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COVID-19
VACCINATION FOR
PATIENTS WITH
HEART CONDITIONS



LEFT ATRIAL
APPENDAGE
CLOSURE FOR
ATRIAL FIBRILLATION
PATIENTS



UNDERSTANDING
ELECTROCARDIOGRAM
(ECG)



SMOKING: STORIES A CARDIOLOGIST HAS TO SHARE

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By Dr Huang Zijuan, Consultant, Department of Cardiology

Smoking causes damage to the arteries, blocking heart or brain arteries which can lead to heart attacks or strokes.

I have seen many patients who were smokers, in the clinic, seeking help to know if they have heart problems and whether they will get a heart attack.

Is finding out if one has heart problems sufficient to prevent a heart attack?



Fig. 1 – A stent is a tube that surgeon uses to insert into a blocked artery to keep it open.

If a cardiac scan of a patient revealed severe blockages, he or she will often be quickly treated with a coronary angioplasty and stenting (Fig. 1) or even a coronary artery bypass surgery (Fig. 2). Notwithstanding that all these procedures and surgeries also have accompanying risks of stroke and heart attacks.

Unfortunately, it sometimes takes an ordeal like that to convince a patient to quit smoking.

However, there are still some patients who still fail to quit

smoking even after the procedure. These patients are at a high risk of recurrent heart attacks with possibly dangerous consequences like cardiac arrest.

There are also many times, when the scans of patients who were smokers only show minor deposits in the heart arteries. In such cases, no stenting or bypass surgery is necessary,

Some of my young patients who suffered heart attacks in their 30s to 40s did not think that they would have a heart attack. Most of these young patients were smokers who did not realise that smoking was such a strong risk factor for heart attacks.

as these procedures carry risks and would not eradicate the minor deposits. However, patients may not realise that heart attack could still happen if one continues to smoke.

Studies show that a large proportion of heart attacks are caused by blockages that were non-obstructive, or arteries that had only minor deposits^{1,2}. The small deposits of plaque in these arteries may rupture any time, if triggered by the effect of toxins in cigarette smoke. The ruptured plaque or minor deposit can then rapidly progress into complete blockage of the artery (Fig. 3), causing a heart attack.

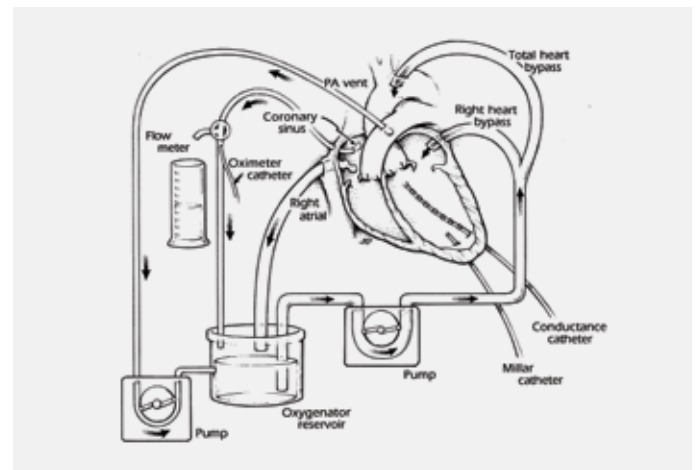


Fig. 2 – A bypass surgery is a major operation where a surgeon has to stop the heart using a bypass machine and remove a blood vessel from another part of your body to bypass the blocked artery.

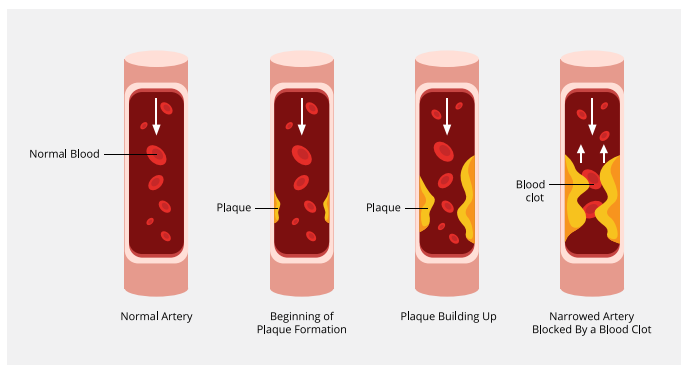


Fig. 3 – Plaque forming over time and causing serious blockage.

A TRUE STORY

Ted*, in his 50s, saw my colleague with a complaint of chest pain. He was a typical patient who would get a heart attack. He was a middle-aged man who did not exercise regularly, and worse of all, he was a heavy smoker. A cardiac scan done showed that even though there were some minor deposits or plaque in two of his heart arteries, the blood flow in his heart arteries was still good, thus no procedure was required. He was advised to quit smoking to avoid getting a heart attack. Ted's health was now in his own hands.

Barely four months later, Ted was rushed into the emergency department because of a major heart attack. One of his coronary arteries which was earlier found to have only minor deposits, was 100% blocked. The plaque had ruptured, blocked the entire artery and affected blood supply to the heart. It turned out that Ted did not heed the advice to quit smoking.

In Singapore, about eight people die every day from out-of-hospital cardiac arrest³. A common reason for cardiac arrest is heart attack. Fortunately for Ted, he was rushed to the hospital in time and received stenting to unblock his artery. However, the episode has damaged his heart muscles and weakened his heart. After this hard lesson, Ted decided to quit smoking. He has been doing it slowly but surely, setting goals and cutting down on the number of cigarettes he takes each day.

Strategies to Quit Smoking

A common reason given by patients on why they smoke is that they feel stressed and smoking could relieve their stress. Every one of us, inevitably will be faced with stress in the course of our work or in our daily lives. Instead of smoking, there are many ways of relieving stress such as doing exercises like taking a brisk walk. This would also help improve mental well-being and health.

Family support is important. Many patients succeed in quitting smoking with the encouragement of their family. To start off, set a target for the number of cigarettes to cut down by per week, stick to the targets

and set a date to completely quit. Getting your family members involved in the quitting process can be a good way to motivate yourself to achieve the goals.

It is never too late nor too old to quit. It is not true that if you quit now, something worse will happen. Although there may be withdrawal symptoms when you attempt to quit, these symptoms vary from person to person. Speak to your doctor to manage these symptoms. Nicotine causes a form of addiction and there are medical treatments like nicotine replacement patches to help ease it. There are also smoking cessation counsellors who can support you to quit smoking.

I have many patients who have successfully quit smoking. They are doing well and in better health when they come for their follow-ups, years after their bypass surgery or stenting procedure. Patients who failed to quit smoking usually fare worse, with recurrent blockages that even coronary interventions cannot help much anymore. Some of them feel breathless with just taking a few steps, due to



accumulated lung damage. You do not want to get to that stage. It is far better to try to quit smoking for better quality of life and to spend time with those you care about. Your health and life is in your own hands.

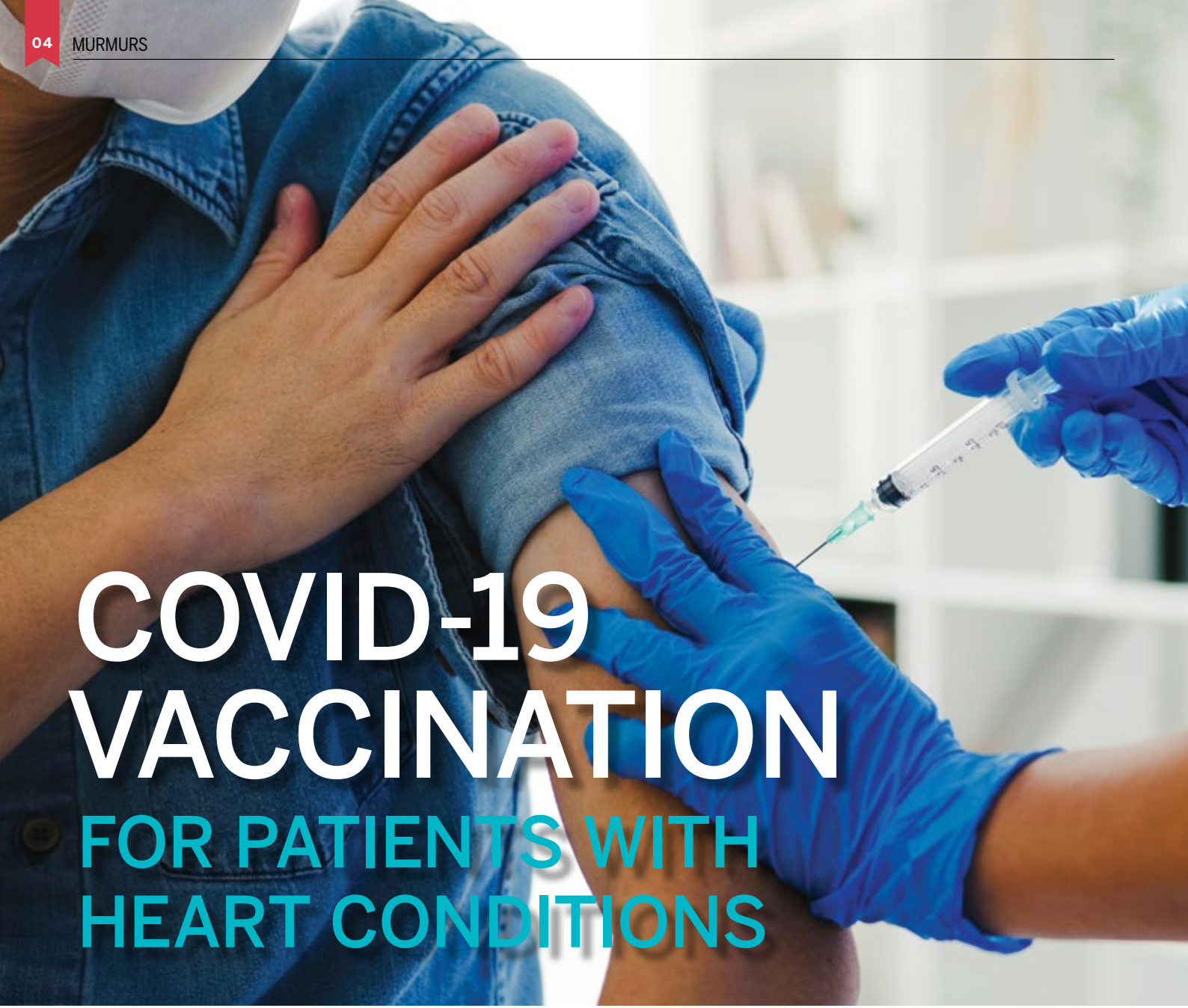
Take the first step by asking your doctor for help to quit smoking. If many can succeed in quitting, you can do it as well!

*Name has been changed to protect the identity.

¹ Giroud D, Li JM, Urban P, Meier B, Rutishauer W. Relation of the site of acute myocardial infarction to the most severe coronary arterial stenosis at prior angiography. *Am J Cardiol.* 1992;69(8):729–732.

² Ambrose JA, Tannenbaum MA, Alexopoulos D, Hjemsdahl-Monsen CE, Leavy J, Weiss M, et al. Angiographic progression of coronary artery disease and the development of myocardial infarction. *J Am Coll Cardiol.* 1988;12(1):56–62.

³ Singapore's Out-of-Hospital Cardiac Arrest Data Report (2011-2018). Published 2020. Accessed June 12, 2021. <https://www.myheart.org.sg/wp-content/uploads/2021/01/Singapore-OHCA-Data-Report-2011-2018.pdf>



COVID-19 VACCINATION FOR PATIENTS WITH HEART CONDITIONS

The nationwide Covid-19 vaccination programme helps safeguard our people against the virus and restore our economy.

The programme began in December 2020 and as of 7 June 2021¹, more than 1.8 million individuals have completed the vaccination.

COVID-19 could potentially be life-threatening and cause death, in particular in the elderly and vulnerable groups such as those with co-morbidities. As more people get vaccinated, those who cannot receive vaccination for medical reasons (such as individuals with severely weakened immune systems, or subgroups such as children where safety data is unavailable), will receive indirect protection. This in turn, lowers the risk of virus transmission in the community and

does not put a strain on our healthcare system, protecting us and our loved ones in the long run.

Higher risks of severe COVID-19 infection

The COVID-19 virus can be transmitted from person to person via droplets in the air, or through touching contaminated surfaces. Individuals with heart conditions, such as heart failure, dilated cardiomyopathy, severe arrhythmogenic right ventricular cardiomyopathy and congenital cyanotic heart disease, face the most risk².

The virus affects the airways and lungs, causing breathlessness. It may further develop an inflammatory reaction, placing stress on the cardiovascular system and resulting a drop in both the blood oxygen and blood pressure levels.

When this happens, the heart would have to beat faster and harder to supply oxygen to the major organs. This means the COVID-19 virus inevitably causes greater harm for patients with heart conditions.

Vaccination for patients in NHCS

To support the nation's vaccination efforts, public healthcare institutions are offering COVID-19 vaccinations for their patients. At NHCS, patients who are on outpatient follow-up and are medically eligible, are offered vaccination.

As of 9 June 2021, 450 patients have been fully vaccinated in NHCS. We strongly urge all heart patients to have themselves vaccinated in view that they are more likely to experience serious complications should they get infected.

FREQUENTLY ASKED QUESTIONS



Is the vaccine safe for patients with heart conditions?

Yes. The vaccine is safe for patients with heart conditions, even those with pre-existing heart conditions such as ischaemic heart disease, coronary heart disease, abnormal heart rhythms, pulmonary hypertension, heart failure and adult congenital heart disease. It is also safe for patients who have undergone heart surgeries or procedures.

Is the vaccine safe for those taking anticoagulation drugs?

Yes. Being on blood thinning medication is not a contraindication to vaccination. However, if you are on strong blood thinning medication, please inform the vaccinator prior to vaccination.

What should patients with heart conditions take note pre-vaccination?

Please inform your doctor if you are:

- Receiving immunosuppressive therapy;
- Recovering from a recent procedure or surgery (within 2 weeks); or
- Feeling unwell

Your doctor will review your suitability prior to vaccination.

In addition, patients are advised not to consume alcohol, exercise strenuously or take precautionary painkillers prior to vaccination. It is advisable to have a proper meal (no fasting is required) and a good night's rest prior to getting vaccinated.

What about post-vaccination?

Patients may experience common side effects such as pain and soreness in the arm, fatigue, lethargy, headache and fever. These symptoms may last for a few days.

It is rare to have severe allergic reaction. This would usually happen during the first 30 minutes after vaccination hence it is important for patients to be observed for this period post-vaccination.

It is also recommended for patients to avoid strenuous physical activity, such as running, competitive sports, or playing ball games, for one week after your vaccination (regardless of first or second dose), especially for adolescents and younger men aged less than 30 years.

Are there any existing underlying conditions that would prevent certain patients from taking up the vaccine?

Patients who have had a severe allergic reaction such as anaphylaxis or a previous allergy to flu vaccination, are now able to receive their vaccination based on the latest guidelines from Ministry of Health³. However, individuals with a history of anaphylaxis to any component of the mRNA COVID-19 vaccine are still not recommended to receive the mRNA COVID-19 vaccine.

Patients who have fever, flu or gastroenteritis are advised to reschedule their vaccination.

Patients with heart conditions who have acute medical issues such as decompensated heart failure are also advised to hold off vaccination until the issues are resolved.

In view of the current wave of new infections, are there preventive steps which patients could adopt?

Besides vaccination, it is important that we continue to wear a mask and adhere to safe distancing measures. This is because it would take some time to complete the vaccination for the entire population. During this period, there are still many people who are not protected and hence, susceptible to an infection should there be an outbreak.

In addition, having a balanced diet (lots of fruits, vegetables and water), exercising regularly and staying positive will contribute towards stronger immune systems and sound mental health.

Note:

If you are a patient of NHCS and are medically eligible, you may speak to your doctor at your next visit to have your vaccination done in NHCS.

^{1,3} Source: www.moh.gov.sg/covid-19/vaccination

² Source: <https://www.escardio.org/Education/COVID-19-and-Cardiology/what-heart-patients-should-know-about-the-coronavirus-covid-19>

LEFT ATRIAL APPENDAGE CLOSURE FOR ATRIAL FIBRILLATION PATIENTS

Palpitations, dizziness and shortness of breath are common symptoms of atrial fibrillation or irregular heart rhythms. Atrial fibrillation may occur even without any symptoms, and place patients at a high risk of stroke, especially if undiagnosed or untreated.

Atrial fibrillation (AF) is a heart condition that causes an irregular and often abnormally fast heartbeat. It is the most common heart rhythm disorder or arrhythmia. The risk of developing AF increases with age, lifestyle factors such as alcohol intake, as well as medical conditions such as diabetes mellitus.

AF causes the normal blood flow in the heart to be disrupted, leading to turbulent flow which leads to stasis in the upper chambers of the heart called the atria. This leads to the formation of blood clots which can be pumped along the circulatory system and end up in any part of the body including the brain, thus causing a stroke.

Studies have shown that AF carries an increased risk of the formation of blood clots in the blood stream and death. The main prevention of blood clot formation is to thin the blood with oral anticoagulants such as warfarin. However, anticoagulants can lead to complications from bleeding such as haemorrhagic stroke and bleeding in other areas such as the intestines. Several studies have been conducted to predict the risk of stroke and to determine if anticoagulation is necessary for individual patient using CHADS-VASc scores, a scoring system that calculates stroke risk for patients with AF¹⁻². Risk factors for stroke include age, history of stroke, hypertension, diabetes mellitus and heart failure. Patients with none of these risk factors and under the age of 65 carried an annual ischaemic stroke rate of less than 1%. However, in patients above the age of 75 with multiple risk factors, the annual stroke risk rose to 12% with an overall blood clot formation risk of 17%².

Left Atrial Appendage Complications

Most often, further investigations through cardiac imaging show that the main origin of blood clots is from the stasis of blood in the left atrial appendage (LAA), a small blind outpouching in the wall of the atria. While the LAA plays a

By Dr Zameer Abdul Aziz, Associate Consultant,
Department of Cardiothoracic Surgery

minor role in our body functions, compelling evidence has revealed that it has been increasingly implicated as the cause of stroke³. Hence there were studies done to evaluate the benefit of eradicating the LAA with exclusion or closure which can be performed through surgery or intervention procedure⁴⁻⁵.

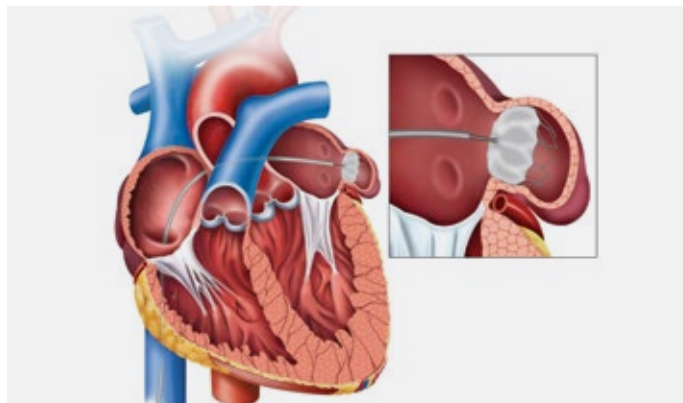


Illustration of the heart with a close-up of percutaneous left atrial appendage closure.

AF is also more common amongst patients with valvular heart disease such as rheumatic heart disease (permanent damage to heart valves is caused by rheumatic fever), mitral valve or tricuspid valve dysfunction (valves between the upper and lower chambers of the heart on either the left or right side, not functioning properly) which can present as stenosis (valves do not open properly, causing impaired forward flow through the valve) or regurgitation (valves do not close properly, therefore allowing backward leakage of blood through the valve). Valvular heart disease can cause abnormal blood flow and enlargement of the atria leading to irregular conduction and eventually, persistent AF. Patients with AF who undergo cardiac surgery for valvular heart disease, may undergo ligation of the LAA at the same time, since it is accessible during surgery. As LAA is the main cause of abnormal blood clot formation, it has been theorised that occlusion would reduce the risk of stroke overall.

Recently, a large multicentre research trial was conducted (Left Atrial Appendage Occlusion Study LAAOS III) to evaluate the efficacy and safety of LAA occlusion in patients with AF undergoing cardiac surgery⁶. These patients had AF with risk of stroke (based on CHADS-VASc scores) and were randomly divided into two groups. One group would have LAA closure and the other group would not have LAA closure. Participants of the trial were followed up to assess for risk of ischaemic stroke, bleeding and heart attacks. This study proved the hypothesis that LAA closure in patients with AF reduced the risk of ischaemic stroke or blood clot formation in addition to anticoagulation of the blood.



FOR PHYSICIANS



Surgical ligation of the left atrial appendage.

Photo provided by AtriCure, Inc. Copyright © 2021 AtriCure, Inc. All rights reserved.

The ligation of LAA procedure can be performed in various ways:

- Double layer suture closure from inside the atria
- Suture ligation/closure from external approach (with a purse string method)
- Amputation and closure of the LAA
- Application of a large titanium clip over the base of the appendage
- Stapler closure

As with any procedure, LAA procedure has its risks and benefits. The benefits of LAA include the lowering of overall risk of ischaemic stroke and blood clot formation by eliminating a potential and common area where blood clots originate. As the atrium wall is relatively thin, any manipulation or suturing may lead to intraoperative or post-operative bleeding, although this is not a common occurrence. If the ligation is not successful, there can occasionally still be flow into the atrial appendage and turbulent flow can still lead to blood clot formation.

¹ Lip GY, Nieuwlaar R, Pisters R, Lane DA, Crijns HJ. Refining clinical risk stratification for predicting stroke and thromboembolism in atrial fibrillation using a novel risk factor-based approach: the Euro heart survey on atrial fibrillation. *Chest*. 2010; 137:263–272. doi: 10.1378/chest.09-1584

² Yaghi S, Kamel H. Stratifying stroke risk in atrial fibrillation: beyond clinical risk scores. *Stroke* 2017;48:2665–2670

³ Yaghi S, Song C, Gray WA, Furie KL, Elkind MS, Kamel H. Left atrial appendage function and stroke risk. *Stroke*. 2015;46(12):3554–9

⁴ Reddy VY, Doshi SK, Sievert H, Buchbinder M, Neuzil P, Huber K, et al.; PROTECT AF Investigators. Percutaneous left atrial appendage closure for stroke prophylaxis in patients with atrial fibrillation: 2.3-year follow-up of the PROTECT AF (Watchman Left Atrial Appendage System for Embolic Protection in Patients with Atrial Fibrillation) Trial. *Circulation*. 2013; 127:720–729. doi: 10.1161/CIRCULATIONAHA.112.114389

⁵ Reddy VY, Sievert H, Halperin J, Doshi SK, Buchbinder M, Neuzil P, et al.; PROTECT AF Steering Committee and Investigators. Percutaneous left atrial appendage closure vs warfarin for atrial fibrillation: a randomized clinical trial. *JAMA*. 2014; 312:1988–1998. doi: 10.1001/jama.2014.15192

⁶ Whitlock RP, Belley-Cote EP, Paparella D, et al. Left atrial appendage occlusion during cardiac surgery to prevent stroke. *N Engl J Med* 2021;384:2081-2091

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CARDIOTHORACIC SURGERY

NHCS' team of cardiac, thoracic and vascular surgeons are specialised in treating high-risk patients. Cardiovascular surgery includes valve repair and replacement, coronary artery bypass graft surgery, aortic aneurysm repairs, peripheral vascular surgery, mechanical heart assist device implantation, and heart and lung transplantation. The team also carries out minimally invasive general thoracic surgery for the diagnosis and treatment of a spectrum of chest and lung diseases. NHCS is the only heart and lung transplant centre in Singapore.

OUR SPECIALISTS

Assoc Prof Kenny Sin Yoong Kong	Deputy Medical Director and Senior Consultant
Asst Prof Tan Teing Ee	Head and Senior Consultant Director, Heart Transplant & Mechanical Assist Device Programme
Asst Prof Lim See Lim	Deputy Head and Senior Consultant Director, Operating Theatre
Assoc Prof Chua Yeow Leng	Senior Consultant
Asst Prof Victor Chao Tar Toong	Senior Consultant Director, Vascular Laboratory
Asst Prof Tina Koh Puay Theng	Senior Consultant
Dr Naik Madhava Janardhan	Senior Consultant
Dr Nakao Masakazu	Senior Consultant
Asst Prof Mathew Chakaramakkil Jose	Consultant Director, Cardiothoracic Surgery Intensive Care Unit
Asst Prof Ong Boon Hean	Consultant Director, Lung Transplant Programme Director, Thoracic Surgery
Asst Prof Chua Kim Chai	Consultant
Asst Prof Kang Ning	Consultant
Asst Prof Philip Pang Yi Kit	Consultant
Asst Prof Soo Ing Xiang	Consultant
Dr Alicia Chia Xue Fen	Consultant
Dr Chua Yang Chong	Consultant
Dr Sivaraj Pillai Govindasamy	Consultant
Dr Cynthia Chia Ming Li	Associate Consultant
Dr Yap Kok Hooi	Associate Consultant
Dr Zameer Bin Abdul Aziz	Associate Consultant

For the full list of NHCS services and specialists, please visit www.nhcs.com.sg.

UNDERSTANDING ELECTROCARDIOGRAM (ECG)

By Dr Teo Hooi Khee, Associate Consultant, Department of Cardiology

Our heart is an important organ that functions through a complicated electrical system, where there are signals telling the heart when to contract and relax. This electrical activity is related to the impulses that travel through the heart to determine the heart rate and rhythm. Sometimes, the electrical activity can become unstable, and that is when a doctor may recommend performing an electrocardiogram (ECG) to try to find out the underlying issues.

An ECG is a quick and easily accessible test used to detect and diagnose certain heart conditions. The standard ECG has 12 leads, with each lead representing the different electrical activity of the heart. It involves placing 10 small plastic stickers (electrodes) on the chest, arms and legs. These electrodes are then connected to an electrocardiographic machine which generates a visual tracing in the form of waves that can be displayed on a graph or monitor, reflecting the electrical activity of our heart. The test is painless, non-invasive and has no radiation exposure

What is it used for?

The ECG is a simple investigation that helps detect any irregular heart rhythm or abnormal readings. It may be performed when one complains of breathlessness, chest pain, palpitations (sensation of heart pounding), giddiness or fainting spells. It aids in the diagnosis of heart conditions such as:

- Myocardial Infarction (heart attack)
- Ischaemia (poor blood flow to the heart beating)
- Supraventricular tachycardia (heart beats very fast at over 100 beats a minute)
- Arrhythmias (abnormal heart rhythms) like:
 - Atrial Fibrillation (rapid and irregular)
 - Complete heart block

- Other inherited abnormal electrical abnormalities

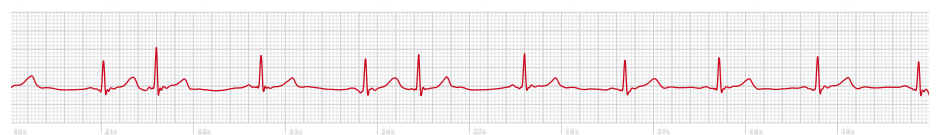
The ECG can be done at rest or during an exercise. An exercise ECG may often be used together with other diagnostic tools like stress echocardiography (uses ultrasound imaging) and myocardial perfusion imaging (use of gamma camera) to aid in the diagnosis of certain heart conditions like coronary artery disease. This gives the doctor an idea of how the heart responds under stress.

There are also portable ECG devices such as 24-hour Holter monitoring and event recorder ECGs that can monitor and record abnormal heart rhythms continuously over a period of time. With the increasing use of wearable smart devices with the combination of

health applications, single-lead ECG readings can now be conveniently taken and recorded. Such reading of ECG usually takes around 30 seconds to complete, and data collected will be sent to the paired health applications for viewing. However, do note that single-lead recordings may be insufficient for accurate diagnosis of complex arrhythmias and cardiovascular conditions. Consider seeking professional medical advice for a proper assessment and a clinical ECG.



Sample of an ECG recorded from a wearable device, showing normal heart rhythm (sinus rhythm).



Sample of an ECG recorded from a wearable device, showing abnormal heart rhythm - premature atrial beats (atrial ectopic).



FOR PHYSICIANS

TIPS ON ECG INTERPRETATIONS

An ECG lead is calculated by analysing several electrodes. The 12 lead ECG reflects a summation of vectors of the heart's electrical activity over a 10-second period. ECG interpretation may seem daunting at first, but it provides a wealth of useful information for the clinicians in the assessment of cardiac patients. A systematic approach to interpreting ECGs is often helpful.

Step 1:

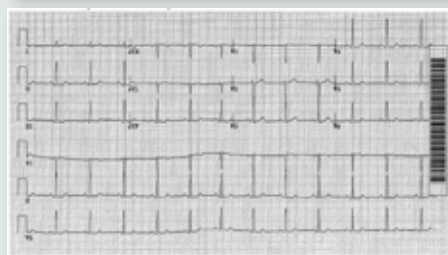
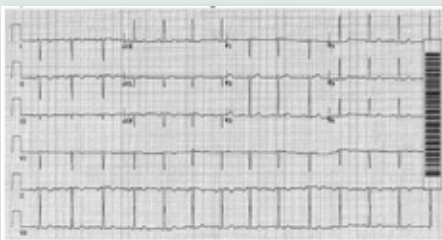
Check that ECG is done accurately

A small proportion (about 0.4 to 4 percent) of all ECGs have had inaccurate lead placement, and the most common¹ is the limb lead reversal of the right and left arm cables. Correct placement is crucial as any ECG abnormalities may simulate new ischaemic changes, conduction disturbances or even miss true myocardial ischaemia.

The normal cardiac axis lies between -30° and $+90^\circ$. Cardiac depolarisation begins in the sinus atrial node, down the His-Purkinje system and finally through the right and left bundle branches. There is a net leftward depolarisation as the left ventricle has a larger mass. A quick and easy way to pick up limb lead reversal is to look at the axis of the QRS complexes in aVR (augmented vector right - right wrist) and aVL (augmented vector left - left wrist) and for the presence of unexpected inverted P waves in the rest of the limb leads.

TIPS

If a limb lead has a particularly low amplitude, an incorrect placement of right lower limb lead may be suspected.



Peripheral leads of an ECG with both arms and corresponding legs reversed (top) vs correct lead connections (bottom).

TIPS

In dextrocardia, the ECG often shows positive aVR, negative aVL and a positive R wave in aVR or an isoelectric line V1.



An ECG reading of dextrocardia (rare congenital disorder).

Step 2:

Check the heart rate and rhythm

Lead II, the rhythm strip, gives a quick snapshot of the underlying rhythm and the rate.

The heart rate can be calculated by two methods:

- Counting the number of squares between two consecutive QRS complexes
- Multiplying the number of QRS complexes in the rhythm strip by six

If the rhythm appears to be abnormal, a long rhythm strip can be generated by the ECG machine as well.

TIPS

Sometimes, it is difficult to distinguish between non-sustained atrial tachycardia and atrial fibrillation. A good way to look for P waves is in V1 which overlies the right atrium, or the limb leads.



An ECG reading of atrial flutter.

Step 3:

Check for any abnormalities in the P waves, QRS and T wave complexes

- P waves can be an indication of atrial enlargement, in the form of P mitrale and P pulmonale.
- QRS complexes can be evaluated for right or left bundle branch blocks or abnormal Q waves in the precordial leads
- Are the T waves of a normal height? Or are they tall and tented? Are there new T wave inversions?
- Is there QTc prolongation?

Step 4:

Check the relationship between the P wave and the QRS complexes

Is there a constant relationship between the P wave and the QRS complexes? An atrioventricular (AV) block represents a delay or disturbance in the transmission of an impulse from the atria to the ventricles. In general, there are first degree atrioventricular (AV) block, second degree AV block (Mobitz Type 1 or Mobitz Type 2), and third degree AV block (complete heart block).

Step 5:

Check for any abnormalities of the ST segment

Is there ST – elevation? And is the ST elevation widespread or localised in certain areas?

TIPS

In patients with typical features of angina (chest pain), repeat the ECG in 15-min intervals and watch closely for worsening ST segment elevation or new T waves changes especially in equivocal ECGs. Remember to always correlate the ECG to the patient's symptoms.



An ECG reading of Anterolateral ST – elevation myocardial infarction.

¹ Batchvarov VN, Malik M and Camm AJ. Incorrect electrode cable connection during electrocardiographic recording. *Europace* (2007) 9, 1081 – 1090.

BRINGING CARE TO THE NEIGHBOURHOOD

Working as a community nurse for more than three years, Assistant Nurse Clinician (ANC) Faith Ng is our first trained community nurse who provides care right to the homes of elderly residents.

For vulnerable seniors who require assistance in managing chronic health conditions, Community Nurses are deployed for post services and home visits, to allow these nurses to continue administering care for residents through the Regional Health System (RHS) under SingHealth. These residents, who are 60 years old and above, require monitoring and education on how to better care for themselves within the community.

ANC Faith Ng was the first trained community nurse from NHCS to be deployed to the community nursing post service in 2018. She had been working at different Community Nurse Posts (CNPs) of the Katong Community of Care zone; caring for residents mainly living within the vicinity.

Caring for residents

Her role as a community nurse includes visiting homes of vulnerable seniors with complex health and social care needs and reviewing residents' health conditions through physical or virtual consultations at the CNPs. In the course of her work, ANC Faith also attends to senior residents with heart conditions and among them, most have other comorbidities. She has to ensure that these residents' health are properly

managed. For instance, some may be referred to NHCS for further assessment for appropriate cardiac care and some have to continue to be followed up in the community or monitored at home.

As the seniors progress in age, their risk factors may also increase such as uncontrolled hypertension, diabetes, or smoking, which can lead to an increased risk of heart disease. ANC Faith shared that residents with cardiovascular conditions mainly include those with heart failure and had underwent coronary angiograms or angioplasty procedures. For those with chronic heart failure, ANC Faith has to monitor their weight, educate them on the importance of a healthy diet, and make sure they comply with fluid restrictions. For example, when ANC Faith learnt that a resident with heart failure had been eating unhealthily, such as consuming too much salty food, she encouraged him to cut down on his salt intake, which is a seemingly simple but critical step to manage his condition.

Besides health monitoring and medication compliance of the residents, ANC Faith also assists residents to seek early medical attention when they experience adverse events, such as uncontrolled hypertension and potential injury from falls at home.

Such home visits provide immediate, direct care and advice to the residents, fostering long-term rapport building with the residents and offering social support to those who do not have someone readily there for them. When necessary, ANC Faith will also initiate Advance Care Planning conversations to educate residents' understanding of their physical health and discuss their wishes and care preferences, before arranging for formal documentations of their care plans.

Skills for the job

ANC Faith shared that the role of community nurses is increasingly important to meet the needs of the ageing population in Singapore. A community nurse has to be resilient, work well independently and possess good critical thinking and interpersonal skills. Keeping an open mind towards the myriad of problems faced by the residents in the community is definitely helpful in providing the appropriate care without being judgmental.

She added that unlike acute care nursing or other nursing roles in clinical settings, the training for community nurse covers a wide range of areas including health promotion, chronic disease management, geriatric care, mental health, and palliative care. Nonetheless, her foundation in acute care settings and on-the-job experience in inpatient settings have allowed her to gain specialised nursing skills such as wound dressing methods which are essential for her role as a community nurse.

ANC Faith is still enthusiastic and determined to continue in this role though it has been three years.

"I feel a great sense of satisfaction and achievement when I realised I have made an impact in their lives. Simply seeing how their faces light up whenever I visit brings me great joy," expressed ANC Faith.

Empower for lifelong healthy living

Community nursing programme aims to empower elderly residents to take charge of their health and lead a fulfilling life. Community nurses can effect positive changes in the lives of vulnerable seniors towards healthier living by equipping and supporting them to better care for themselves.

With similar goals in mind, NHCS will soon roll out a community outreach programme for patients with heart failure. The programme will empower patients in self-care management so that they can live well in the community, as well as support community nurses in the care of these patients. The programme is expected to roll out in the next few months.



ANC Faith providing care to one of the residents during a home visit.

RESEARCH PUBLICATIONS

December 2020 – April 2021

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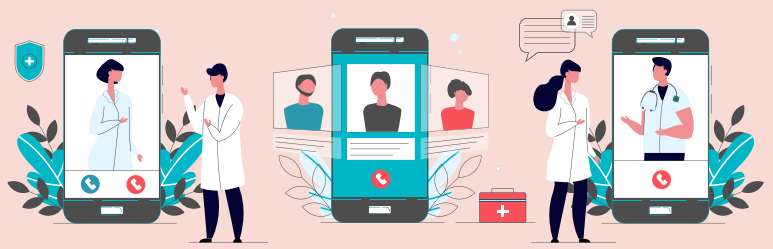
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Updates in the Treatment of Atrial Fibrillation (For General Practitioners)

Date: 2 October 2021, Saturday
Time: 1pm

Atrial fibrillation is the most common arrhythmia. Its treatment modalities and strategies are rapidly evolving. Join us as we share the latest updates in the field of atrial fibrillation.



What can we do to prevent sudden cardiac deaths? (For Public)

Date: 23 October 2021, Saturday
Time: 11am

An estimated 1,000 Singaporeans die from sudden cardiac death every year.

Who is at higher risk? What are the common causes? Can anything be done to reduce the risk of sudden cardiac arrest?

Join us and find out more from our doctors.

APPOINTMENTS & PROMOTIONS



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Senior Consultant,
Department of Cardiology



Dr Chew Yun Chi Kenneth Michael
Associate Consultant,
Department of Cardiology



Dr Tan Weixian Alex
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