

# FAMILIAL HYPERCHOLESTEROLEMIA



FHCARE NEWSLETTER 1: SEPTEMBER 2023



## **A FAMILY'S BEST DEFENCE TO PREVENT EARLY HEART ATTACKS AND IMPROVE SURVIVAL**

Heart attacks in people with FH are preventable. Early screening, diagnosis and continued treatment has been proven to be very effective in saving lives.

Let's take action now!

**FHCARE TEAM**

# Words from FHCARE Team

In Singapore, 1 in 140 people carry the affected gene for FH. Of these 30,000 individuals, most are unaware that they are living with FH and only discover it when a catastrophic condition like a Heart-attack at young age occurs. To increase awareness and guide appropriate care of FH, FHCARE (**F**amilial **H**ypercholesterolemia **C**ase **A**scertainment and **R**eduction of adverse **E**vents) was formed in 2016, initially as a tripartite initiative of experts from Khoo Teck Puat Hospital, National Heart Centre and National University Hospital, with strong support from Singapore Heart Foundation. This collaboration currently includes all restructured hospitals and Polyclinic Services in Singapore. To better understand and serve people with FH, the FH Registry was created. Testing of genes for FH was offered as part of a research supported by the Alexandra Health Fund. The availability for genetic testing allowed us to invite family members of those with the affected gene to test for themselves if they too carried the same gene and similar risk for very high cholesterol and early heart-attacks. This screening of family members of affected individuals is called “Cascade Screening”. Drawing from familiar example, Cascade Screening is similar to contact tracing done for close contacts of contagious diseases like Covid19 and SARS. Cascade Screening allows for early diagnosis and treatment to decisively reduce the number of heart attacks. Compared to contact tracing, one key difference in non-contagious genetically inherited conditions like FH is that one negative test is enough to rule-out the presence of the affected gene. In 2019, for its contributions to research and clinical excellence, the team was awarded the NHG Outstanding Research Impact Award. In 2022, the FHCARE was awarded a prestigious grant from PRECISE. This Grant supports innovations that help pilot the early identification of index patient and their affected family members. We hope that the systems that FHCARE facilitates will allow us to better address the key problems of under-diagnosis and inadequate treatment of FH, leading towards a bright future for individuals with FH and for those with FH in the generations to come.



FHCARE team members in KTPH.  
From left: Dr Sharon, Atiqa,  
A/Prof Tavin, Madhuu, Con Li



# What is Familial Hypercholesterolemia (FH)?

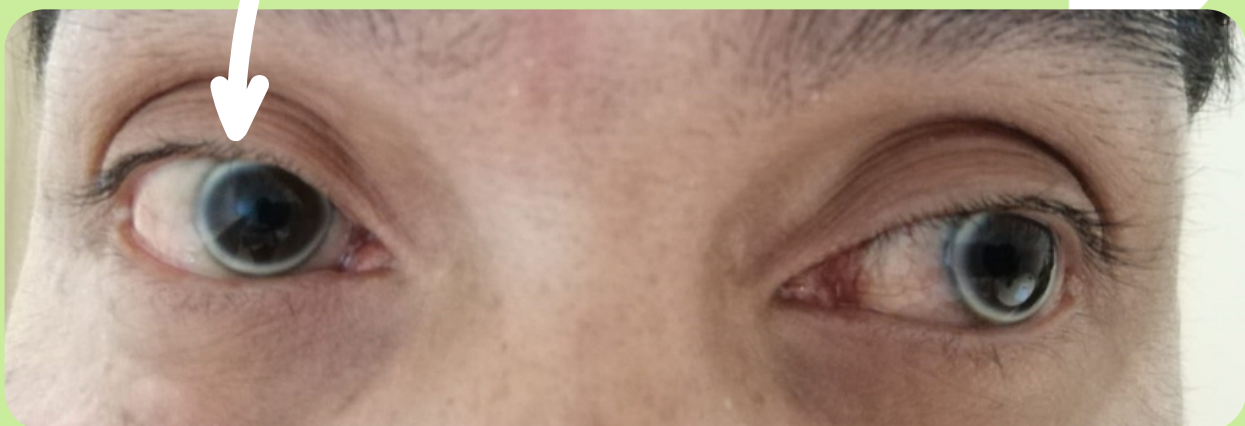
Familial Hypercholesterolemia (FH) is a condition where a defective gene leads to impaired ability of the body to clear cholesterol from the blood and so leads to very high blood cholesterol levels. As this affected gene is present at birth, very high cholesterol levels can occur very early in life and leads to increased risk of blocked arteries (atherosclerosis) and heart attacks, sometimes even before the age of 40. Apart from affecting the individual with the affected gene, this gene may be present in first degree relatives too (e.g. brothers and sisters, and one of the parents). Additionally, there is a 50% chance to pass this gene to children of patients with FH.

While this condition is very serious and potentially life-threatening for patients and their family members, this condition is very easily managed with common cholesterol lowering medications and this therapy has been successfully shown to reduce heart attacks and allow for life expectancy equivalent to those without FH.

## Common Visual Signs of FH

**Xanthomas:** Chunks of excess cholesterol which are deposited below the skin in areas such as the elbows, knuckles, front of knees, achilles tendons. These occur because of very high cholesterol levels present over an extended period of time.

**Arcus Cornealis:** Whitish ring around the outer part of the cornea of the eyes. This is due to cholesterol and other fat deposits. It is seen in healthy people above 50 years of age. If seen before the age of 45 years, we have to suspect very high blood cholesterol.



# Doctors'



## Dr. Loh Wann Jia

*Consultant, Department of Endocrinology,  
Changi General Hospital*

"It's an exciting time for us all. The future is bright for people with familial hypercholesterolemia. There are so many new and upcoming safe and effective medications that can lower your high cholesterol levels and risk of heart attacks for you **and** your affected family members."

## Dr. Seah Ee-Jin Darren

*Senior Consultant, Family Physician and Director of the Family Medicine Development Department and Regional Director (Central Health), National Healthcare Group Polyclinics*

"Prevention is better than cure. Get screened early."



## Clinical A/Prof Tan Ju Le

*Senior Consultant, Department of Cardiology,  
National Heart Centre Singapore*

"With screening, early diagnosis and effective lipid lowering treatment, FH patients can now achieve a better quality of life and clinical outcome."

## Clinical Asst Prof Eric Lim

*Senior Consultant, Department of Cardiology,  
National Heart Centre Singapore*

"Get tested, help your family members and let's prevent future cardiovascular diseases together!"





# Insights



## Dr. Sanjaya Dissanayake

*Senior Consultant, Endocrinology, General Medicine,  
Khoo Teck Puat Hospital*

“FH can be treated with effective and safe medicines. So motivate for early testing and diagnose early.”

## Dr. Fathima Ashna Nastar

*Consultant, Division of Endocrinology, Department of Medicine,  
National University Health System*

“What makes this work meaningful is seeing individuals who find out they have FH empowering themselves to take charge of their health for the better. When they then involve and educate their family members about FH it shows us the power each of us have to make a difference.”



## Dr. Jeremy Hoe Kian Ming

*Consultant, Diabetes Centre,*

*Admiralty Medical Centre*

“The main challenge is helping our patients diagnosed with FH learn the importance and benefit of early screening and initiation of cholesterol lowering treatment. I’ve had the privilege of managing patients with FH weekly, and what is most meaningful is knowing that we are significantly reducing cardiovascular events of patients with FH by motivating them to adopt healthy lifestyle changes and through early, intensive and personalised medical therapy.”

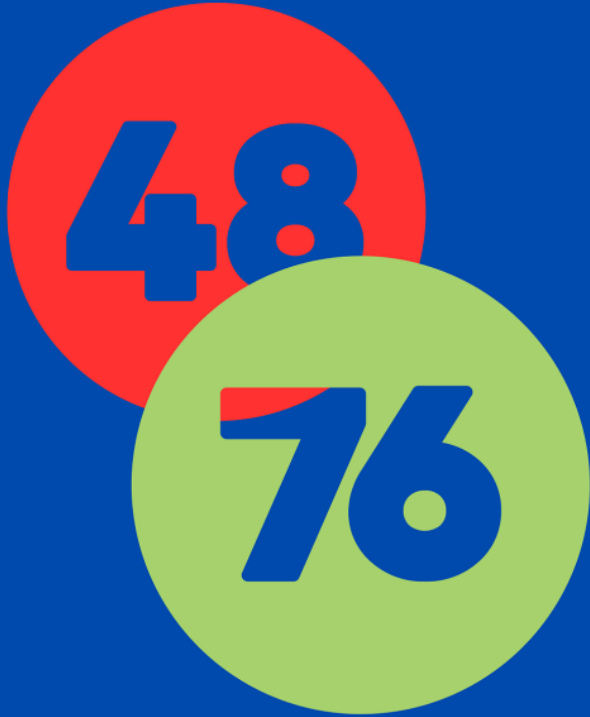
## Dr. Koh Si Ya Natalie

*Consultant, Department of Cardiology,  
National Heart Centre Singapore*

“Screen for your health and for your family.”

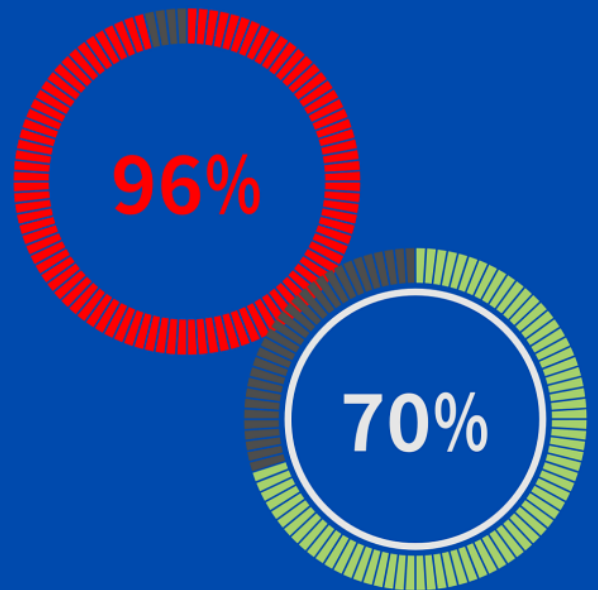


# Statistics



48.6 years is the average age of the first heart attack in untreated FH patients. In those without FH, it is 70 years (AMI registry 2020). Compared to untreated FH patients, those with treatment have a 76% better chance of survival free of heart attacks (BMJ, 2008).

Treatment Gap: 96% of Singapore residents with FH are currently undiagnosed and unaware of their condition. Under-treatment: Over 70% of those with FH are not taking adequate treatment to achieve their LDL cholesterol goal.



1 in 2 of the family members of FH patients who came for Cascade Screening were confirmed to have FH. Without Cascade Screening they would have been unaware and would have lost the opportunity for early preventive treatment.

# Acknowledgements

A/Prof Subramaniam Tavintharan  
Clinical Prof Chua Siang Jin Terrance  
Prof Tai E Shyong  
Clinical Prof Fabian Yap Kok Peng  
Clinical A/Prof Tan Ju Le  
A/Prof Rinkoo Dalan  
Clinical Asst Prof Eric Lim Tien Siang  
Dr Sanjaya Dissanayake  
Dr Rashida Farhad Vasanwala  
Dr Justin Tang I-Shing  
Dr Seah Ee-Jin Darren  
Dr Tan Hong Chang  
Dr Chester Lee Drum  
A/Prof Wee Hwee Lin  
Dr Andrew Sng

Dr Loh Wann Jia  
Dr Koh Si Ya Natalie  
Dr Fathima Ashna Nastar  
Dr Tiong Yee Sian  
Dr Jeremy Hoe Kian Ming  
Dr Marvin Chua Wei Jie  
Dr Ian Koh Jan Ming  
Dr Siau Kai Rong  
Dr Pek Li Ting, Sharon  
Atiqa Binte Zulkifli  
Madhuumetaa D/O Selvakumar  
Nurhusna Alifia  
Lai Con Li  
Chen Hoe Meng  
Ram Jeevan Vinod

**Don't let FH affect you and your loved ones!**

Contact us at [cholesterol.info@ktph.com.sg](mailto:cholesterol.info@ktph.com.sg)  
if you have any inquiries.  
Scan the QR code to visit SHF website.



Supported by:

**AMGEN**



**NOVARTIS**