Colorectal Cancer (CRC)

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Target population

General population: Primary Prevention

Based on evidence at hand, there is insufficient data to determine which screening method is superior to others in terms of balance of benefits and potential harms.

Currently, a local community-based screening program is underway to assess the feasibility of a large-scale program for CRC screening in Hong Kong. Besides, there is also an on-going study to analyse the cost-effectiveness of implementing CRC screening program in Hong Kong. These results will provide important information for further direction on implementing a population-based CRC screening locally.

Comments & Recommendations

- Increase consumption of fruit & vegetable & decrease consumption of red & processed meat (Daily intake of 25g fibre or 5 portions of fruit and vegetable recommended).
- Increase physical activities & maintain healthy body weight.
- Avoid or quit smoking and limit alcohol consumption.

Individuals aged 50 to 75 at average risk for colorectal cancer should consider <u>one</u> of these 4 testing schedules as screening for CRC:

(1) Annual Faecal Occult Blood Test (FOBT)
(2) Flexible Sigmoidoscopy (FS) every 5 years
(3) Annual FOBT plus FS every 5 years
(4) Colonoscopy every 10 years

(1) Annual Faecal Occult Blood Test (FOBT):

- For FOBT, several (usually 3) samples of stool are collected for testing.
- This method relies on the tendency of colorectal cancer to bleed. Sensitivity is limited because many colorectal cancers only bleed intermittently.
- Persons with positive tests should be referred for complete colonic evaluation, ideally using colonoscopy.
- There are 2 types of FOBT: (a) chemical testing & (b) immunologic testing.

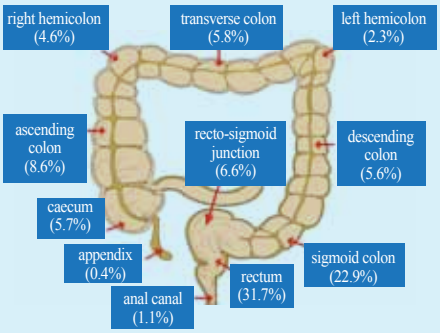
(a) **Chemical FOBT** is inexpensive and easy but false positive results may occur from consumption of red & white meats, certain raw vegetables and fruits and intake of vitamin C and a few other drugs. Thus it is necessary to restrict red meat and certain fruits & vegetables before & during stool samples collection.

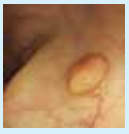
(b) **Immunologic FOBT** is much more expensive than chemical FOBT but is more sensitive for blood. Besides, it is also more specific for blood as there will be fewer false positive tests due to interfering substances in diet. In addition, a positive chemical FOBT can be caused by bleeding anywhere in the stomach or intestines, but a positive immunologic FOBT only occurs when there is bleeding into the colon.

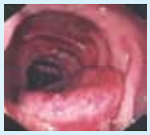
- Meta-analysis of data from 4 overseas randomized controlled trials showed a 16% reduction in CRC mortality by annual or biennial screening using FOBT.
- Local study using unrehydrated chemical FOBT on asymptomatic persons for detection of advanced CRC showed a sensitivity & specificity of 14.3% & 79.2% respectively.
- There is still a lack of published data among Chinese populations on whether FOBT screening can reduce the incidence & mortality of CRC.

Lancet 2010; 375: 1624–33:

- Trial conducted in 14 UK centres, 57,237 people were randomized to undergo once-only FS and with removal of any polyps that are found. 40,674 persons (71%) did so.
- 113,195 people were assigned to control group.
- Median follow-up of 11 years







(2) Flexible sigmoidoscopy (FS) every 5 years

- FS only examines the distal 60cm of colon and will miss lesions in the proximal colon.
- Local study using FS in detecting advanced colonic lesions found a sensitivity and specificity of 78% & 84% respectively.

Once-only flexible sigmoidoscopy screening in prevention of colorectal cancer: a multicentre randomised controlled trial is the first evidence from a randomized controlled trial to show that removing polyps prevents CRC.

- Previous evidence in this aspect came from case-controlled studies only. Results from randomized controlled trial provide better level of evidence than case-controlled studies.
- The magnitude of benefit in terms of both CRC incidence and mortality reduction are really substantial. In per-protocol analyses, incidence of CRC reduced by 33% and mortality by 43%. The size of benefit seen in this landmark trial is large for any cancer screening test.
- According to the investigator's comment, the benefit seen is likely to sustain and might even further improve with time as follow-up continues and trial participants become older.
- Compared with colonoscopy, FS is a much safer and simpler procedure and requires no sedation. Apart from enema taken in the morning before the procedure, no medication is required.
- In summary, the new results from the UK study show that FS screening together with removal of polyps that are found is a safe and practical test and, when offered only once to people between ages 55 and 64, confers a substantial and long-lasting benefit.

(3) Annual FOBT, plus flexible sigmoidoscopy every 5 years

(4) Colonoscopy every 10 years

- For colonoscopy, the sensitivity & specificity for detecting CRC were >90% & 99% respectively as reported in overseas studies.
- Evidence from observational studies showed that both FS & Colonoscopy might reduce CRC risk.
- However, at present, there is still no randomized controlled trial in the literature showing screening by FS or Colonoscopy can reduce CRC mortality.

Newer technologies such as Virtual Colonoscopy & Stool DNA test have been emerging as potential methods for CRC screening. However, US Preventive Services Task Force has concluded that currently there is insufficient evidence to assess the benefits & harms of Virtual Colonoscopy or Stool DNA test as screening methods for CRC.

For individuals with personal history of adenomatous polyp: surveillance policy following adenoma removal at baseline colonoscopy depends on risk category.	
Low risk: 1-2 adenomas, both < 1cm	**Either no surveillance or five-yearly colonoscopy. Can cease follow up after –ve colonoscopy.**
Intermediate risk: 3-4 adenomas or at least 1 adenoma ≥ 1cm	**Colonoscopy every 3 years until 2 consecutive –ve colonoscopies, then no further surveillance.**
High risk: ≥ 5 adenomas or ≥ 3 adenomas with at least one ≥ 1cm	**Annual colonoscopy until out of this risk group, then interval colonoscopy as per intermediate risk group.**
For individuals with first degree relatives (parent, sibling or child) with CRC diagnosed before age 60	• Start colonoscopy screening from age 40 onwards (i.e. 10 years earlier than the general population) or 10 years younger than the age of the youngest affected relative whichever is earlier & then repeated at 3-5 years interval.
For those with first degree relatives with CRC after age 60	• Type & frequency of screening should be individualised. • One suggestion is to start colonoscopy screening at age 40 and then repeated every 5-10 years. • Others regard them as having similar risk as the general population & thus should be screened with the same protocol for general population, i.e. start screening at age 50.
For individuals suspected to have hereditary colorectal cancer syndromes	• Referral for molecular genetic testing for hereditary colorectal cancer recommended. • Hereditary colorectal cancer syndromes should be managed by dedicated regional registry.
For mutated gene carriers of Familial Adenomatous Polyposis (FAP)	• Flexible sigmoidoscopy (FS) every 1-2 years from age 12 up to age 40. After 40, FS can be performed every 5 years.
For mutated gene carriers of Hereditary Non-Polyposis Colorectal Cancer (HNPCC) Syndrome	• Colonoscopy, 1-2 yearly from age 20-25. After the age of 35, colonoscopy should be increased to yearly interval. • (Sigmoidoscopy is not enough in this syndrome as adenomas are more commonly right sided).

For individuals with personal history of colon cancer	• If clearance colonoscopy has been performed either before or after curative resection, the first colonoscopy should be repeated 1 year after surgery. If abnormal, repeat in 1 year. If normal, repeat in 3 years and then every 5 years subsequently or as clinically indicated. • If no complete colonoscopy has been performed before curative resection, a clearance colonoscopy should be performed within 6 months.
For individuals with personal history of inflammatory bowel disease	• For ulcerative colitis, screening started 8 years after pancolitis and 15 years after left sided colitis. Colonoscopy with systematic biopsies performed every 1-3 years. • Screening is not indicated for ulcerative proctitis alone. • For Crohn's Disease, exact timing & frequency of colonoscopy is not clear.

Summary

In view of increasing age-standardized incidence and mortality rates of colorectal cancer in Hong Kong in the past two decades, individuals aged 50 to 75 with average risk for colorectal cancer in Hong Kong should consider receiving **one** of these 4 testing schedules as screening for CRC:

1. annual faecal occult blood test (FOBT)
2. flexible sigmoidoscopy (FS) every 5 years
3. annual FOBT plus FS every 5 years
4. colonoscopy every 10 years

A simulated colon to educate the public about CRC