## HKSH Cardiology Centre

**Happy Valley**
Hong Kong Sanatorium & Hospital
6/F, Li Shu Fan Block
2 Village Road, Happy Valley, Hong Kong
Tel: (852) 2835 7899
Fax: (852) 2892 7545
cardiology@hksh-hospital.com
www.hksh-hospital.com
**Service Hours**
Monday to Friday: 9:00 am – 5:00 pm
Saturday: 9:00 am – 1:00 pm
Closed on Sundays and Public Holidays
Consultation by Appointment

**Admiralty**
HKSH Healthcare Medical Centre
Level 22, One Pacific Place
88 Queensway, Hong Kong
Tel: (852) 2855 6626
Fax: (852) 2892 7595
cardiology@hksh-healthcare.com
www.hksh-healthcare.com
**Service Hours**
Monday to Friday: 10:00 am – 1:00 pm
2:00 pm – 6:00 pm
Saturday: 10:00 am – 1:00 pm
Closed on Sundays and Public Holidays
Consultation by Appointment

For emergency, please contact us through
Hospital Main Exchange: (852) 2572 0211
Outpatient Department: (852) 2835 8600

For enquiries and appointments,
please contact us



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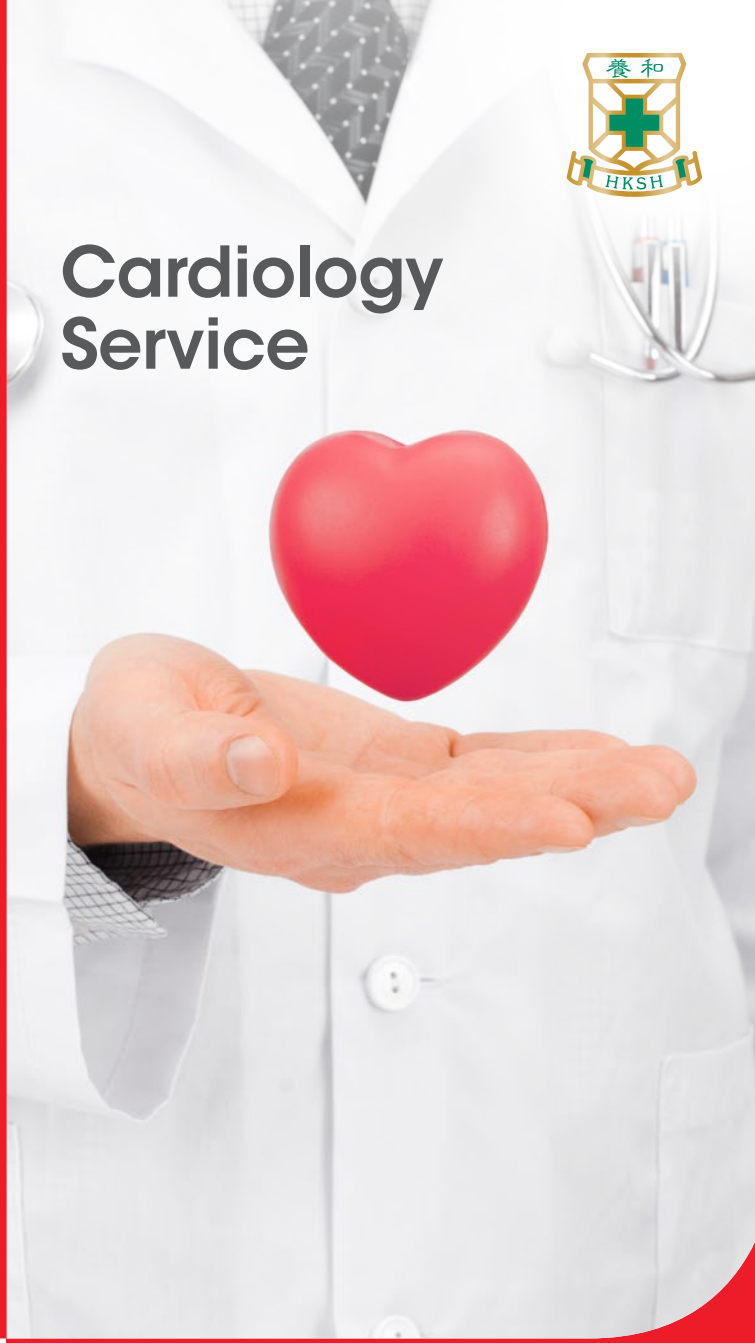
# Cardiology Service



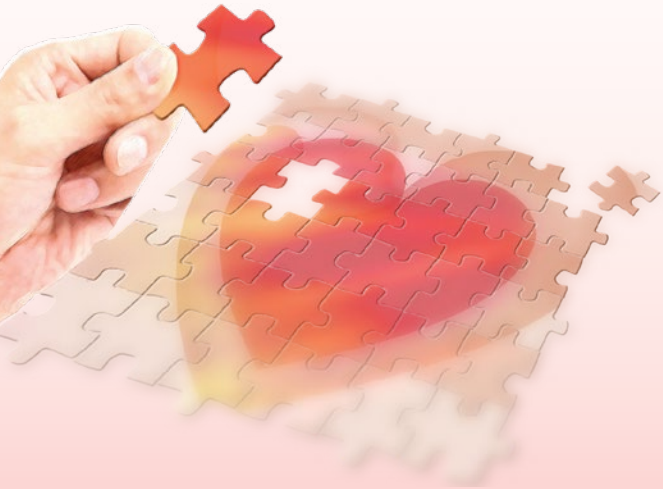
養和心臟科中心
HKSH Cardiology Centre

www.hksh.com

**Our cardiology service is provided by a dedicated team of consultant cardiologists, specialty nurses and radiology technicians at the Cardiology Centre and Cardiac Catheterization & Intervention Centre (CCIC). We place special emphasis on the development of an integrated heart health network, and are committed to providing a comprehensive range of patient-centred services from prevention to intervention. We strive to enhance our performance as a distinguished medical centre of excellence in the region.**

## Our Mission

- To provide high-quality, evidence-based and one-stop cardiovascular care
- To provide patient-centred services to cater for individual needs
- To expand the boundaries of cardiovascular medicine through research and liaise with local and overseas academic institutions (including The University of Hong Kong, Harvard Medical School and Stanford Medical Centre)
- To train the next generation of cardiovascular healthcare professionals



## Cardiology Centre

The Cardiology Centre specialises in non-invasive diagnosis and management of cardiovascular diseases. In addition to outpatient consultation, we provide a Global Cardiovascular Risk Assessment Programme, which is a disease prevention programme with health education and professional advice for patients identified with cardiovascular risk factors.


### Global Cardiovascular Risk Assessment Programme

**Understanding Cardiovascular Diseases**

Cardiovascular disease is the leading cause of death and a major public health issue in Hong Kong and worldwide. Notably, coronary artery disease is the most prevalent among all cardiovascular diseases. In recent years, patients suffering from coronary artery disease are getting younger. As this disease sometimes strikes without noticeable warning signs, it is also known as the “silent killer”.

Coronary artery disease is the result of fatty deposits (plaque) building up on the wall of the coronary artery which supplies oxygen and nutrients to the heart muscle. A narrowing or blockage in the coronary artery cuts off the vital supply to the heart muscle, resulting in ischemic heart disease. Plaque deposition can also lead to conditions such as hardening of arteries (atherosclerosis), chest pain or stroke.

### Risk Assessment and Disease Prevention

Hypertension, diabetes, high concentration of low-density lipoprotein ("bad" cholesterol) and low concentration of high-density lipoprotein ("good" cholesterol) in blood and smoking are some of the modifiable risk factors of cardiovascular diseases. By a comprehensive evaluation of risk factors and non-invasive examinations, our Global Cardiovascular Risk Assessment Programme can help evaluate a patient's risk of developing cardiovascular diseases and formulate an appropriate action plan for those at intermediate and high risk.

## Non-Invasive Diagnostic Examinations

The following non-invasive diagnostic examinations are performed at our Centre:

1. **Resting Electrocardiogram (ECG)**

   ECG is a graphic representation of electrical activity occurring in the heart, as detected by electrodes placed on the surface of the body. ECG can provide preliminary evidence of abnormalities such as myocardial infarction, hypertrophy (heart muscle enlargement) or arrhythmia (abnormal heart rhythm), or other conditions such as electrolyte imbalance or drug-induced effects. Therefore, ECG is an indispensable basic method of assessment in suspected cardiac disorders and cardiac rhythm disturbances. It is also used as a baseline screening test or pre-operative assessment.

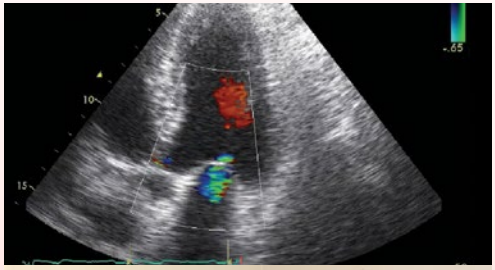
2. **Holter Monitoring**

   A Holter monitor is a portable electrocardiogram (ECG) that monitors the heart rate of ambulatory patients around the clock. Patients are sent home with the monitor and can carry out their daily activities as usual during the monitoring period. It is most often used for:

   - assessment of the severity of abnormal heart rhythm
   - evaluation of patients with syncope (fainting), palpitations (fast and irregular heartbeats) or other symptoms that may be due to heart rhythm disturbance
   - evaluation of the efficacy of anti-arrhythmic treatment (pacemaker implantation, radiofrequency ablation or drug treatment)

3. **Echocardiogram**

   Echocardiogram, by means of high-frequency sound waves, allows real-time detection of the heart structures and haemodynamic function. It can also provide information on heart contraction activities during rest and stress. Advanced Tissue Doppler Imaging technology allows the physician to accurately assess whether the heart muscle is working in synchrony and to choose the most suitable treatment regimen accordingly.



**4. Exercise Treadmill Electrocardiogram Test**

Exercise Treadmill Electrocardiogram Test is a useful non-invasive examination of the cardiovascular response to exercise. This multi-stage test can provide information about your exercise capacity, heart rhythm and the status of oxygen supply to the heart muscles during stress.

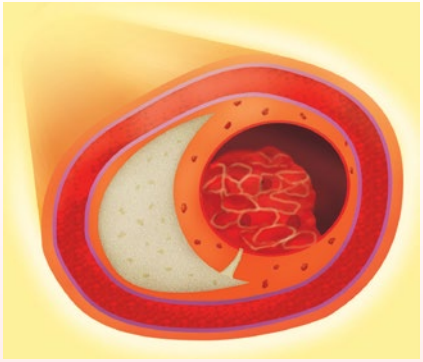
**5. Advanced Imaging Examinations**

Aside from tests outlined above, advanced technologies such as CT Angiography, Cardiac MRI, Myocardial Perfusion Scintigraphy Imaging and PET Scan are also commonly used in the diagnosis of cardiovascular disease. For patients who need to undergo these tests, expedited arrangements will be made with relevant departments of the Hospital.

Patients who need to undergo interventional procedures will be referred to the Cardiac Catheterization & Intervention Centre (CCIC).

## Cardiac Catheterization & Intervention Centre (CCIC)

The CCIC provides invasive investigations and management of cardiovascular diseases with the help of state-of-the-art equipment. The Hospital also offers 24-hour emergency intervention service for acute heart attack.



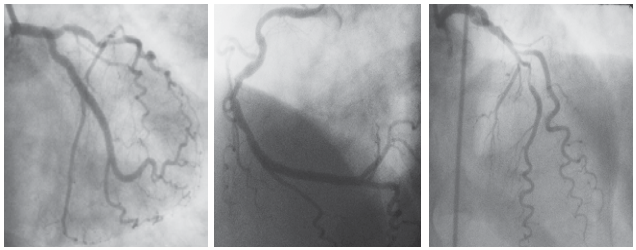
### Interventional Procedures

The following invasive procedures are available at the CCIC:

**1. Coronary Angiography**

It is a procedure performed to investigate the general condition of your heart's structure and, most importantly, whether there is narrowing of your coronary arteries due to plaque deposition. Then your physician can choose the most suitable treatment regimen for you.

Under local anaesthesia, a catheter is fed into the entrance to the coronary arteries through a small puncture usually in the wrist (trans-radial) or groin (trans-femoral). After a dye is injected, the coronary arteries will come into view under X-ray, allowing the physician to assess if there is any narrowing or blockage. Nowadays, Balloon Angioplasty is usually performed to open the narrowing or blockage in the same sitting.



## 2. Balloon Angioplasty and Stenting

Balloon Angioplasty is a minimally invasive radiology procedure performed to open narrowed or blocked coronary arteries. It is performed under local anaesthesia.

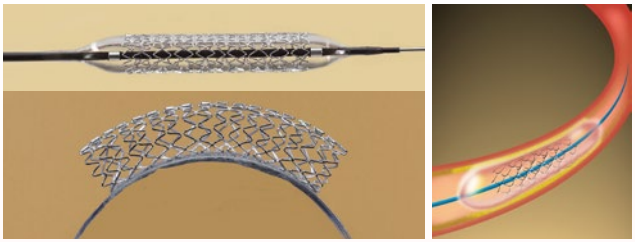
Through a small opening in the wrist or groin, a catheter with a small inflatable balloon at the end will be positioned within the narrowed segment of your coronary artery. Under X-ray guidance, the balloon is inflated, compressing the fatty deposits against the wall of the blood vessel. In this way, the diameter of the vessel is increased and normal blood flow is restored.

In Balloon Angioplasty, a trans-radial catheter is usually used. Additional advantages include early mobilisation and discharge. Our cardiologist would meticulously assess whether such procedures are suitable for the patient.

To reduce post-procedural re-narrowing of coronary arteries over time, your doctor may recommend the placement of stents, which are small mesh metal tubes introduced into your blood vessel via a balloon catheter. Once the balloon has been deflated and withdrawn, the stent will stay in your coronary artery permanently, keeping the blood vessel patent. The newer drug-eluting stent systems can reduce the incidence of re-narrowing down to 5%. In our Centre, the usage of drug-eluting stent is over 95%.

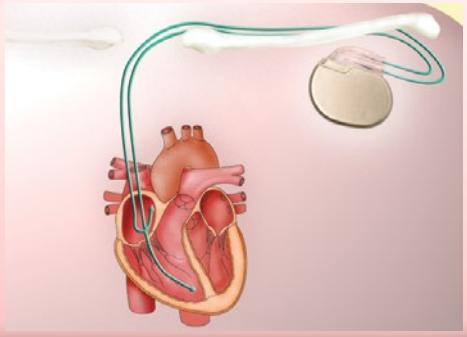
During the procedure, advanced adjunctive devices such as intracoronary ultrasound, fraction flow reserve (to evaluate bloodflow in the arteries), high speed rotational atherectomy (for calcified blood vessels), directional coronary atherectomy, filter wire (distal protection device) and thrombectomy are sometimes employed to facilitate precise diagnosis and treatment, thereby maximising success rate and minimising the rate of complications.

In general, the complication rate of contemporary interventional procedures is around 2-4%. The risk of death is far below 1%.



## 3. Implantation of Permanent Pacemaker / Implantable Cardioverter Defibrillator (ICD)

These devices monitor the heart's electrical activity and send out electrical impulses when the heart needs them. A pacemaker has the basic function of maintaining heartbeat and preventing slow and irregular rhythm. It sends out electrical impulses only when the heart fails to beat by itself. Meanwhile, an Implantable Cardioverter Defibrillator (ICD) is a device which aborts life-threatening ventricular arrhythmia.



Cardiac Re-synchronisation Therapy (CRT) makes use of a bi-ventricular pacemaker to synchronise the heart rhythm, which may help alleviate symptoms of heart failure.

The pacing leads of a pacemaker or ICD are advanced to the heart chambers through a vein in the upper chest region. Local anesthesia is applied in this procedure in most of the cases.

4. **Electrophysiology Study (EPS) and Radiofrequency Ablation (RFA)**

   Electrophysiology Study (EPS) and Radiofrequency Ablation (RFA) are used for the diagnosis and management of heart rhythm disorders respectively.

   EPS is an electrical "test drive" to determine if an individual's heart has the tendency to go into abnormal rhythm that requires treatment. By advancing catheters into the heart chambers through a small opening in the groin, the physician can study the electrical signals in order to:

   - find out if there is abnormal heart rhythm when the patient complains of episodes of fainting or palpitation
   - assess the potential risk of patients with abnormal heart rhythm
   - test the effectiveness of medications in controlling the abnormal heart rhythm

RFA is a percutaneous interventional therapy used to cure abnormal rhythm. During the procedure, the tip of a specially designed catheter heats up and delivers high frequency energy to the precise area of the heart that is causing the abnormal heartbeat, thus ablating the pathway or tissue causing the chaotic rhythm.

## State-of-the-Art Equipment

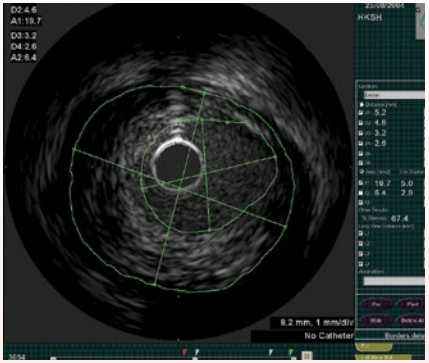
Our quality services are supported by a full range of advanced equipment:

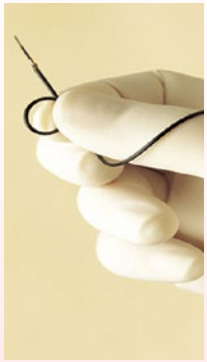
1. **Biplane All-Digital Angiography System**

   With cutting-edge dual detector technology, it produces exquisite images of the cardiovascular system and provides cardiologists with high-fidelity images of the coronary artery narrowing or blockage. This significantly improves the outcomes of angioplasty and stenting procedures even for complex lesions.

2. **I-Lab Intravascular Ultrasound System**

   Intravascular Ultrasound is a new gold standard in examining the inside of blood vessels. This latest technology helps characterise the form and structure of the plaque and optimise coronary stent implantation.





3. **Fraction Flow Reserve**

   It measures arterial bloodflow to illustrate the severity of the narrowing of arteries.

4. **64-Channel Electrophysiology System**

   This new system enables seamless intra-cardiac signal analysis for the most advanced Electrophysiology Study and Radiofrequency Ablation procedures.