

Spring 2020 Through heart surgery, Dr Victor Chang was able to save hundreds of lives. But he knew that research could save millions.



This little boy is growing up without his father. His dad died of a heart attack without any warning.

"One quick heart check, and perhaps a simple day surgery, and our family's future would have looked so different", says Emma.

Before Jeff died, he'd been meaning to get his heart checked. But he was a busy man, and like many people, he didn't get around to it.

Afterwards, Emma began begging everyone she knew to get their own hearts tested, including, thankfully, her own father.

"My dad was in his 80s, but he was fit and not overweight, and he assumed that everything would be fine."

"Finally, my dad went to get a check-up just to shut me up."

"I'll never forget the phone call when he told me the news. He said, 'Well, I've got a 97% blockage in one of the arteries and I need to get it fixed straight away'."

## A simple heart check could have saved this father's life

Jeff was a seemingly healthy and fit 57 year old. But one day he just didn't wake up. A heart attack claimed his life without any warning at all.

He left behind a devastated family of five children and his wife, Emma.

Yet some simple tests would have almost certainly identified the problem in Jeff's heart, and a straightforward day surgery procedure could have potentially fixed it.

Emma drove her dad to the hospital. "The great irony was that I took my dad in for the same surgery that would have saved Jeff's life if he had been tested."

"Now I'm always telling people to go and get their hearts checked. I don't want other children to suffer this loss and grow up without their dads."

The Victor Chang Cardiac Research Institute is working urgently to prevent more deadly heart attacks like Jeff's.

Thanks to your valuable support, our scientists have made some exciting discoveries about the cause of some blockages in the heart which may lead to new ways to reduce heart attacks.







Heart attacks claim the lives of 21 Australians every day

#### **INNOVATION & DISCOVERY**

# You're giving fresh hope to people who've had heart attacks

An exciting new collaborative study has shown that a protein growth factor therapy could reduce dangerous scarring after a heart attack, giving hope that people who have survived a heart attack can live longer, happier lives.

OK. So you've had a heart attack and survived. What you may not know is that up to a quarter of people develop heart failure after their first heart attack.

Why? Because heart attacks damage the heart muscle and cause scar tissue to form. This can limit the heart's ability to function efficiently, and can increase the risk of heart failure, and sudden cardiac death.

Until now, treatments have focused on restoring blood and oxygen supply to the heart as quickly as possible to reduce scarring, which can improve the clinical outcomes.

#### But new research has found that infusing a protein growth factor into damaged hearts can improve heart function.

According to the Victor Chang Cardiac Research Institute's Professor Richard Harvey, "Infusing the growth factor therapy into those who have had heart attacks improves the quality of the scar, leads to the formation of new blood vessels in the heart, and reduced rates of dangerous heart arrhythmia".

"The potential benefits are enormous."

Associate Professor James Chong, who commenced this vital research at the Institute, says: "This is an entirely new approach with no current treatments able to change scarring in this way." Dr Gonzalo del Monte Nieto (pictured left) with Professor Richard Harvey.



Your generous investment in research brings hope that people who've survived a heart attack can live longer, healthier lives.

#### 1 IN 4 heart attack victims display no prior symptoms



#### HAPPY 10th BIRTHDAY

**RESEARCH UPDATE** 

## You're helping to find answers to childhood heart disease

With 6 billion pieces of genetic code in the human body, finding what has caused a baby's heart to not form properly remains a huge challenge. But Professor Sally Dunwoodie and her team refuse to be daunted.

Professor Sally Dunwoodie and her team have spent 12 years researching why 1 in 100 babies are born with congenital heart diseases.

In pursuit of this goal, the team has already analysed the genetic makeup of around 140 families with congenital heart disease.

This work has identified the cause of the defect in around 30% of cases. But that leaves unanswered questions for the other 70%. "For those who got an answer, it made a big difference. And for those who didn't get an answer," says Professor Dunwoodie, "we're not going to rest".

"We are going to sift through a treasure trove of information identifying changes in genes to try and work out what's potentially causing childhood heart disease."

"At the moment, scientists worldwide have been frustrated at how slow and expensive this is, because there are so many variants in our genetic code, and you don't know which ones are important, and to find out the answer you have to do an individual experiment for every single one.

"So we are working on how to fast track this screening process so that we can go from one person a year to perhaps 100. That would make the analysis 100 times faster and allow us to get results to families a hundred times faster."

"Also, if we know the cause of a heart defect, it can sometimes tell us how it will progress, or point to treatments or preventative measures. So knowing the cause is very important to families."



Families want to know what has caused childhood heart disease, but right now most don't. But new research by Professor Sally Dunwoodie (pictured) could make finding answers much faster.



#### Free Heart Health Checks

Our Heart Health Check service is celebrating its 10th Anniversary. That's 10 Years of free heart health tests for the community! Our nurses travel across the country visiting shopping centres, workplaces, corporate events and sporting venues to help people understand their risk factors for heart disease, including high cholesterol and high blood pressure. The team has now tested more than 80,000 people and are on track to break the 100,000 mark very soon.

Of those tested, more than 34%, (26,000+ people) had one or more results outside of the healthy range and were recommended to follow up with their GP.

- **6,341** participants had high blood pressure
- 23,471 participants had high cholesterol
- **6,520** participants had high blood sugar.

Keep an eye on our website to find out when the Heart Health Check team is headed to a location near you.

www.victorchang.edu.au/ whats-on/health-check-booth

# Thank you from Miranda and Harry

## Miranda and Harry want to thank you.

Miranda is a heart transplant recipient, and that puts her at high risk of serious illness if she contracts COVID-19.

If you were one of the people who so kindly donated to the Victor Chang Cardiac Research Institute's COVID-19 research efforts – Miranda wants you to know how grateful she is.

Unfortunately, COVID-19 is still with us and looks like it will be for some time. So the risk to Miranda remains significant. That's one reason why your gifts to COVID-19 research are so important. You help build understanding and knowledge about the coronavirus and its effect on the heart. The more we know, the better our chances of finding ways to treat and protect the heart. While the coronavirus is still circulating in the community, Miranda needs to isolate herself and her young son, Harry. It's a long and difficult road, but she believes she owes it to herself, to Harry and to the generous organ donor who gave her a second chance at life. She is celebrating 5 years as a heart transplant recipient in August this year, which is an incredible milestone.

Miranda has so far remained safe, although she did end up in intensive care recently with some health issues. Thankfully they weren't related to the coronavirus. But unfortunately for Miranda it is part and parcel of being a heart transplant recipient.

Thank you again for your generosity and kindness. This research couldn't be done without the support of compassionate people like you.



Miranda and her son Harry, celebrating 5 years together thanks to her heart transplant.

#### **OPEN YOUR HEART**



David (below) has chosen to include a gift to the Institute in his Will to honour his beloved wife Pat.



### David honours his wife with a gift

Losing his wife Pat after 36 years of marriage left a huge hole in David's life. They'd been through so much together. Pat had been diagnosed with a heart disease called cardiomyopathy. She went into heart failure and needed a heart transplant. After two failed attempts at a transplant, Pat finally received a new heart. Thanks to this, Pat and David shared more happy years of life together.

To honour his beloved wife's valiant struggle for life and her courage dealing with the disease, David has decided to leave a gift in his Will to the Victor Chang Cardiac Research Institute.

"Pat always said she was so grateful for research

that was being done into her disease resulting in ways to treat her and giving her more time," says David.

"She was always talking about how amazing it was that she could have a pump that was keeping her alive while she waited for her heart transplant."

Sadly, Pat passed away suddenly in 2008 only a week after being diagnosed with an aggressive brain tumour.

David believes the work that is done at the Victor Chang Cardiac Research Institute can save many lives and give people a second chance at life.

"Cardiomyopathy is a terrible heart disease and hopefully with more research there may be a cure in the future," he says.

"Research is the key to helping people."



Should you wish to discuss including a gift in your Will, please call Deborah Smith on 0415 967 267 or Samantha Burns on (02) 9295 8753. They would be delighted to have a confidential conversation with you.

There are various ways you can support vital cardiac research. You can choose to become a **One Heart Supporter** by making a regular monthly gift, hold a fundraising event, organise donations in lieu of presents or even include a gift to the Victor Chang Cardiac Research Institute in your Will. To find out more please visit www.victorchang.edu.au or phone (02) 9295 8759.



**1** IN **10** Australians die suddenly due to an abnormal heart rhythm





Heart disease kills more people than any other single disease



## You make a difference

Name: Dr Nikki Bart

Laboratory: Inherited heart diseases

When Dr Nikki Bart's grandfather died from heart failure it galvanised her commitment to helping people with heart disease. Dr Bart is a cardiologist at St Vincent's Hospital and research fellow at the Victor Chang Cardiac Research Institute. She searches for the hidden causes of heart failure and believes in the potential for a genetic approach to heart disease treatment.

"My Grandfather 'Opa' skied until he was 78, gave me my first stethoscope and always had a glass half full attitude."

"Opa was one of my greatest inspirations and he taught me to love a challenge," says Dr Bart. "Research is hard work, there is a lot of problem solving and you need to remain committed but what I enjoy most about studies is they allow you to ask questions and then strive to find a way to answer them."

"I love the idea that through medical research we can make a difference to the lives of sick patients. This is complemented in my work as a heart failure cardiologist, where I see critically unwell patients every day and need to make decisions based on scientific evidence."

Dr Bart has a particular interest in heart failure and cardiac genetics. In June this year she was awarded a prestigious Fulbright scholarship that will allow her to study at Harvard Medical School to further her research.

Dr Nikki Bart, researcher and cardiologist knows about challenges. She's climbed the highest mountain on all seven continents. Now she's bringing that strength and resilience to tackling the scientific challenge of heart failure.

#### Welcome and Thank You!

It is with great pleasure that I write this first message to you as the new Executive Director of the Victor Chang Cardiac Research Institute. When I took on this position earlier this year I was conscious of two main things. The first was related to the remarkable legacies of Dr Victor Chang and Professor Bob Graham, the inaugural Executive Director who served for 26 years. These two giants and pillars of our Institute have a formidable track record of world class achievements. It goes without saying that my single most important goal with the Victor Chang Cardiac Research Institute is to continue to build upon their legacies.

The second thing I am conscious of is the vital role that the amazing supporters of the Victor Chang Cardiac Research Institute have and continue to play in the work we do here.

I take strength in knowing that you and so many other Australians share our determination to find better treatments and cures, and where possible, prevent cardiovascular disease. Your support gives us both confidence and courage.

If you are one of the people who so kindly donated to our research into COVID-19 – thank you. This research is not otherwise funded which means we can't do it without you.

I hope in this newsletter you enjoy the chance to learn a little about one of our research fellows, Dr Nikki Bart. It is a great honour for her to be awarded a Fulbright scholarship, and it is a reflection of Dr Bart's dedication that she is at the forefront of medical research and truly making a difference for patients suffering from heart disease.

Thank you again for your wonderful generosity. Wishing you the best of health.

PROFESSOR JASON KOVACIC EXECUTIVE DIRECTOR

## You're leading the charge against heart attacks in young mums

The Institute is leading Australia's major program into the causes of a heart disease called spontaneous coronary artery dissection (SCAD).

SCAD is responsible for approximately 25% of heart attacks in women under the age of 50 and it is the most common cause of a heart attack associated with pregnancy.

Women in their 40s and 50s are most at risk of SCAD, although it can occur at any age and also in men.

The majority of people who develop SCAD are otherwise healthy with no known risk factors of heart disease, such as high blood pressure, diabetes or high cholesterol.

The study is being spearheaded by Professor Bob Graham, the former Executive Director of the Institute who recently stepped down after 26 years in the role.

Of the 290 people in Professor Graham's study, 13 have a family member who has also had a SCAD event, including a set of identical twins. This suggests the disease has a genetic component



These three women survived a SCAD heart attack and are now encouraging other women to get their hearts checked.

and could potentially be inherited.

The project has enabled the first stem cell lines to be created from a SCAD patient's blood cells. But funding is scarce. A single genome sequence costs upwards of \$2,000.

The ultimate goal is to understand the causes of SCAD and find a cure. According to Professor Graham, the project, "Will give us a big leg up in terms of finding important genetic variants predisposing people to SCAD".

If you are an Australian SCAD survivor and would like to be involved in this major Australian SCAD research program at the Victor Chang Cardiac Research Institute, please email: scad@victorchang.edu.au

A Facebook group has been set up especially for Australian SCAD survivors. It is a great support network.

# What is SCAD?

SCAD is a serious condition that results when an inner layer of one of the blood vessels in the heart tears. Blood seeps between the artery layers, forms a blockage and can slow or block blood flow to the heart, causing angina, heart attack, abnormalities in heart rhythm or sudden death.

#### SPOTLIGHT ON

#### Thank you for making this COVID-19 research possible

Sadly, in spite of valiant months of lock down and a huge research effort, the coronavirus is still not under control, nor is it going away anytime soon. And people with heart conditions remain more vulnerable to serious illness.

The Victor Chang Cardiac Research Institute's COVID-19 research is focused on three key areas: **1.** Discovering how and why COVID-19 affects the health of people with pre-existing heart conditions.

2. Investigating the potential side effects of medications being trialed to treat COVID-19. (For example, some medications that have been tested on COVID-19 patients, can cause serious heart rhythm disturbances, so it's critical that their use is monitored very carefully.)

**3.** Collaborating with a number of hospitals around Australia to identify whether a stem cell treatment can combat COVID-19 in critically ill patients. Doctors have already used these stem cells to successfully treat other illnesses in the past.

If you were among the generous people who so kindly donated to the Victor Chang Cardiac Research Institute's COVID-19



Researchers at the Institute are trying to better understand the effects of COVID-19 on the heart.

research effort, thank you. This research relies on the gifts of people like you and the results will contribute to the international effort to better treat and prevent COVID-19.