treatment
- Low local acceptance of mammography
- Local studies showed that population-based MMG screening may not be cost-effective

➤ **Insufficient evidence for population-based MMG screening → more local research and data are needed**

# Summary of 2012 CEWG Recommendations on Prevention and Screening of Breast Cancer

1. Currently, **insufficient evidence** to recommend for or against **population-based mammography screening** for women in Hong Kong
2. When women consider mammography screening, healthcare professionals should discuss potential benefits and harms of screening with women so as to help them make **an informed decision**
3. **Women at increased risk** should consult a doctor whether they should receive BC screening, starting age and frequency of screening
4. All women should **be aware of breast changes** and visit doctors promptly if symptoms appear
5. **Primary prevention measures** are important in lowering risk of developing breast cancer

# **2012 CEWG Recommendations on Prevention and Screening for Colorectal Cancer**

# Recommendations on prevention and screening of Colorectal Cancer

- **Territory-wide screening programme**
  - Insufficient evidence to recommend for or against
- **Informed screening for individuals aged 50-75 years**
  - FOBT every 1 or 2 years; or
  - Flexible Sigmoidoscopy (FS) every 5 years; or
  - Colonoscopy every 10 years
- Superiority not yet determined
- Healthcare providers should discuss potential risks, benefits and limitations with clients to make informed choices

# Recommendations on prevention and screening of Colorectal Cancer

## Screening for high risk population

- Carriers of mutated gene of **HNPCC**
  - Colonoscopy every 1-2 years from age 25
- Carriers of mutated gene of FAP
  - FS every 2 years from age 12
- With one or more first degree relatives diagnosed to have CRC at or below 60 years of age
  - Colonoscopy every 3-5 years from age 40 or 10 years prior to age of diagnosis of the youngest affected relative but not earlier than 12 years of age
- People whose family members are CRC patients with identifiable genetic mutations
  - Two-tier screening by genetic testing and endoscopic examination

# Recommendations on prevention and screening of Colorectal Cancer

- Primary prevention is very important in lowering the risk of having colorectal cancer.
- The public is advised to:
  - Increase intake of dietary fibre
  - Decrease consumption of red and processed meat
  - Increase physical activities
  - Maintaining healthy body weight
  - Avoid or quit tobacco smoking
  - Avoid alcohol drinking
- ▶ Health education on colorectal cancer prevention should be enhanced to raise the awareness of CRC in the public



# Local consideration for CRC screening

- **Public acceptance**
  - Population Health Survey (2003-2004)<sup>8</sup>: 5.2% undertaken sigmoidoscopy or colonoscopy, 4.8% undertaken a FOBT
  - Cross-sectional population-based telephone survey conducted in (2007)<sup>9</sup>:
    - Uptake rate of FOBT 12%
    - Uptake rate of colonoscopy 19%
- **Capacity of healthcare system in HK**
  - Population-based CRC screening programme will generate huge demand for screening, diagnostic and treatment services in public sector
  - Detailed planning and pilot testing are required before implementation of population-based CRC screening programme
- **Cost-effectiveness of screening**
  - Modeling study on cost-effectiveness of CRC screening tests in Asia (2008)<sup>10</sup>: FOBT is the most cost-effectiveness screening method for CRC compared with no screening

8. Population Health Survey 2003-2004. Department of Health

9. So WK et al. (2012)

10. K.K.F. Tsoi et al. (2008)

# Summary of 2012 CEWG Recommendations on Prevention and Screening for Colorectal Cancer

- Incidence of CRC is **increasing** in HK
- **Primary preventive measures** are important in prevention of CRC, namely lifestyle modification
- General public should be **aware of symptoms** of CRC and seek medical advice early
- **Insufficient evidence** to recommend for or against a territory wide screening programme
- Persons **aged 50-75** should consider CRC screening either by annual or biennial FOBT, FS every 5 years or colonoscopy every 10 years
- Persons at **high-risk of CRC** should discuss with doctors to start CRC screening earlier and more frequently



# **2012 CEWG Recommendations on Prevention and Screening for Prostate Cancer**

# Recommendations on prevention and screening of prostate cancer

- Insufficient scientific evidence to recommend for or against screening for prostate cancer in men without any symptoms by PSA and/or DRE
- Asymptomatic men should discuss with their own doctor about their individual circumstances
- Make informed decision on whether or not to go for prostate cancer screening

# Primary prevention of prostate cancer

- Effects of body weight, physical activity, and diet on prostate cancer risk are not clear
- Best advice about diet and activity to possibly reduce the risk of prostate cancer
  - Increase intake of dietary fibre
  - Decrease consumption of red and processed meat
  - Increase physical activities
  - Maintain healthy body weight



# Screening tests of prostate cancer

- Performance of Digital Rectal Examination (DRE) and Serum Prostate Specific Antigen (PSA) in detecting prostate cancer<sup>11</sup>

	sensitivity	specificity	PPV
DRE	53.2% (range 49%-69.2%)	83.6% (range 18%-99.5%)	17.8% (range 5%-33.1%)
PSA at a cut-off level at 4ng/ml	72.1% (range 66.7%-100%)	93.2% (range 63.1%-100%)	25.1% (range 17%-57%)

# Effectiveness of prostate cancer screening

- Prostate, Lung, Colorectal, and Ovarian (PLCO) Cancer Screening Trial<sup>12</sup>
  - Annual screening (annual PSA testing for 6 years and DRE for 4 years) vs usual care (with opportunistic screening) as control group
  - After 13 years of follow-up, **no evidence of mortality benefit** for organised annual screening compared with opportunistic screening

	Incidence of prostate cancer	Death due to prostate cancer
Annual screening group	108.4 per 10,000 person-years	3.7 per 10,000 person-years
Control group (40% received PSA screening in the 1 <sup>st</sup> year, increased to 52% in the 6 <sup>th</sup> year)	97.1 per 10,000 person-years	3.4 per 10,000 person-years
Relative risk	1.12 (95% CI 1.07-1.17)	1.09 (95% CI 0.87-1.36)

# Effectiveness of prostate cancer screening

- European Randomized Study of Screening for Prostate Cancer (ERSPC)<sup>13</sup>
  - PSA screening at an average of once every 4 years vs no screening as control

Prostate Cancer	Incidence of prostate cancer
PSA screening group	9.66 per 1,000 person-years
Control group	5.95 per 1,000 person-years
Relative risk	1.63 (95% CI 1.57-1.69)

- After a median follow-up of 11 years, PSA based screening for men 55-69 years of age reduced the rate of death from prostate cancer by 21% but **did not affect all-cause mortality**

Death rate due to prostate cancer	Prostate Cancer	All causes
PSA screening group	0.39 per 1,000 person-years	18.2 per 1,000 person-years
Control group	0.5 per 1,000 person-years	18.5 per 1,000 person-years
Relative risk	0.79 (95% CI 0.68-0.91)	0.99 (95% CI 0.97-1.01)

# Local consideration for prostate cancer screening

- Effectiveness of prostate cancer screening uncertain because of lack of local RCT
- Lower prevalence of prostate cancer in HK – positive predictive value of DRE and PSA lower than Western countries
- May detect slow-growing prostate cancer that may not cause any symptoms or shorten life even if left untreated
- Subsequent investigations and treatment may cause anxiety and carry significant risks with little benefits

# Summary of 2012 CEWG Recommendations on Prevention and Screening for Prostate Cancer

- Incidence of prostate cancer is increasing in HK but relatively low compared with some developed countries
- Primary preventive measures of prostate cancer are not well established
- Men should be aware of symptoms of prostate cancer and seek medical advice early
- Insufficient scientific evidence to recommend for or against screening for prostate cancer in men without any symptoms by PSA and/or DRE in HK
- Doctors should help men make an informed choice in a shared decision making process



# Way Forward

- CEWG will keep in view new scientific evidence and updated overseas guidelines and review local recommendations as appropriate
- Health promotion on primary prevention of cancer should be enhanced

# Acknowledgements

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Members of CEWG:

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**Thank you**