

INFORMATION PAPER ON COLORECTAL CANCER

What you need to know

Colorectal cancer is the most common cancer in Singapore. The risk of developing colorectal cancers can be decreased by going for an annual Faecal Immunochemical Test (FIT) or a screening colonoscopy for those 50 years and older and making lifestyle changes.

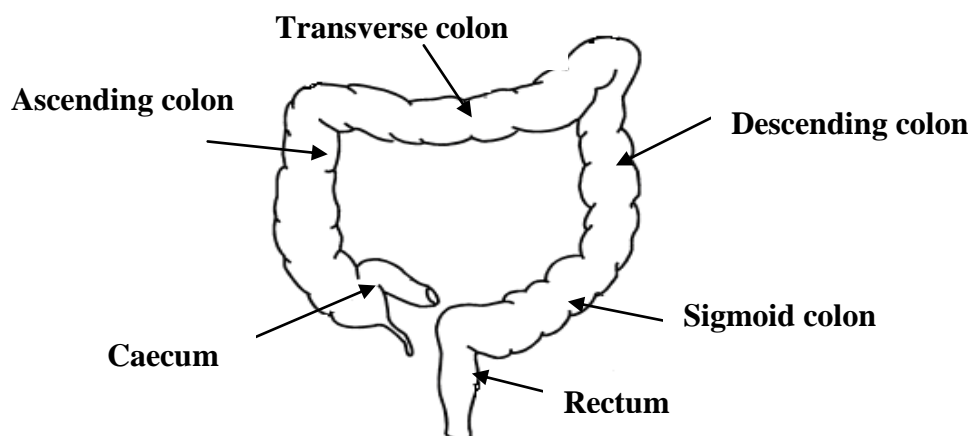
OBJECTIVES

This paper provides an overview of the trends of colorectal cancer in Singapore, its associated risk factors and the preventive measures to reduce the risk of developing colorectal cancer.

INTRODUCTION

The large intestine consists of the caecum, ascending colon, transverse colon, descending colon, sigmoid colon and the rectum. Figure 1 shows the anatomy of the large intestine. Colorectal cancer can arise in any part of the large intestine.

Figure 1 Anatomy of the Colon



Epidemiological data from the Singapore Cancer Registry for the period 2004 to 2008 showed that colorectal cancer was the most common cancer in males (17.7%), followed by lung (17.0%) and prostate cancers (10.7%) (Chart 1). In females, the most common cancer was breast cancer (29.1%), followed by colorectal (14.6%) and lung cancers (8.0%) (Chart 2).¹

¹ Based on data from the Singapore Cancer Registry

Chart 1: Ten Most Frequent Cancers (%) in Males, 2004 – 2008

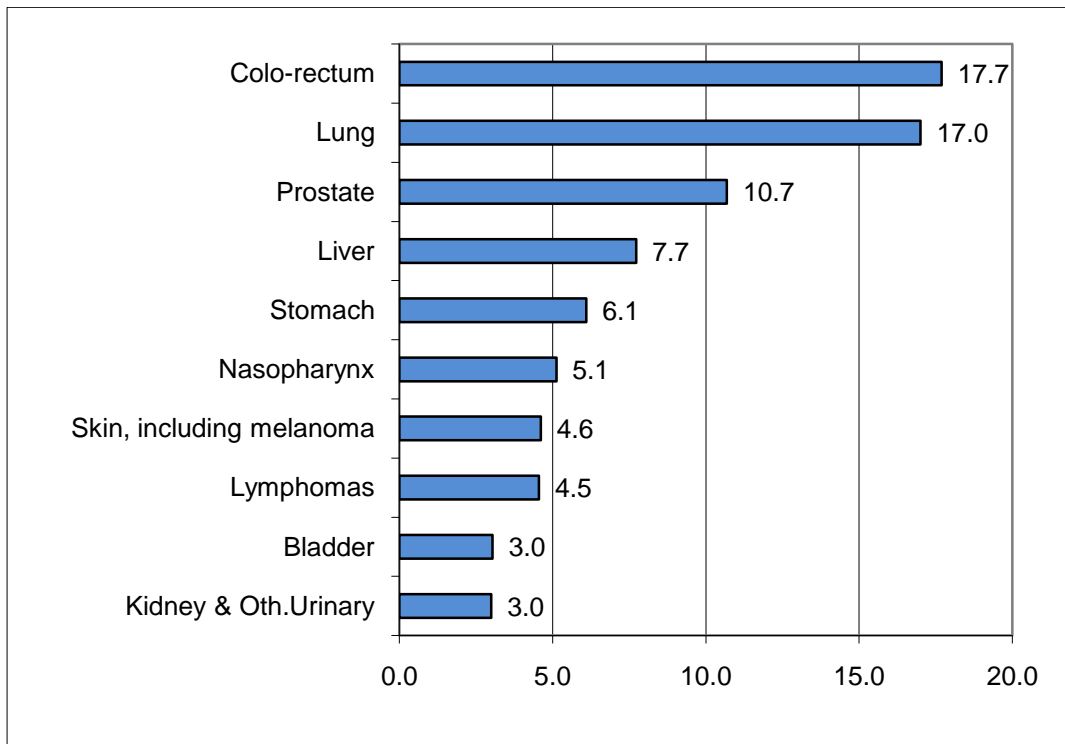
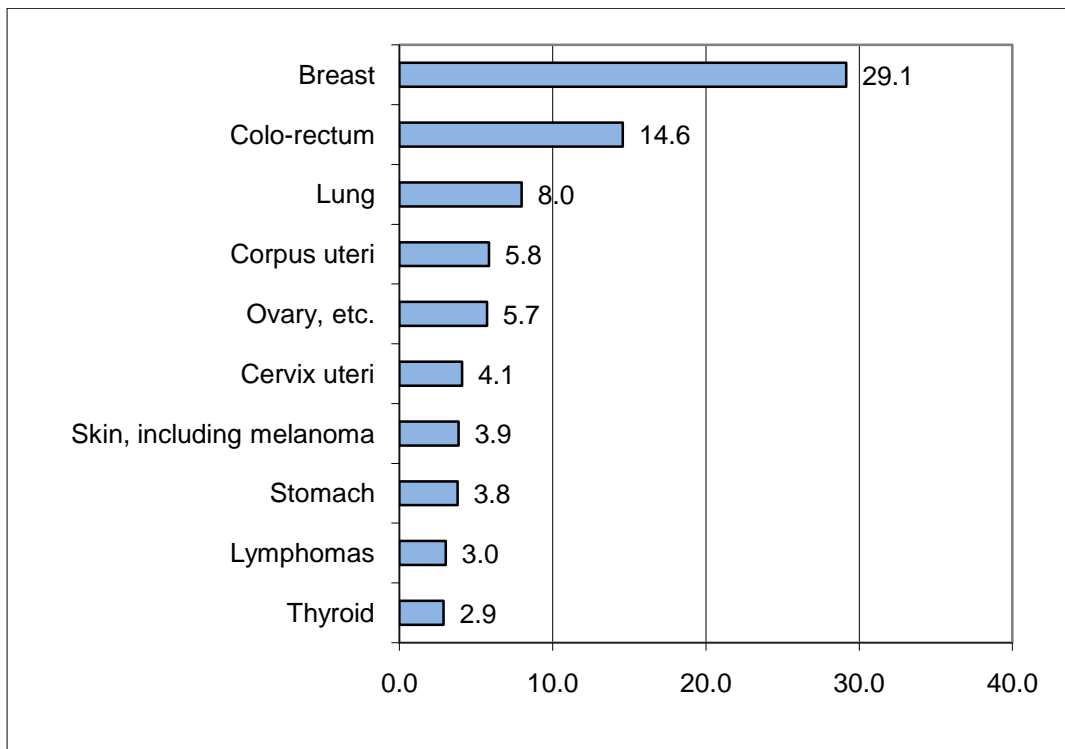


Chart 2: Ten Most Frequent Cancers (%) in Females, 2004 – 2008



In both genders, Chinese has the highest incidence of colorectal cancer followed by Malays and Indians (Table 1).

Table 1: Crude and Age-Standardised Incidence Rates for Colorectal Cancer by Gender and Ethnic Group, 2004 – 2008

Gender / Ethnicity		CR*	ASR**
Males:	Chinese	55.0	44.3
	Malay	24.6	28.1
	Indian	18.8	18.9
	Overall	47.0	40.5
Females:	Chinese	47.9	31.8
	Malay	19.1	20.1
	Indian	12.2	12.5
	Overall	40.3	29.4

* CR Crude rate per 100,000 per year

**ASR: Age-standardised rate per 100,000 per year

The incidence of colorectal cancer increases substantially with age above 50 years (Table 2).

Table 2: Age-Specific Rates for Colorectal Cancer by Gender, 2004-2008

Age-Group	Male	Female
0-4	0	0
5-9	0	0
10-14	0	0
15-19	0.16	0.17
20-24	1.26	1.29
25-29	1.98	1.21
30-34	3.42	2.24
35-39	7.16	6.11
40-44	16.49	12.92
45-49	27.75	23.14
50-54	62.46	51.87
55-59	102.14	80.25
60-64	159.99	105.63
65-69	245.87	150.69
70-74	319.82	224.82
75-79	424.11	312.82
80+	530.07	431.59

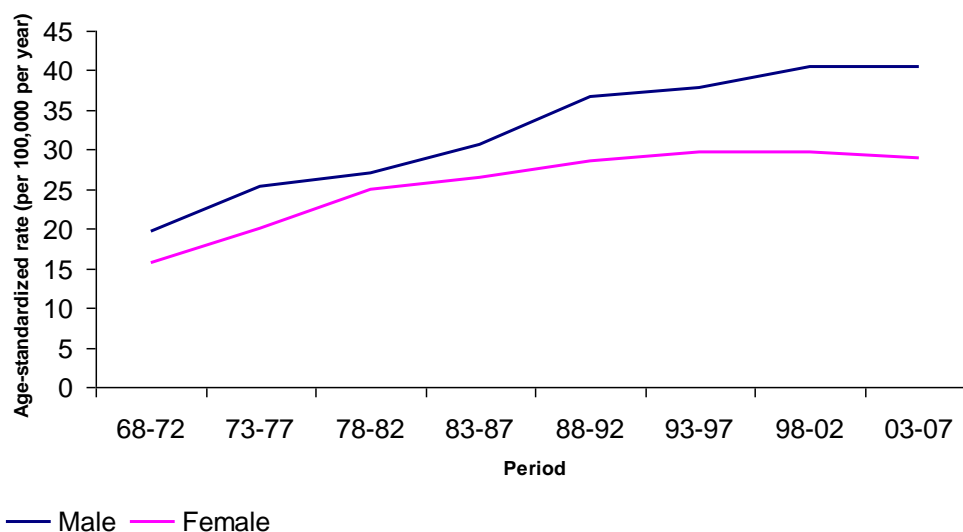
Based on cancer registry data for the period 2004-2008, the lifetime risk for colorectal cancer was estimated to be 3.9% for males and 2.9% for females². This means that Singapore men have a 1 in 25 chance of developing cancer in their lifetime. For Singapore women, this is 1 in 34.

TRENDS OF COLORECTAL CANCER IN SINGAPORE, 1968-2007

Colorectal cancer has moved from being the second most common cancer in the period 1998-2002 to being the most common cancer in the period 2003-2007 in males. It remained the second most common cancer in females.

The number of newly diagnosed colorectal cancer cases (incidence) has increased from 1058 cases in the period 1968-1972 to 7297 cases in the period 2003-2007. The age standardised incidence rates have increased from 19.6 to 40.4 per 100,000 per year in males during the same periods. The corresponding age standardised incidence rates in females increased from 15.6 per 100,000 per year to 28.9 per 100,000 per year (Chart 1).

Chart 1: Age-Standardised Incidence Rates for Colorectal Cancer (per 100,000 per year) by Gender, 1968-2007



The age-standardised mortality rates for colorectal cancer in males have increased from 9.1 per 100,000 per year to 17.9 per 100,000 per year from the period 1968-1972 to the period 2003–2007 with a dip in the period 1983-1987. As for females, the age-standardised mortality rates fluctuated between 6.8 per 100,000 per year to 12.2 per 100,000 per year in the same periods (Chart 2).

² Using competing risk methodology in Devcan. National Cancer Institute, US. [accessed 15/11/2010]; Available from:

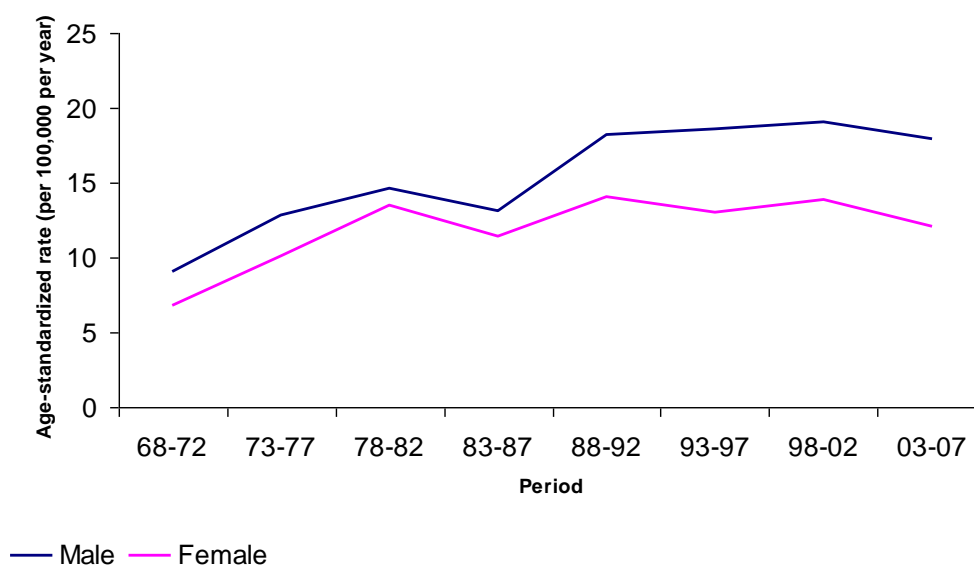
<http://surveillance.cancer.gov/devcan/download.html>

The age-standardised mortality rates for colorectal cancer increased in parallel to the increase in age standardised incidence rates for colorectal cancer. The former increased at an average of 1% per year while the latter at an average of 2% per year for the period 1968 to 2007. The slower increase in the age standardised mortality rates for colorectal cancer in comparison to the age standardised incidence rates could be due to early detection and advances in treatment methods³.

At the same time, the age-standardised 5-year survival rates⁴ for colorectal cancer has increased from 25.3% in 1973-1977 to 57.0% in 2003-2007 among males while the corresponding figures for females are 26.4% and 58.9%, respectively (Chart 3). This metric reflects both advances in treatment and early detection through screening over the years. In particular, according to national surveys, the percentage of participants between the ages of 50-69 who have ever undergone a fecal occult blood test (FOBT) has increased from 20.2% in males and 14.4% in females in 2004⁵ to 25.0% in males and 19.9% in females in 2007⁶.

For the period 2004 to 2008 there were about 7688 newly diagnosed cases of colorectal cancers and about 3307 cases of deaths related to colorectal cancers.

Chart 2: Age-Standardised Mortality Rates for Colorectal Cancer (per 100,000 per year) by Gender, 1968-2007



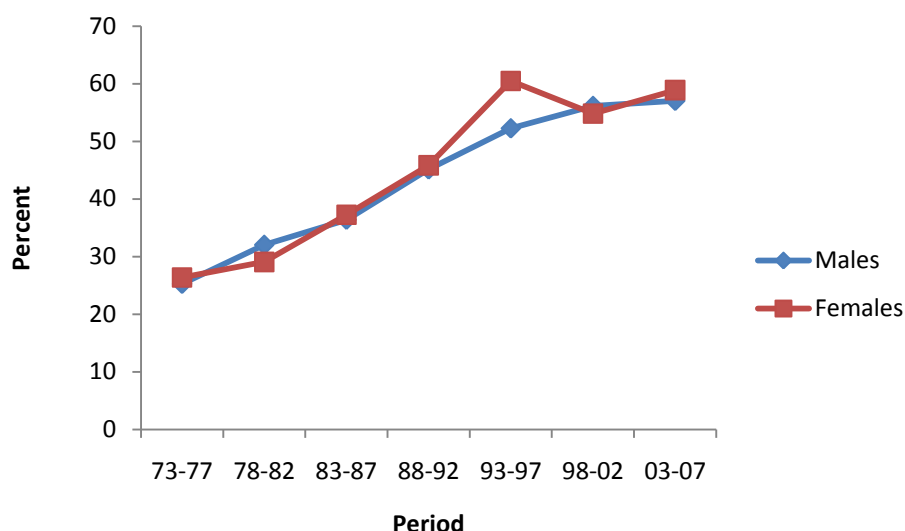
³ Mark TC Wong, Kong WE (2007) Rise of colorectal cancer in Singapore: An epidemiological review. ANZ J. Surg. 2007; 446-449.

⁴ Relative survival rates, computed using period approach

⁵ Epidemiology & Diseases Control Division, Ministry of Health, Singapore. National Health Survey 2004.

⁶ Epidemiology & Diseases Control Division, Ministry of Health, Singapore. National Health Surveillance Survey 2007.

Chart 3: Age-Standardized 5 yr Survival Rates for Colorectal Cancer by Gender, 1973-2007



RISK FACTORS OF COLORECTAL CANCER

There is good scientific evidence to suggest that our lifestyle affects the risk of colorectal cancer. A diet that is high in fat, especially fat from animal sources, and red meat can increase the risk of colorectal cancer. Very low intake of fruits and vegetables is also associated with an increased risk of colorectal cancer⁷. The increase in incidence of colorectal cancers in Singapore may be due to changes in dietary habits towards the 'western' type of diet⁸.

The risk of developing colorectal cancer also increases with age, and those with personal or family history of the following conditions are at higher risk of developing colorectal cancer⁹:

- colorectal cancer
- endometrial, ovarian or breast cancer
- colorectal polyps
- inflammatory bowel disease such as chronic ulcerative colitis or Crohn's disease.

Other risk factors that could lead to colorectal cancer include:

- lack of physical activity
- diet low in fibre and high in fat and calories

⁷ Seow A, Quah SR, Nyam D et al (2002) Food groups and the risk of colorectal carcinoma in an Asian population. *Cancer* 95:2390-6

⁸ Huang J, Seow A, Shi CY, Lee HP (1999) Colorectal carcinoma among ethnic Chinese in Singapore: trends in incidence rate by anatomic subsite from 1968 to 1992. *Cancer* 85:2519-2525

⁹ Source from Health Promotion Board

- obesity
- diabetes
- alcohol consumption
- smoking¹⁰

COLORECTAL CANCER SCREENING

People with colorectal cancers may not experience any symptoms in the early stages. Colorectal cancer can be prevented if detected early by colonoscopy as treatment is most effective then.

The Faecal Immunochemical Test (FIT), also known as the immunochemical Fecal Occult Blood Test (iFOBT), has been proven to be an effective screening tool for colorectal cancer. It is used to detect trace amounts of blood in the stool, and if results are positive, a colonoscopy will be required for further investigation. People aged 50 years and older are encouraged to go for a 2-day FIT annually, even if they have no symptoms¹¹. If the screening results are positive, further tests such as sigmoidoscopy¹², barium enema¹³ and colonoscopy¹⁴ may be required.

Those who have higher risk of developing colorectal cancer (ie. one or more of your close relatives are diagnosed with colorectal cancer or colon polyps) should consult their family doctor on whether they need to go for colonoscopy at a younger age and at more frequent intervals.

Screening is offered at GP clinics, polyclinics, hospitals and the Singapore Cancer Society.

For more information on FIT and where to go for FIT screening, call HPB Healthline at 1800 2231313.

PREVENTION OF COLORECTAL CANCER

Regular screening and the lifestyle changes, such as maintaining a diet with at least two servings each of fruits and vegetables daily, limiting fat and alcohol intake, quitting smoking as well as increased physical activity can help to decrease the risk of developing colorectal cancer.

¹⁰ Tsong WH, Koh WP, Yuan J-M et al (2007) Cigarettes and alcohol in relation to colorectal cancer: the Singapore Chinese Health Study. *British Journal of Cancer* 96: 821-7

¹¹ MOH Clinical Practice Guidelines on Health Screening 2010

¹² Sigmoidoscopy is a procedure done to look at the inside of the sigmoid colon and rectum through the use of a flexible tube which is inserted into the rectum.

¹³ Barium Enema is an x-ray based examination whereby liquid contrast is injected into the colon through the rectum to obtain images of the colon.

¹⁴ Colonoscopy is similar to sigmoidoscopy, but the procedure allows visualisation of the inside of the entire colon. It is considered the procedure of choice for colorectal cancer screening.

The Health Promotion Board (HPB) has programmes to promote healthier lifestyle among Singaporeans. Details on these programmes and information on colorectal cancer can be obtained from the Health Promotion Board's website (www.hpb.gov.sg).