

Cancer Expert Working Group on Cancer Prevention and Screening

2016 Recommendations on Prevention and Screening for Colorectal Cancer For Health Professionals

Local epidemiology

1. Colorectal cancer (CRC) is a major public health problem, causing significant burden on individuals, families, healthcare services and society. In 2014, there were 4,979 newly diagnosed CRC cases, accounting for 16.8% of all new cancer cases. CRC overtook lung cancer and became the most common cancer in Hong Kong in 2011, 2013 and 2014.

2. CRC is the second leading cause of cancer deaths in Hong Kong. In 2015, a total of 2073 deaths were caused by colorectal cancer, accounting for 14.5% of all cancer deaths. The crude incidence rate and crude mortality rate of CRC for both sexes increased by 132.4% and 128.5% from 1983 to 2014 respectively¹.

3. After adjusting for the effect of population ageing, the age-standardised incidence rate (ASIR) of CRC for both sexes showed an upward trend between 1983 and 2014 but was fairly stable over the past ten years. The age-standardised mortality rates (ASMR) of CRC for both sexes had an upward trend between 1981 and 2004 before coming down slowly over the past ten years¹.

4. In general, the incidence and mortality rates of CRC increased with age. The median age at diagnosis of CRC is 68 in males and 69 in females in 2014, and the risk of CRC increases significantly from age 50 onwards. In view of a growing and ageing population, the number of new CRC cases and related healthcare burden are expected to continue to increase.

Risk factors

5. Risk factors for CRC include aging, male gender, low fibre intake, high consumption of red and processed meat and high level of body or abdominal fatness, while smoking is associated with higher risk of developing rectal cancer². In addition, alcohol consumption has

been confirmed as a cause to occurrence of colorectal cancer with a relative risk of 1.4 for regular consumption of about 50g of alcohol per day, when compared with non-drinkers³. On the other hand, increased physical activity is associated with reduction in risk of developing CRC⁴. Persons who are carriers of mutated gene of familial adenomatous polyposis (FAP) or Lynch Syndrome (previously known as hereditary non-polyposis colorectal cancer) and individuals with family history of CRC are at higher risk of colorectal cancer. CRC in these individuals tends to be diagnosed at a younger age and progresses more aggressively than CRC in the general population^{5,6}.

6. The two main types of hereditary colorectal cancer syndrome are FAP and Lynch Syndrome, which together account for less than 5% of CRC new cases⁷. FAP is an autosomal dominant disorder caused by germline mutation of the Adenomatous Polyposis Coli (APC) located on the short arm of chromosome 5 (5q21-22)⁸ and people with such mutation will have 95% chance of developing CRC by age 50⁹. Lynch Syndrome is another dominantly inherited colorectal cancer syndrome. It is caused by germline mutation in one of the genes responsible for the repair of mismatches during DNA replication. The lifetime CRC risk of those carrying such mutation is estimated to be 50-80%.

7. According to a local study, 80-90% of colorectal cancer cases are sporadic while the remaining 10-20% are familial cancers¹⁰. The cancer risk of individuals with a positive family history may vary according to (a) the age of diagnosis of CRC in the index patient and (b) the number of affected first-degree relatives. The younger the age of diagnosis of CRC in the index patient, the higher the CRC risk of his/her family members. It is exemplified in a meta-analysis which estimated the relative risk of individuals with relatives diagnosed with CRC before 50 was 3.55 (95% CI: 1.84 to 6.83) while the relative risk for relatives diagnosed with CRC at or above 50 years of age was 2.18 (95% CI: 1.56 to 3.04)¹¹.

Primary prevention

8. Primary prevention is important in lowering the risk of having colorectal cancer. The public is advised to prevent colorectal cancer by adopting the following primary preventive measures:

- Increase intake of dietary fibre (e.g. fibre from at least five servings of fruits and vegetables daily)
- Decrease consumption of red and processed meat
- Increase physical activities by doing at least 150 minutes of moderate - intensity aerobic

- physical activities per week (e.g. climbing stairs or brisk walking)
- Maintain healthy body weight and waist circumference
- Avoid or Quit tobacco smoking
- Avoid or limit consumption of alcoholic drinks.

Early detection

9. Early CRC may produce no symptom at all. Health education on colorectal cancer prevention should be enhanced to raise the awareness of CRC in the public. Members of the public are also advised to increase awareness of early symptoms of CRC, such as changes in bowel habit (diarrhoea alternating with constipation, etc.) and blood or copious mucus in stool. Individuals should seek medical advice early and discuss with their doctors if these symptoms appear.

Screening and the Cancer Expert Working Group's (CEWG) recommendation on Colorectal Cancer screening

10. Since CRC arises predominantly from adenomatous polyps, screening tests for prevention of CRC can detect the presence of cancer and / or colonic polyps. Faecal occult blood test (FOBT), sigmoidoscopy and colonoscopy are the three most commonly practised screening tests for CRC. All three modalities have been shown to reduce mortality from CRC^{12'13'14'15'16}. Considering the epidemiology of CRC and the evidence on screening modalities, the Government's Cancer Expert Working Group on Cancer Prevention and Screening (CEWG) in 2010 recommended that average risk people aged 50 to 75 should consult their doctors to consider screening by one of the following screening methods (a) annual or biennial faecal occult blood test (FOBT); (b) sigmoidoscopy every 5 years; (c) colonoscopy every 10 years¹⁷. In November 2012, the CEWG reviewed the latest scientific evidence on CRC screening for average risk individuals and reaffirmed, among other things, that the recommendations made in 2010 on CRC screening remained valid¹⁸.

11. In November 2012, the CEWG recommended that (a) carriers of mutated gene for Lynch Syndrome should undergo colonoscopy every one to two years from the age of 25; (b) carriers of the mutated gene for Familial Adenomatous Polyposis (FAP) should undergo sigmoidoscopy every two years from the age of 12; (c) individuals with one or more first degree relatives diagnosed with CRC at or below 60 years of age should undergo colonoscopy 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 age¹⁷. For persons with one or more first degree relatives diagnosed to have CRC above age 60, they are regarded as having similar risk as the general population who should commence CRC screening at age of 50 under the same protocol as those in the general population¹⁷. In June 2016, noting overseas recommendations that individuals with more than one first-degree relatives with CRC irrespective of the age at diagnosis are considered increased risk thus requiring more frequent endoscopic screening^{19'20'21'22'23'24}, the CEWG fine-tuned the recommendations on CRC screening for high risk individuals.

In summary the current CEWG recommendations on CRC screening for average risk and higher risk individuals are summarized in the following table.

Table: CEWG's recommendation on colorectal cancer screening for average risk and higher risk individuals

For persons at average risk	
1.	Individuals aged 50 to 75 should consult their doctor to 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.
For persons at higher risk	
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 (a) one first-degree relative diagnosed with CRC at or below 60 years of age or (b) 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.

** 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.

12. Hong Kong residents with “average risk” and born in 1946 to 1955 can join the Government’s Colorectal Cancer Screening Pilot Programme (“Pilot Programme”) by phases to receive subsidised CRC screening. The screening workflow comprises two stages. Participants would first receive subsidised Faecal Immunochemical Test (FIT, a new version of FOBT) from enrolled Primary Care Doctor (PCD). If the FIT result is positive, the participant would receive subsidised colonoscopy examination service from enrolled Colonoscopy Specialist. Persons at average risk who are not currently covered by the Pilot Programme may consult their family doctors about the need for colorectal cancer screening. Details of the Pilot Programme are available at www.colonscreen.gov.hk.

13. People with "higher risk" may consult private doctors or non-profit-making medical institutions to assess their risk of having CRC, including undergoing genetic tests where appropriate, to decide an appropriate screening option. The followings are related website link for reference:-

- The Hong Kong Hereditary Gastrointestinal Cancer Registry website:
<http://www.hkgenerations.com>
- The Hereditary Gastrointestinal Cancer Genetic Diagnosis Laboratory Website:
<http://www.hku.hk/patho/dept/services/colonregtc.htm>

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