

Health Screening



Ministry
of Health



Health
Promotion
Board

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Available on the HPB website: www.hpb.gov.sg

This booklet is developed based on the Clinical Practice Guidelines on Health Screening. Clinical Practice Guidelines are recommendations to help doctors and patients make appropriate choices about the patient's illness, based on the best scientific evidence currently available. These guidelines do not replace the judgement of the attending doctor. It is important to remember that each person is different, and the Clinical Practice Guidelines may not always apply to everyone.

1 Health Screening

Should you go for health screening?

Health screening helps to discover if a person is suffering from a particular disease or condition, even though he or she does not have any symptoms. If a disease or condition is discovered early through screening, the person is able to receive treatment early and avoid complications, much suffering or even death.

Get tested for a particular disease or condition especially if you have an immediate family member who has the same disease or condition.

What is health screening?

Health screening consists of tests like blood or urine tests and other procedures like X-rays and ultrasound. It is usually done at regular intervals like once a year or once in two to three years, or when a person reaches a certain age.

However, not all screening tests are necessary or helpful. It is best to consult your doctor before going for health screening.

2 Screening for high blood pressure

You have high blood pressure or hypertension if your diastolic blood pressure is at 90 mmHg (millimetres of mercury) or higher or your systolic blood pressure is at 140 mmHg or higher. Diastolic pressure is the blood pressure when the heart relaxes and systolic pressure is the blood pressure when the heart is contracting (pumping).

High blood pressure sometimes goes unnoticed until complications like heart and kidney failure sets in. These complications can often be prevented with early detection and treatment.

Should you be screened for high blood pressure?

If you are 40 years or older, you should check your blood pressure at least once a year.

Screening for high blood pressure

You can ask your doctor to check your blood pressure or learn to check it yourself with an electronic blood pressure meter.

3 Screening for high blood cholesterol

A high blood cholesterol level means that you have more cholesterol in your blood than your body needs. The higher your blood cholesterol level is, the greater your risk of developing heart disease.

Should you be screened for high blood cholesterol?

You should be screened if you:

- are 40 years old or older
- previously had a heart attack, or stroke
- are suffering from diabetes
- have several family members with high cholesterol.

You can consider screening from age 30 years if you:

- have other risk factors for heart disease, for example, you smoke, have high blood pressure or have family members who developed heart disease before 65 years of age
- are Indian or with Indian parentage.

Screening for high blood cholesterol

The cholesterol screening, which is a blood test, would include tests for all types of fats present in the body. This would include:

- “bad” cholesterol [low-density lipoprotein (LDL) cholesterol];
- “good” cholesterol [high-density lipoprotein (HDL) cholesterol] and
- triglyceride (TG).

Only the last test (for TG levels), requires you to fast for 10 to 12 hours.

Ask your doctor what is the desirable level for blood cholesterol. If your results are in the desirable range, blood cholesterol screening every 3 years is recommended.

4 Screening for obesity

Obesity is the condition where the person's body weight is well over the normal weight for his or her height and age.

Obesity can lead to many medical problems like diabetes, high blood pressure, heart disease, stroke and several cancers.

Screening for obesity

All persons aged 18 years and older should be screened once a year. The Body Mass Index (BMI) is used to measure an adult's body fat.

$$\text{BMI} = \frac{\text{Weight (kg)}}{\text{Height (m)} \times \text{Height (m)}}$$

How do you know that you are overweight or obese?

Weight Status	BMI
Healthy weight	18.5 to below 25
Overweight	25 to below 30
Obese	30 and above

5 Screening for diabetes mellitus

Diabetes is a disease in which too little or ineffective insulin is produced by the organ called the pancreas. As a result, people with diabetes have abnormally high levels of glucose in their blood. This leads to damage and failure of various organs such as the eyes and kidneys which may even result in kidney failure.

Should you be screened for diabetes?

Screening for diabetes should begin at 40 years. Screening should be considered at an earlier age e.g. 30 years if you:

- are overweight / obese [body mass index (BMI) $\geq 25 \text{ kg/m}^2$]
- have high blood pressure (BP $\geq 140/90$ mmHg)
- have a close relative who has diabetes
- had diabetes during pregnancy
- suffer from coronary heart disease
- suffer from polycystic ovary disease (multiple cyst of the ovaries)
- have abnormal lipid (fat) levels
- have previously been confirmed with a borderline high fasting blood sugar level.

Screening for diabetes

You can be screened with a blood test for fasting blood glucose.

6 Screening for colorectal cancer

Colorectal cancer is cancer of the colon (the main part of the large intestine) and rectum (the passageway connecting the colon to the anus). Colorectal cancer is the most common cancer among men and women in Singapore.

Should you be screened for colorectal cancer?

If you do not show any symptoms and are not considered to be at high risk, you should undergo screening for colorectal cancer from the age of 50.

If you are at high risk, you will need to go for screening at a younger age and at more frequent intervals. Please consult your doctor for advice.

You are at high risk if one or more of your close relatives have colorectal cancer or an abnormal growth (colorectal polyps) in their large intestine.

Women who have had cancer of the womb, ovaries or breast may have a slightly higher risk of colorectal cancer.

Screening for colorectal cancer

Several different tests can be used. Each can be used alone. Usually, Faecal Occult Blood Test is used first and if positive, it will be followed by one of the other tests.

- **Faecal Occult Blood Test (FOBT)**
This is a test for the presence of blood in stool. When test results are positive, colonoscopy may have to be performed.

- **Double-contrast barium enema**
This is an x-ray examination of the large intestine using a special substance to improve images.
- **Flexible Sigmoidoscopy**
This procedure examines the internal lining of the lower end of your large intestine. A short, flexible, lighted tube is inserted into your rectum and slowly guided into your sigmoid colon.
- **Colonoscopy**
A longer, flexible lighted tube is used. This enables the entire large intestine to be examined.

7 Screening for hepatitis B

Hepatitis B infection is infection with the Hepatitis B Virus (HBV). About 6% of Singaporeans have chronic hepatitis B infection.

People with HBV infection may eventually become seriously ill with or may die from abnormal liver condition and/or from liver cancer. Liver cancer is one of the top 10 cancers affecting males in Singapore.

Should you be screened for hepatitis B?

You should be screened if you are:

- pregnant
- a healthcare worker
- a person undergoing kidney dialysis
- at high risk, if you have a family history of HBV infection or liver cancer, or engage in high-risk behaviour.

High risk behaviour includes having had sex with prostitutes or strangers, having many sex partners, having a sex partner who has HBV infection, men who have sex with men, drug addicts who share injection needles.

Screening for hepatitis B

Screening is done with a blood test for the HBV antigen (HBsAg) and antibody (anti-HBs). It should be carried out before vaccination. If the antibody is present, the person is immune to hepatitis B infection and vaccination is not required.

8 Screening for liver cancer

Liver cancer is the 4th most common cancer among Singaporean men. A Singaporean man is four times more likely to suffer from liver cancer than a Singaporean woman.

Should you be screened for liver cancer?

Generally, there is no need to screen for liver cancer if you are not at risk. Those with chronic hepatitis B infection, hepatitis C liver cirrhosis, and liver cirrhosis from other causes should be screened for liver cancer.

Screening for liver cancer

The tests include:

- Serum alpha feto-protein (α FP) level. α FP, a protein in the blood is raised in hepatitis and liver cancer.

- Ultrasound of the liver including the gallbladder and bile ducts.

While testing for α FP levels should be done every 3 to 6 months, ultrasound scan of the liver should be done every 6 to 12 months.

9 Screening for tuberculosis

Tuberculosis (TB) is a serious infectious disease that affects the lungs and other parts of the body.

Should you be screened for TB with a yearly chest X-ray?

You do not need to go for yearly chest X-ray if you have no symptoms as the pick-up rate for TB is very low.

You should however, go for a chest X-ray if you have persistent cough for more than 3 weeks.

Close contacts of infectious TB patients should undergo screening for latent (hidden) TB infection. This helps to identify persons for treatment to prevent the progression of latent TB to active TB disease. Close contacts are screened for latent TB infection using the tuberculin skin test.

10 Screening for sexually transmitted infections

A sexually transmitted infection is one which is spread mainly by sexual contact with an infected person. Examples are chlamydia trachomatis infection, syphilis, gonorrhoea, genital herpes, HIV and genital viral warts (human papillomavirus infection).

Chlamydia Trachomatis infection

Chlamydia trachomatis infection causes the following:

- Inflammation of the urethra (the tube that releases urine from the bladder) in men
- Inflammation of the cervix (the neck of the womb)
- Inflammation of the area around the uterus and ovaries.

Should you be screened for chlamydia trachomatis?

Non-pregnant women

You should be screened for chlamydia trachomatis if you are:

- A woman 25 years or younger:
 - who has a new sexual partner
 - who has a partner with symptoms of an STI
 - who has had two or more sexual partners in the past 12 months
 - whose partner does not use condoms.

- A woman who had gone through an abortion with the risk factors stated above.

You should discuss how often you should be screened with your doctor. Screening for chlamydial infection should be done about 1 week after unsafe sexual contact or a change of sexual partner.

Pregnant women

You should be screened if you are:

- pregnant and aged 25 years and younger
- pregnant and fall under the following higher risk groups:
 - those who have had two or more sexual partners in the last 12 months, or
 - have sexual partners with symptoms of STI.

Men

All men who practise unsafe sexual behaviours should be screened. They include those who:

- do not use condoms
- have frequent change in sexual partners
- have sex with prostitutes.

Screening methods for chlamydia trachomatis

Screening can be done by obtaining tissues from the lining of the neck of the womb (cervix) in women and from the urethra in men.

Syphilis

Syphilis is an infection that is transmitted from one adult to another through sexual contact or from the mother to her baby during pregnancy.

Screening for Syphilis

Screening is recommended for those who practise unsafe sex, including the following:

- Those who exchange sex for money or drugs
- Those who have other STIs (including HIV) and ulcers on the genitals
- Those whose partners have syphilis.

You should be screened 1 month after possible contact, and again after 3 months.

Pregnant women should be screened at their 1st antenatal visit.

Pregnant women who practise unsafe sex should be screened again in the 3rd trimester. Such behaviour includes having:

- a partner with symptoms of an STI
- sex with multiple partners
- a partner who has multiple sex partners.

Screening methods for syphilis

Screening is done using blood tests.

Gonorrhoea

Gonorrhoea is an infection that causes inflammation of the sexual organs.

Screening for gonorrhoea

The following groups of women, who are at higher risk, should be screened for gonorrhoea:

- Those who exchange sex for money or drugs
- Those with repeated gonorrhoea infections
- Those who have two or more sexual partners in the past year.

The following groups of men should be screened:

- Those who have sexual partners with symptoms of STI
- Those who do not use condoms
- Homosexual men with frequent change of sexual partners.

When should you be screened?

Screening for gonorrhoea should be done about 1 week after sexual contact with an infected person.

Screening methods for gonorrhoea

The best way to test for gonorrhoea is identifying the bacteria by obtaining specimens from the infected areas.

Genital Herpes Simplex Virus (HSV) Infection

Genital Herpes is a viral infection that is transmitted through sexual intercourse.

Screening for genital Herpes Simplex Virus Infection

Routine screening for genital HSV in healthy men, women or pregnant women is not recommended as there is insufficient evidence to suggest that it is useful.

Human Immunodeficiency Virus (HIV) Infection

HIV infection is caused by the Human Immunodeficiency Virus. Acquired immunodeficiency syndrome (AIDS) is the final stage of HIV infection. Some persons infected with HIV do not have any symptoms for more than a decade.

Screening for HIV Infection

If you are at increased risk of infection, you should be counselled and tested for HIV.

Persons at increased risk are:

- Those with other STIs
- Men who have sex with men
- Past or present injecting drug users
- Persons who exchange sex for drugs or money, and their sex partners
- Persons whose past or present sex partners were HIV-infected

- Persons who have had a blood transfusion or an organ transplant that had not previously been screened.

Pregnant women should be tested in the 1st trimester.

How often should screening be done?

The following guidelines are recommended:

- Persons who continue practising unsafe sex should be screened every 6 months
- Persons with recent unsafe sexual conduct should be screened at 1 month, 3 months, and 6 months interval after the last possible contact to rule out a possible initial false negative result.

Screening methods for HIV

Screening is done using a blood test for HIV antibody.

Genital Human Papillomavirus (HPV) Infection

Genital HPV is a viral infection common among sexually active adults. Infection is mostly through sexual contact.

Screening for HPV Infection

Genital HPV infection with no obvious signs and symptoms may exist. However, no screening tests are available for such cases and routine screening is not recommended.

11 Screening for cervical cancer

Cervical cancer is the cancer of the neck of the womb (cervix). Cervical cancer is the 4th most common cancer among Singaporean women.

Are you at risk?

You have a *higher* risk of cervical cancer if you:

- smoke cigarettes
- have sexual intercourse at an early age
- have multiple sexual partners
- have a history of sexually transmitted infections
- are infected with a certain kind of viral warts (HPV infection)
- are HIV positive
- have a weak immune system to fight infection.

You have a *lower* risk of cervical cancer if you have never had sexual intercourse.

Should you be screened for cervical cancer?

All women who have had sexual intercourse should have their first Pap smear by 25 years of age.

You can stop taking the Pap smear test after 65 years of age if your Pap smear taken at 65 years old and the Pap smears taken in the past have been clear.

You do not need to go for Pap smear if you have never had sexual intercourse. However, if you have abnormal vaginal discharge, you should consult a doctor.

How often should screening be done?

You should go for a Pap smear every 3 years.

HIV positive women should go for a Pap smear every year.

Screening for cervical cancer

Screening for cervical cancer involves a Pap smear test. The Pap smear is a simple procedure where the doctor or nurse obtains some scrapings from the neck of the womb (cervix) and sends them for examination under the microscope.

12 Screening for breast cancer

Breast cancer is the most common cancer among women in Singapore. One in 20 women here has a chance of developing breast cancer in her lifetime.

Should you be screened for breast cancer?

Early breast cancer screening will be able to detect the cancer in its early stages for effective treatment.

Screening for Breast cancer

- Regular mammography is the most reliable way to detect breast cancer before the lump can be felt.
- Breast Self-Examination (BSE) is breast examination done by the woman herself. BSE should be done from age 30 onwards. BSE helps women detect changes in their breast that may arise in the interval between regular mammography.

How often should screening be done?

The following screening guidelines are recommended for different groups of healthy women:

1. Women above 50 years
Screening every 2 years is recommended.
2. Women between 40 – 49 years
Annual screening is recommended.
3. Women below 40 years
There is no need for women in this age group to go for screening.

Women at high risk

Women in the high risk category should consult their doctor regarding the frequency of screening. High risk women have a history of:

- Breast cancer in several close members of the same family
- Other cancers, especially cancer of the ovary and colon, as well as breast cancer, in members of the same family
- Breast cancer in a close relative under the age of 40.

13 Screening for osteoporosis

Osteoporosis, which means “porous bones”, is a condition in which the bones become weak and brittle, resulting in a greater likelihood of breaking after minor trauma.

Are you at risk for osteoporosis?

Check the risk factors below which might make it more likely for you to have osteoporosis.

Should you be screened for osteoporosis?

Yes, if you are an adult, and have the following risk factors:

- Personal history of past fracture as an adult
- History of fracture in an immediate relative (especially mother)
- Low body weight & older age
- Smoke cigarettes
- Heavy alcohol intake
- Early menopause
- Surgical removal of the ovaries before the age of 45 years
- Long-term medication e.g. oral steroids, thyroid medication
- Being bed-bound for a prolonged period due to illness
- Poor health
- Low calcium intake for most of your life (< 500 mg/day)
- Lack of regular exercise or physical activity.

Osteoporosis Self-assessment Tool for Asians (OSTA)

For those who have not suffered fractures, the Osteoporosis Self-assessment Tool for Asians (OSTA) is a quick and easy test to find out your risk of osteoporosis. OSTA, which is based on age and weight, groups Asian women who have reached menopause into high, moderate or low risk of having osteoporosis.

Measure your weight in kilograms and look at the OSTA chart on the following page to identify your risk. If your risk is moderate or high, see your doctor. You may need to be screened for osteoporosis.

Age (Yr)	Weight (kg)							
	40-44	45-49	50-54	55-59	60-64	65-69	70-74	75-79
45-49								
50-54								
55-59						Low Risk		
60-64								
65-69			Moderate Risk					
70-74								
75-79	High Risk							
80-84								
85-89								

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Screening test for osteoporosis

Osteoporosis can be easily detected through a painless procedure called dual-energy X-ray absorptiometry (DXA). This test measures the density or strength of the bones known as bone mineral density or BMD.

How often should screening be done?

You could measure BMD once a year if you are being followed up for osteoporosis.

Frequency of screening varies from 1-5 years if you have mild decrease in your bone mass or osteopenia and once in 5 years if your bone mass is normal.

14 Screening for prostate cancer

Prostate cancer is the 6th most common cancer among Singaporean men.

Prostate cancer can only be cured if it is limited to the prostate gland and has not spread to the other parts of the body.

Should you screen for prostate cancer?

You should go for screening if you are at high risk. Men above 50 years with a history of immediate family members who have had prostate cancer below 60 years of age are at high risk.

Screening for prostate cancer

Digital rectal examination (DRE)

DRE is a quick and reliable clinical examination of the prostate gland through the rectum with a gloved finger. DRE can pick up suspicious lumps in the prostate gland.

Prostate Specific Antigen (PSA) blood test

The PSA test can detect the onset of cancer of the prostate gland.

Guidelines for Health Screening

Screening	18-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65-69	70-74	Above 75
Women & Men High blood pressure					Check blood pressure from 40 years old							
Blood Cholesterol					Check fasting lipids every 3 years if the first screening is normal							
Obesity	Measure Body Mass Index (BMI) yearly											
Diabetes Mellitus					Check fasting blood glucose every 3 years if the first screening is normal							
Colorectal cancer								Faecal Occult Blood Test (FOBT) yearly				
Hepatitis B+	Screening for those with a family history of hepatitis B infection, liver cancer or with high risk behaviour											
Liver cancer+	Screening for those with chronic hepatitis B infection, hepatitis C liver cirrhosis											
Tuberculosis+	Tuberculin skin testing for close contacts of infectious TB case											
STIs+ Syphilis	See a doctor for screening after exposure											
Gonorrhoea	See a doctor for screening after exposure											
HIV	See a doctor for screening after exposure											
Chlamydia	See a doctor for screening after exposure											
Women Cervical Cancer	Pap smear once every 3 years for all women who have ever had sexual intercourse											
Breast Cancer			Breast Self-Examination (BSE) monthly									
					Yearly Mammography		Mammography once in 2 years					
Osteoporosis							Bone Mineral Density (BMD). Earlier if advised by your doctor.					
Men Prostate Cancer						Early screening for men over 50 years with close relatives with prostate cancer arising before the age of 60						

* This chart lists recommended screenings for men and women at average risk for some diseases. These are guidelines only. Your doctor will personalise the timing of each test to best meet your needs. + High Risk

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