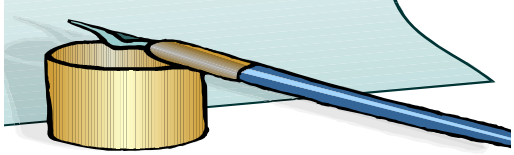

EXPLANATION GUIDE FOR TESTS AVAILABLE AT HEALTHWAY MEDICAL ASSESSMENT CENTRE HEALTHWAY SCREENING AND WELLNESS CENTRE

BLOOD TESTS

Cholesterol Panel

Excessive amounts of cholesterol can cause narrowing of the arteries leading to coronary heart disease. The acceptable range depends on your age, sex and other coronary risk factors.

Cholesterol comprises of:

- Cholesterol Total
- Low Density Lipoprotein (LDL) - the bad Cholesterol, a very important barometer of risk of coronary heart disease
- High Density Lipoprotein (HDL) - the good Cholesterol, which reduces the risk of coronary heart disease
- Cholesterol / High Density Lipoprotein (HDL) Ratio
- Triglycerides (associated with foods rich in animal fat and alcohol)

Diabetic Screening

Fasting blood glucose may be used to detect diabetes mellitus even before patients are symptomatic.

Diabetes is a disease in which your blood sugar levels are too high. Glucose comes from the food you eat. Insulin is a hormone that helps the glucose gets into your cells to give them energy.

- With Type 1 diabetes, your body does not make insulin.
- With Type 2 diabetes, the more common type, your body does not make or use insulin well.

Without enough insulin, the glucose stays in your blood. Over time, having too much glucose in your blood can cause serious problems. It can damage your eyes, kidneys, blood vessels and nerves. Diabetes can also cause heart disease and stroke.

Please fast (no food or beverages except plain water) from 10pm the night before your Health Screening. The purpose of fasting is to achieve accurate results for your blood tests for glucose, cholesterol and triglycerides. For diabetics, please do not consume your morning medication but bring along your medication to be consumed after your blood taking is completed. Please call for our doctor's opinion if you need further clarification on this issue.

Haematology

The comprehensive full blood count includes a series of tests:

- Total white cell count
- Differential count
- Haemoglobin
- Packed cell volume
- Total red cell count
- Platelet count
- Peripheral blood film
- Erythrocyte Sedimentation Rate (ESR)
- Blood grouping
- Red blood cell indices - Mean Cell Volume (MCV), Mean Cell Haemoglobin (MCH), Mean Corpuscular Haemoglobin Concentration (MCHC)

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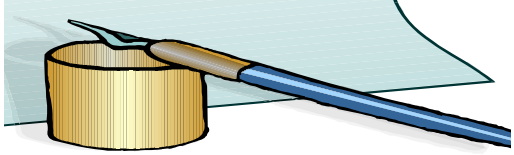

These tests essentially study the breakdown of white blood cells, red blood cells and platelets. The tests are indicative of certain bacterial infections, anaemia, bleeding disorders and leukaemia.

BLOOD TESTS

Kidney Panel

The kidney panel comprises of six different tests:

- Sodium
- Potassium
- Chloride
- Urea
- Creatinine
- Estimated Glomerular Filtration Rate (eGFR)

Levels outside the normal ranges of the electrolytes (Sodium, Potassium and Chloride) may be indicative of dehydration, diabetes, kidney disease or other conditions affecting the muscle and heart functions. Glucose, Urea and Creatinine are waste products excreted by kidneys. A high level of any of these substances may indicate diabetes or kidney disease.

Liver Panel

The liver makes important proteins and chemicals, and breaks down and excretes old materials.

The liver panel comprises of nine different tests:

- Total bilirubin
- Total protein
- Albumin
- Globulin
- Serum Glutamic Oxaloacetic Transaminase / Aspartate Aminotransferase (SGOT / AST)
- Serum Glutamic Pyruvic Transaminase / Alanine Aminotransferase (SGPT / ALT)
- Albumin / Globulin ratio
- Alkaline Phosphatase
- Gamma-Glutamyl Transpeptidase (GGT)

High levels of total bilirubin and total protein (including Albumin and Globulin) might be indicative of liver disease, infections or alcoholism. Elevated amounts of the enzymes SGOT, SGPT, Alkaline Phosphatase and GGT may signify liver disorders, hepatitis or bone disease.

Thyroid Test

The thyroid test is to diagnose hypothyroidism or hyperthyroidism.

- Hypothyroidism is the decreased activity of the thyroid gland.
- Hyperthyroidism, on the other hand is the over activity of the thyroid gland due to tumour or the overgrowth of the gland.

Free Thyroxine (Free T4)

Free Thyroxine is a hormone produced by the thyroid gland. This gland plays a vital role in controlling the rate at which your body uses energy. Deficiency of Free T4 is very common in the elderly and results in lethargy, dry skin and weight gain.

Thyroid Stimulating Hormone (TSH)

TSH is raised when thyroid hormones are reduced. Hence, testing for TSH helps determine whether your thyroid gland is functioning properly. An underactive thyroid gland

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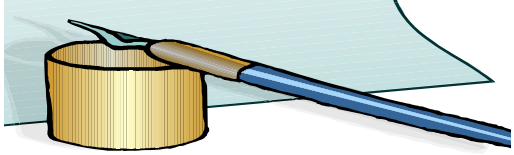

causes symptoms such as weight gain and lethargy, while an overactive thyroid gland can cause rapid heart beat and nervousness.

BLOOD TESTS

Bone / Joint Function

The Bone / Joint function tests include:

- Calcium
- Phosphate
- Uric Acid

Calcium and Phosphates are two important minerals necessary for good health. High levels of these minerals may be due to a wide range of medical disorders, amongst which includes bone diseases.

Uric acid is the main chemical in the blood associated with gout.

Rheumatoid Arthritis Factor (RA Factor)

Most adults with Rheumatoid Arthritis have high levels of RA factor and will show a positive result. Arthritis is an inflammation of the joints and can occur in several diseases.

Hepatitis Screen

Hepatitis A

- Hepatitis A Antibodies

Hepatitis A screening is done to detect the presence of the hepatitis A antibodies, which protects against the hepatitis A infection, usually due to consumption of contaminated food or drinks. A vaccine that protects against Hepatitis A infection is available. It consists of 2 doses of the injection given 6 months apart.

Hepatitis B

- Hepatitis Bs Antigen
- Hepatitis Bs Antibodies

Hepatitis B screening is done to detect the presence of the Hepatitis B virus in the system, and whether the Hepatitis B antibodies are present to protect against such viruses. Hepatitis B is spread by direct contact with the blood or body fluids of an infected person. Hepatitis B carriers are at increased risk of developing liver cirrhosis (hardening of the liver) and liver cancer. In Singapore, 1 in 35 are carriers for the disease. A vaccine that protects against Hepatitis B is available. It consists of 3 doses of injection given at 0, 1 and 6 months intervals.

Hepatitis C

- Anti Hepatitis C Virus (Anti HCV)

Hepatitis C screening is done to detect the presence of the Hepatitis C virus in the system, usually spread by an infected person's blood or bodily fluids.

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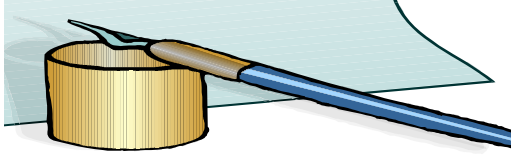

BLOOD TESTS

Iron Studies
The iron and iron binding capacity, test for iron deficiency and the iron absorption ability of your body.

Folic Acid
Our body needs Folic Acid to make red blood cells, platelets and new genetic material (DNA), and for normal growth. Deficiency of either folic acid or vitamin B12 may cause anaemia (deficiency of red blood cells).

Vitamin B12
Vitamin B12 comes from the food we eat and from vitamin supplements. It is used to make blood cells and your nerve cells and brain need it to work normally and well. Testing for Vitamin B12 deficiency determines our body's ability to absorb enough B12.

Helicobacter Pylori Antibody
This is a test for infection or previous infection with Helicobacter Pylori bacteria. Infection has been associated with higher risk of gastritis, stomach ulcers and stomach cancers.

Anti-Double Stranded DNA Antibody (Anti-Ds DNA) and Anti-Nuclear Antibody (ANA)
This screens for autoimmune diseases such as Systemic Lupus Erythematosus (SLE). ANA is present in higher than normal numbers in persons with autoimmune disease.

Sexually Transmitted Disease (STD) Screen
- **Venereal Disease Research Laboratory (VDRL)** for syphilis
- **Human Immunodeficiency Virus (HIV)**

THPA test is done to confirm a syphilis infection if the VDRL test is reactive.

- **Herpes Simplex Virus 1 and 2**

This detects antibodies to HSV 1 and 2 which may cause cold sores and genital ulcers which can be sexually transmitted.

Rubella Screen
If you are planning to start a family, you should have a rubella screening. The infection is often mild but can cause profound damage to unborn babies if the mother is infected. If you are not immune against rubella, you are strongly recommended to take rubella vaccination.

Thalassemia Screen
Thalassemia is a genetic blood disorder passed down to the child. This can be serious if both the parents carry the genes for the disorder. With this blood disorder, the body is not able to make enough normal haemoglobin and the life of red blood cells is much shorter, thus leading to gradual and progressive anaemia.

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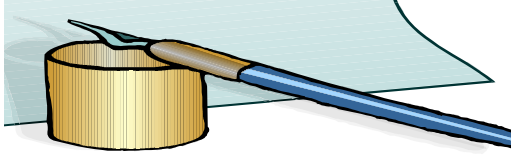

BLOOD TESTS

Tumour Markers (Cancer Markers)

- **Alpha Fetoprotein (AFP)**

Alpha Fetoprotein (AFP) is a protein in humans. Raised levels of AFP may indicate liver cancer. This test coupled with the liver function test is useful to monitor patients with chronic Hepatitis B infection.

- **Carcinoembryonic Antigen (CEA)**

Carcinoembryonic Antigen (CEA) is not usually present in the blood of healthy adults. Raised levels of CEA may indicate cancer in the gastrointestinal tract and lung. Smokers have also been known to present with mild elevation of CEA. You may wish to opt for this test if you have family history of cancers.

- **Epstein–Barr Virus (EBV)**

The Epstein-Barr Virus (EBV) is linked to Nasopharyngeal Cancer (NPC); cancer in the ear, nose and throat region. Singapore has seen an increasing number of patients diagnosed with NPC. NPC is more prevalent in those of South Chinese ethnicity around the age of 45 years. The EBV IgA screening test has specificity and sensitivity of above 95% and is useful to help detect NPC as the disease usually has non-specific symptoms that may easily be confused with the common cold, ear ache, headaches or nose bleed.

- **Cancer Antigen 19.9 (CA19.9)**

Stomach cancer now the 5th most common cancer in men and the 7th most common in women in Singapore. CA 19.9 is a screening test to detect pancreatic, stomach or colorectal cancers. CA19.9 levels are raised in patients with pancreatic, stomach or colorectal cancers. As stomach cancer can present with relatively non - specific complaints such abdominal discomfort or indigestion, persons who have had pancreatic cancers or symptoms of the disease and suffer from upper abdominal pain may consider taking this test.

- **Cancer Antigen 15.3 (CA15.3)**

Cancer Antigen 15.3 is used to monitor breast cancer. Elevated levels of CA 15.3 together with alkaline phosphatase (ALP) has been associated with increased risk of early recurrence in breast cancer.

- **Cancer Antigen 125 (CA125)**

CA 125 is a protein which may be elevated in cases of ovarian cancer. Persons who have a family history of ovarian cancer or experience persistent abdominal pain related to menses may consider taking this test.

- **Prostate Specific Antigen (PSA)**

Prostate cancer is the third most common cancer in men more commonly occurring in men above the age of 50. This cancer marker can be used to pick up prostate cancer. Raised levels of PSA may indicate prostate cancer. The prostate ultrasound is another test complimentary to the PSA that can provide a visual picture of the prostate to look for abnormalities.

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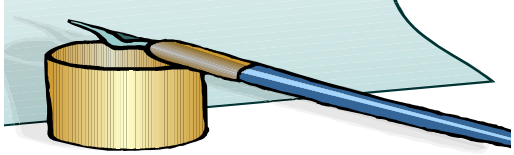

BLOOD TESTS

Hormones Profile

These tests are used to help evaluate ovulation and fertility. These hormones are also affected as the individual approaches menopause.

- Prolactin,
- Follicle Stimulating Hormone (FSH)
- Luteinizing Hormone / Interstitial Cell Stimulating Hormone (LH / ICSH)

Prolactin

Prolactin is produced primarily in the front part of the pituitary gland. Prolactin has the effect of stimulating the breast to produce breast milk in late pregnancy and sustaining milk production after birth. High prolactin levels have the effect of suppressing the hormones responsible for normal functioning of the ovaries, leading to menstrual irregularity and/or fertility problems.

Follicle Stimulating Hormone (FSH)

FSH is produced by the pituitary gland. It helps control the menstrual cycle and the production of eggs by the ovaries. A FSH test is used to evaluate menstrual problems and determine whether a woman has gone through menopause as well as diagnose certain pituitary gland disorders.

Interstitial Cell Stimulating Hormone (LH/ICSH)

ICSH is produced by the pituitary gland that stimulates female sex hormone production and controls its secretion. A LH/ICSH test also helps evaluate menstrual problems.

Dehydroepiandrosterone Sulphate (DHEAS)

DHEAS is a natural steroid hormone produced from cholesterol by the adrenal glands atop of the kidneys. It is the precursor to sex hormones and hence plays a vital role in regulating our body's production of it. DHEAS tends to decline as we age.

Insulin Growth Factor 1 (IGF-1)

IGF-1 is an indirect measure of growth hormone, produced by the liver and many different tissues throughout the body. It promotes healthy skin, supports growth of muscle, bone and hair and is critical for the growth and development of nerve cells, increasing physical and mental performance. Production of IGF-1 decreases significantly after the age of about 30.

Estradiol (E2 for Ovarian Fx)

This is the female sex hormone produced in the ovaries and responsible for developing and maintaining female physical characteristics. It is also improves bone density. It is reduced during menopause.

Testosterone

This is the principal male sex hormone that plays key roles such as enhanced libido, energy, immune function and protection against bone loss. Testosterone levels decline gradually with men.

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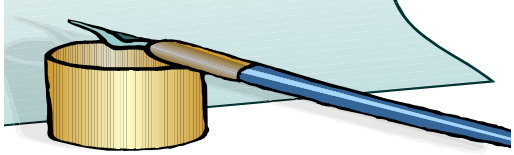

BLOOD TESTS

Cardiac Profile
Blood test screening as a risk factor for strokes and heart attacks.

Apolipoprotein A1 / B Ratio
Apoliproprotein A1 is a protein found in HDL and Apoliproprotein B1 is the major protein component of LDL and VLDL. A high Apolipoprotein A1 / B ratio correlates to an increased risk of cardiovascular disease, including heart attack.

Homocysteine
Homocysteine is an amino acid found in blood. This test measures the risk of future cardiovascular disease, including heart attack as your risk of blood vessel blockage is increased with high levels of homocysteine.

Highly Sensitivity C-Reactive Protein (HS CRP)
HS CRP is a protein found in the blood. The test for HSCRP searches for low grade inflammation. Inflammation plays a role in the start and progression of cardiovascular disease. It provides an indication of risk of future heart attacks and strokes.

URINE AND STOOL ANALYSIS

Urine Test (UFEME)
Your urine is tested for blood (white and red blood cells), glucose, protein and bacteria. None of these substances should be present in normal urine.

Preparation instructions:
Please ensure that you are not menstruating when your urine test is being performed.

Urine Microalbumin
A microalbumin urine test is checks the presence of protein (albumin) in the urine. When the kidneys are functioning properly, albumin is not present in the urine. However, when kidneys are damaged, small amounts of albumin leak into the urine in the condition known as microalbuminuria. Microalbuminuria is may be caused by kidney damage from diabetes, high blood pressure, heart failure, cirrhosis, or systemic lupus erythematosus (SLE). In severe conditions or macroalbuminuria, chronic kidney disease may develop. Early detection may help to preserve as much kidney function as possible.

Stool Analysis
The stool sample is used to detect any traces of blood. The presence of occult blood indicates bleeding from the guts, whether the cause is benign or malignant.

Preparation instructions:
If have gotten the sterile stool collection bottle from us and are bringing your stool sample from home, please seal the container tightly.

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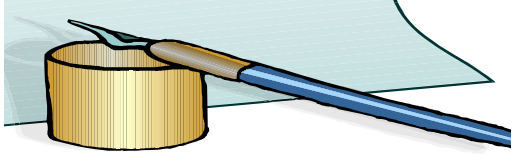

SMEARS & OTHER ANALYSIS

PAP Smear Test

The pap smear test is recommended for sexually active women between the age of 25 and 69 once every 3 years. The test involves a simple procedure of collecting a random cervical cell sample to be sent to the laboratory for analysis to check for cervical cell changes which may develop into cancer.

Preparation instructions:
Please ensure that you are not menstruating or pregnant when your Pap smear test is being performed. (The optimal time for Pap smear test is 2 weeks after your last menses). Please abstain from sexual intercourse 24 hours before the procedure. Avoid the use of vaginal creams, lubricant jellies, spermicides or vaginal medications and tampon usage 2 days before the test.

Seminal Analysis

This is a study of the semen sample, including an analysis of the volume, number and structure of the sperm, sperm movement and the fluid thickness, acidity and sugar content.

Preparation instructions:

1. Please collect your semen container before your screening day.
2. Inform us your preferred date (weekdays only) for submission of the semen sample. The submission time must be strictly kept to 8.45am as the sample has to be sent to the laboratory within the hour.

Important points to note :-

a) Please note that you are required to abstain from sexual intercourse for at least 3 days for a good sample profile.
b) Please do not use any lubricant jellies or spermicides before or during the collection. Please collect the semen sample within the hour of submission to our clinic (between 7.45am – 8.45am)

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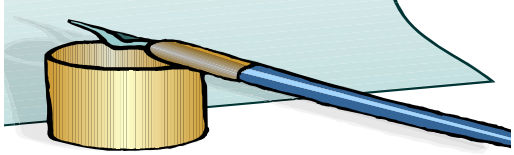

RADIOLOGIC AND DIAGNOSTIC IMAGING

Large Chest X-ray

Chest x-rays are useful to evaluate the lungs, heart and surrounding anatomy for abnormalities. Pneumonia and congestive heart failure are commonly picked up with the help of chest x-rays. As low doses of radiation is used in chest x-rays, please declare if you are pregnant as you are advised not to conduct this test during pregnancy.

Mammogram and Breast Ultrasound

Both mammogram and breast ultrasound are different means to diagnose breast diseases in females. The appropriate examination would depend on the doctor recommendation. In general, females above 40 years old (earlier if with family history) are recommended to do a mammogram once every year. Those below 40 years may choose to go for the ultrasound breast. The procedure itself can take about 30-40 minutes to complete. In the case of mammogram, low doses of radiation are used to check for microcalcifications or masses. Thus please declare if you are pregnant as you are advised not to conduct this test during pregnancy.

Preparation instructions:
It is advisable to schedule your appointment about 5 days after your menstruation. Please remove all jewellery on your upper body before the Mammogram. Please also refrain from using powder on your breast or armpit. It would be more convenient for you to wear a 2-piece suit instead of a dress or comfortable, loose-fitting clothing for the ultrasound examination.

Abdominal Ultrasound

An abdominal ultrasound uses sonography to produce images of the internal organs in the abdominal region, including the kidneys, liver, gall bladder, spleen and pancreas. The examination can take about 35-45 minutes to complete depending on what the doctor has ordered.

Preparation instructions:
Please abstain from food for 7 hours before the examination. Drink lots of plain water and do not empty bladder before examination. If you are a smoker, please refrain from smoking on the day of the appointment

Ultrasound Pelvis

A pelvis ultrasound uses sonography to produce images of the pelvis structure to evaluate any abnormalities in a woman reproductive organs. A pelvis ultrasound can take about 35-45 minutes to complete depending on what the doctor has ordered.

Preparation instructions:
Please drink lots of water and do not empty bladder before examination.

HBS Ultrasound (Liver/GB/Pancreas)

A HBS ultrasound uses sonography to produce images of the liver, gall bladder, spleen and pancreas to evaluate any liver, gall bladder, spleen and pancreatic problems. A HBS ultrasound can take about 35-45 minutes to complete depending on what the doctor has ordered.

Preparation instructions:
Please abstain from food for 6 hours before the examination. Only plain water is allowed.

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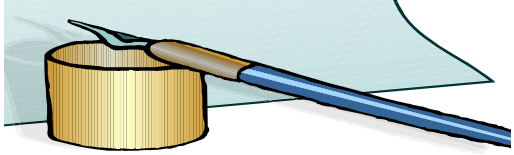

RADIOLOGIC AND DIAGNOSTIC IMAGING

Bone Mineral Density (Lumbar Spine)

This test measures the mineral density of a person's bones and is used to assess and detect a person's risk of developing osteoporosis, a condition in which the density of the bone decreases and causes it to weaken and becomes susceptible to fractures.

CT Cardiac Calcium Score

This uses the CT scan to detect the formation of calcium containing plagues in the coronary (heart) arteries, demonstrating possible obstruction. Heart disease is caused by a build-up of plaque in the arterial walls, which blocks the flow of blood to the heart muscle. As plaques grow and age, bits of calcium are deposited into the plaque. These calcium deposits are present in the arteries of 96% of all heart attack victims and can be detected.

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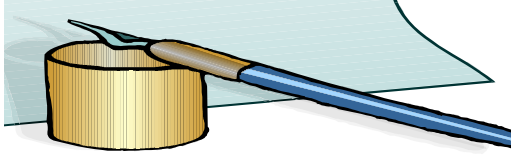

OTHER EXAMINATIONS

Resting ECG
This test records the electrical conductive activity of your heart while at rest. Abnormality may mean significant heart disease.

Preparation instructions:
It would be more convenient for you to wear a 2-piece suit instead of a dress or comfortable, loose-fitting clothing for the resting ECG.

Treadmill ECG
The treadmill test charts the electrical activity of heart function during strenuous exercise conditions.

Preparation instructions:
Please bring along your jogging attire, shoes and a towel on the day you are conducting your ECG Treadmill test. For hypertensive patients, please do not consume your morning hypertensive medication but bring along your medication to be consumed after the doctor has determined that the medication it isn't a beta blocker. Please inform our staff before your screening day if you have any pre-existing heart problems or if you are not feeling well. Please call for our doctor's opinion if you need further clarification on this issue.

Spirometry
This is a lung function test to diagnose lung disorders through forced exhalation. It measures the volume and the speed of air that can be exhaled. It is used to detect blockage or obstruction to your airways or restrictive lung diseases. Abnormality may mean asthma or chronic obstructive lung disease.

Audiometry
This is a hearing ability test, conducted in a soundproof audiometric testing chamber, acting as a controlled environment for the audiometric measurement. It is a test of a person's hearing ability at various frequencies. Hearing loss may occur due to aging, exposure to loud noises, infection or disease. Hearing deficiency is common in the elderly.

Tonometry
This test measures the pressure inside the eyes, using the non-contact method of a brief puff of air blown into the eyes. High value may indicate plaucome which is common in the elderly. The test is used as a screen for glaucoma (an eye disorder) which may lead to blindness.

Snellens Eye Test
This visual acuity tests your ability to read rows of letters or numbers that decrease in size. As our physical examination requires an eye examination for short sightedness, please bring along your glasses or contact lenses and contact lenses holder.

Colour Vision (Ishihara Chart)
To test consists of reading the characters on a set of coloured charts to determine if a person is suffering from colour vision deficiency (CVD). Colour vision deficiency is not related to visual acuity at all and is most commonly due to an inherited condition.

Body Fat Analysis
This test uses a bioelectrical impedance analysis to calculate the body fat.

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