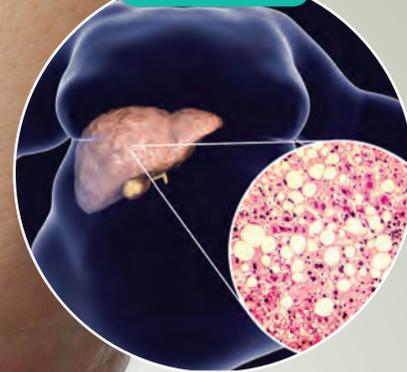


# SINGAPORE Health

THE FLAGSHIP PUBLICATION OF THE SINGHEALTH DUKE-NUS ACADEMIC MEDICAL CENTRE

IN FOCUS



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Accuracy matters in fatty liver disease

IN FOCUS



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## Discipline or abuse?

Well-meaning parents can injure their children when discipline goes haywire

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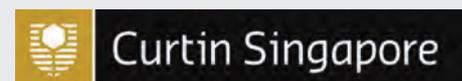
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# Counting down to 2021

The history of Singapore General Hospital (SGH) is the history of medicine in Singapore. The first general hospital for British troops was established in Singapore in 1819, but it was only in 1821 that it began serving the general populace — marking the true beginnings of SGH. As the countdown to SGH's bicentennial begins, *Singapore Health* will present snapshots showing changes in medicine and its various disciplines in the past 200 years.

## High-tech machines aid surgery

Surgical techniques have advanced in tandem with the rise in high-tech machines and equipment.

by Ms Goh Meh Meh

Deputy Director, Nursing Operating Theatre Services, Singapore General Hospital



Photos: Vernon Wong

It wasn't so long ago that nurses at Singapore General Hospital's operating theatres (OTs) had to scrub, sterilise and pack surgical instruments after use. That was in the 1970s. Today, instruments go to a central cleaning station, with automation and technology taking care of much of the work.

In the same way, the OTs of today have evolved with the advancement of technology. Surgical techniques have changed in tandem, with minimally invasive or keyhole surgery becoming more popular. Instead of large cuts that traditional open surgery requires, tiny incisions are made in the surgical area for scopes fitted with very small and precise cutting instruments, and high-definition cameras to enter through to perform surgery. Robotics-assisted surgery takes keyhole procedures a step further, with surgeons



performing the operation "remotely" via a computer console and with the aid of robotic arms.

SGH's more than 30 OTs are sophisticated, state-of-the-art rooms, designed and equipped with an array of high-tech equipment that includes navigation tools to help surgeons zoom in precisely on tumours, for instance; scanning machines like x-ray, computed tomography (CT) and magnetic



Photo: SGH

resonance imaging (MRI) machines to allow scans to be done during procedures; and links to the hospital's computer systems to allow easy access to patients' data like medical reports. Some OTs are also set up for specific or special procedures such as stenting, awake brain and interventional radiology procedures. The robotic-systems OT is another that is built with a reinforced floor to withstand the weight of the machine.

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# Spare the rod... the belt, the slap, the kick!

A KKH-led study shows that well-meaning parents can injure their children when they lose control while “disciplining” them, most often in the wrong way.

by Suki Lor



Every now and then, you read news reports about parents physically abusing their child, sometimes very badly. Social workers starkly remember cases like that. Neighbours shake their heads in disbelief.

When discipline goes haywire, the child can end up in hospital.

Researchers at KK Women’s and Children’s Hospital (KKH) found that non-accidental injuries in children treated at its Children’s Emergency were most often inflicted by biological parents.

Biological parents were responsible for 65 per cent of the alleged abuses — fathers 37 per cent and mothers 28 per cent. Others were stepfathers or the mother’s partner 8 per cent; other relatives 8 per cent; and domestic helpers 6 per cent.

The study looked back at a five-year period from 2011 to 2016, during which KKH’s Children Emergency managed 1,917 cases of suspected abuse in 1,730 children (187 had repeat visits for suspected

Child abuse is a big problem. This is only the tip of the iceberg. A lot more cases may not be detected.

**Dr Peter Wong**  
Senior Consultant,  
Department of Emergency  
Medicine, KK Women’s  
and Children’s Hospital

child abuse). The children ranged from infants to teenagers, with an average age of eight years.

Dr Peter Wong, Senior Consultant, Department of Emergency Medicine, KKH, who co-authored the study report,

said the large numbers for biological parents may be because they spend the most time with their children, and face their most challenging behaviours.

He said, “They’re not bad parents but they think they’re disciplining their children. We need to understand why and how the abuses occur, in order to prevent them. It’s also important to help them know what the appropriate discipline is and how it can be done safely.”

## Discipline versus abuse

It appears that many parents mean well while trying to discipline their child, but their methods may end up being abusive.

“These methods that parents use are the concern,” said Ms Eng Peng Peng, Master Medical Social Worker, Medical Social Work Department, KKH.

Injuries come from hitting, kicking, slapping, pushing, dunking hands in hot water, and excessive and inappropriate caning, such as on the face and near the eye.

Fathers are more likely to hit and kick. Mothers tend to cane.

The report noted that while caning has been decreasing in past years, parents sometimes used household objects including brooms, hangers, and kitchenware.

“Parents may also have their own challenging emotions to manage, so they need to address those before they discipline their child,” said Ms Jemi Chen, Senior Psychologist, Psychosocial Trauma Support Service, KKH.

“It is not always about knowing what are the right or wrong methods of discipline, but spur-of-the-moment anger can lead them to do things they regret later,” said Dr Wong.

## The child in hospital

When a child arrives at KKH’s Children Emergency, the doctor first treats the child’s injuries, but if he suspects abuse, he will call in KKH’s dedicated Suspected Child Abuse and Neglect team, fronted by a Medical Social Worker, to investigate further.

## Advice for PARENTS

*Don't discipline when your feelings of anger are too overwhelming. Take a time-out to calm down first. Then, listen to your children. Seek to understand what made them behave in certain ways.*

**Ms Jemi Chen**

Senior Psychologist, Psychosocial Trauma Support Service, KKH

*Avoid unrealistic expectations of yourselves or your children. Often this is what leads to abuse.*

**Dr Peter Wong**

Senior Consultant, Department of Emergency Medicine, KKH

*Understand that your child is a person with emotions, rather than someone with a checklist of tasks for you to tackle.*

**Ms Eng Peng Peng**

Master Medical Social Worker, Medical Social Work Department, KKH



Photo: Justin Loh

»»» Discussing a case are (from left) Ms Eng Peng Peng, Dr Peter Wong and Ms Jemi Chen.

Ms Eng said sometimes parents resist queries about the child's injuries, or justify their right to hit the child. For example:

• **A father who hit his child for stealing from classmates:**

"I don't want him to end up in jail one day. If I don't discipline him now, next time the police will."

• **A father asked about his child's bruises at the hospital:** "That's my business. I'm the father and it's my job to discipline him."

• **A mother justifying caning:** "I also grew up like that, and I'm fine."

The statements from parents may stem from cultural values related to parental authority and responsibility, and reflect the community's acceptance of caning. It can also reflect a parent

normalising their childhood abuse experience. A child may even blame himself: "Mummy beats me because I'm naughty."

The doctor may want the child to be hospitalised to give him a temporary safe place but this, too, may be met with resistance.

Ms Eng said the parent who had hurt the child might say, "He's well enough to go home. I'll take him back. I'm responsible for his safety, don't worry."

With no other protective person at home, the hospital will refer the matter to the Child Protective Service under the Ministry of Social and Family Development. The hospital is also legally required to make a police report.

An example is a kindergarten-aged girl with a fractured collarbone.

The medical records showed she also had an arm fracture a few months earlier. The parents admitted to some pushing and the child falling against furniture. They were worried but did not want to admit her.

"Two fractures with vague accounts of how they occurred increased the concern that the injuries were caused by abuse," said Ms Eng. It was only after the Child Protective Service and the police arrived and spoke to both parents that they agreed to admission for further assessment.

### The psychological harm

KKH currently manages about 500 such cases a year. Medical Social Workers assess these cases upon doctors' alerts. Only the most serious cases are referred to the Child Protective Service, such as those with significant or worrying patterns of harm. "These are clear grounds for concern," said Ms Eng.

She said the Child Protective Service tries preserving the family while ensuring the child is safe.

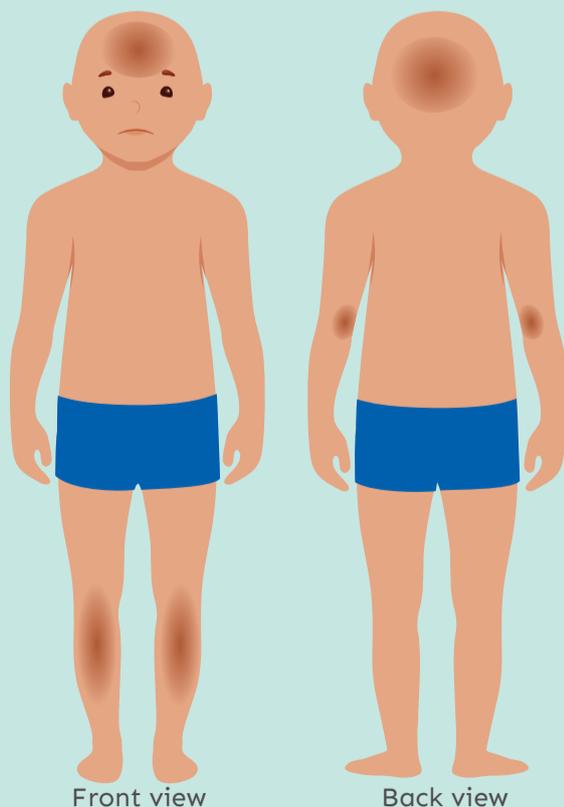
"The child is removed from the parents temporarily when there is no protective person at home. After that, reviews are conducted and help is provided to the family to improve safety conditions for the child to return."

If the warded child shows signs of distress, psychologists will work with a protective caregiver and the child, and teach the child coping strategies. Ms Chen said, "Physical abuse can cause long-term psychological harm, and the whole family will need holistic care."

Dr Wong stressed the need for parents to give up methods of discipline that cause physical and psychological harm. "Child abuse is a big problem. This is only the tip of the iceberg. A lot more cases may not be detected. We need doctors and health professionals passionate about this issue to come forward and champion the cause."

## BRUISES

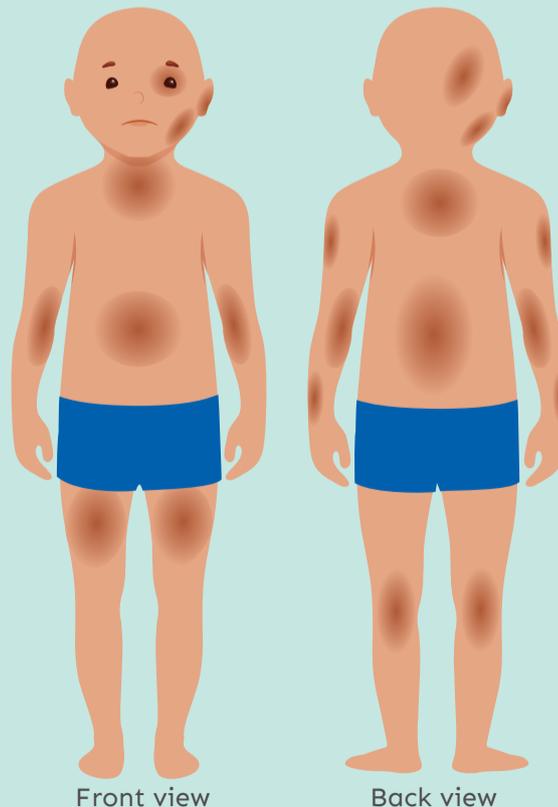
### Typical location of ACCIDENTAL bruises



Front view

Back view

### Typical location of NON-ACCIDENTAL bruises



Front view

Back view

»»» Doctors studying injuries have noticed the differences shown in these illustrations of injuries caused by accidents compared to those caused by physical abuse.

# Now, it's war on myopia

Singapore is often labelled the myopia capital of the world because of its very high rate of myopia. Now, a dedicated Myopia Centre has been set up to tackle the problem.

by Suki Lor



◀◀ Prof Ang in the clinic at the Myopia Centre, prepped and ready for eye checks in the community.



◀◀ Dr Lam chatting with kindergarten children while reading them a book on myopia written by two eye specialists from the clinic.



▶▶ A peek inside the newly opened Myopia centre; and (right) Prof Chia with the children's picture book on myopia she co-wrote with Prof Ang.



Photos: Justin Loh

Singapore's myopia figures are staggering and one of the highest in the world. Nearly 80 per cent of young adults aged 20 to 40 have myopia (short-sightedness) and 65 per cent of children will be myopic by the time they are in Primary 6.

By 2050, it is projected that about 80 to 90 per cent of adults over 18 years old will be myopic. Up to a quarter of them will have high myopia (short-sightedness of over 500 degrees), which will raise their risk of developing sight-threatening disorders later in life. These include early-onset cataract, glaucoma, retinal detachment, and macular degeneration.

This is where the Myopia Centre, which officially opened in August, comes into the picture.

Set up by the Singapore National Eye Centre (SNEC), the centre in

Bedok is bringing specialist care to the community. More such centres are expected to be set up in other heartland areas in the future.

## A new model of care

The Myopia Centre provides comprehensive myopia care from eye checks to specialist consultations, especially for patients with high myopia. There, optometrists will play a bigger role in assessing patients with myopia while being supervised by specialists. This will free the specialists up for more complex cases so that a larger number of patients can be seen there.

Dr Lam Pin Min, Senior Minister of State for Transport and Health, who was at the official opening, pointed to the urgent and growing need for synergistic efforts to counter myopia. "Over-reliance on specialist care to manage myopia will not be sustainable given the backdrop of rising myopia on top of the increasing eye care needs of our ageing population," he said.

Since its soft launch last year, the centre has seen equal numbers of children and adults. With children, the focus is on preventing and controlling the condition. With adults, it is on monitoring the condition, detecting it early, and managing complications.

The Myopia Centre is also a place for research and public education. SNEC is working with Singapore Polytechnic to take in students for clinical attachments and internship at the centre.

The opening also marked the launch of the illustrated picture book on myopia, *Amanda the Panda: Outdoor Play Keeps Myopia Away*. Jointly written for three- to eight-year-olds by the centre's Co-Directors, Associate Professor Audrey Chia and Associate Professor Marcus Ang, it offers eye care tips and urges young children to spend at least two hours outdoors daily. The book is available at primary schools, public libraries, and local bookstores.

**NEW**  
ONLINE SERVICE

# KKH U-PAL

## Urgent Paediatric Advice Line



[www.kkh.com.sg/UPAL](http://www.kkh.com.sg/UPAL)



ADVICE IS  
JUST A  
CLICK AWAY.



**KKH Urgent Paediatric Advice Line (UPAL)** is an online service for parents and caregivers to seek advice for common paediatric conditions (for children below the age of 17 years) such as fever, cough, diarrhoea, vomiting and common injuries.

KKH U-PAL is available from 8.00am to 11.00pm daily. Users will need to provide their phone numbers and email addresses, as KKH may seek feedback and participation in a survey after using this service.

This service is not meant to replace consultation with qualified medical practitioners.

The accuracy of advice given depends on input provided by the users, and the advice may not be all encompassing.

For concerns not addressed by this service, seeking prompt consultation with qualified medical practitioners is strongly recommended.

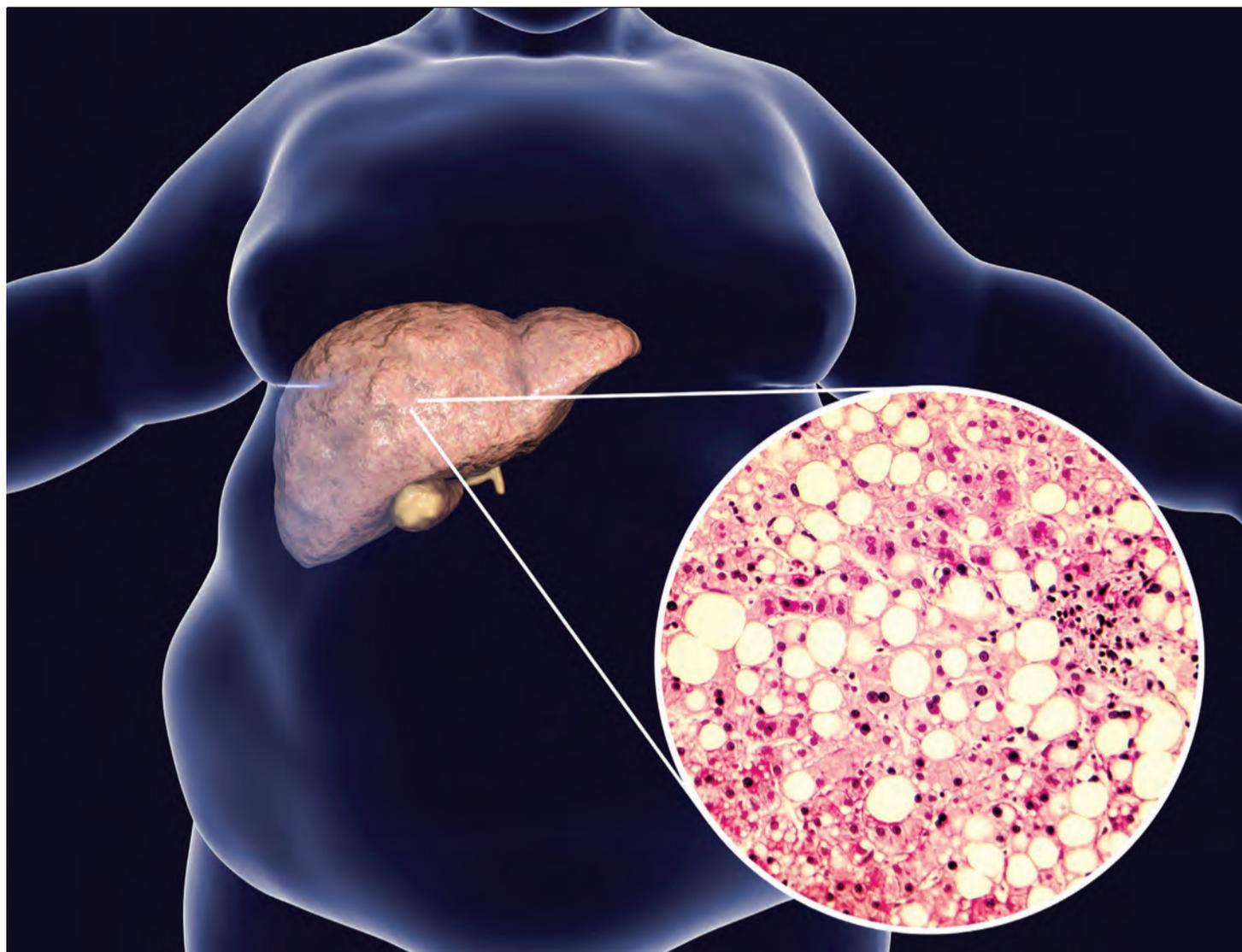
If your child needs urgent medical attention, please proceed to the nearest paediatric emergency department.

For certain pre-existing or chronic medical conditions, it is not recommended to seek advice from KKH U-PAL as your child may require more specialised care. Please consult your child's attending doctor or designated care team.

**In the event of an emergency,  
please call 995**



KK Women's and  
Children's Hospital  
SingHealth



# Zooming in on liver fat

New technology allows for a new way of counting fatty liver cells quickly, accurately and consistently.

**N**on-alcoholic fatty liver disease (NAFLD) is on the rise in Singapore, not unlike in the West where diet and lifestyle play important roles. NAFLD, associated with diabetes and obesity, can lead to liver cirrhosis or scarring and hardening, and liver cancer.

When signs of the disease appear, a biopsy is sometimes necessary to gauge the accumulation of fatty cells, inflammation damage and fibrous scar tissue in the liver. But the conventional method of quantifying fatty cells sometimes may not be able to determine the stage of the disease.

The current technique where the pathologist peers through a

microscope to assess liver fat in a tissue sample can only work out broad categories — 0-5 per cent (no liver disease), 5-33 per cent (mild), 33-66 per cent (moderate) or more than 66 per cent (severe). Although most biopsies can be clearly graded, it is less obvious in some cases. If the amount of fatty cells look like it might be around 65-66 per cent, is it in the moderate or severe stage? And how should the patient be treated?

Following advances in technology, a team of Singapore General Hospital (SGH) clinicians has developed an automated test that in a study was found to be highly accurate and consistent in its analysis. The test involves an optical microscopy technique known as secondary harmonic generation (SHG) microscopy to quickly produce a digital image of the tissue. A computerised algorithm or formula developed by the team is then used to detect and count the fat cells.

"This study is important as it shows for the first time that SHG microscopy can be used to assess liver fat. It can thus be an additional tool to help standardise the quantitative analysis of liver steatosis," said Associate Professor Jason Chang, Senior Consultant and Head, Department of Gastroenterology and Hepatology, SGH.

The current gold standard is subjective as it relies on

pathologists' experience and knowledge, whereas the new method standardises and gives its readings in precise percentages. This is important especially in trials where accurate quantification is crucial, Prof Chang said.

## Putting into practice

In the study, the team studied liver biopsies from 86 patients diagnosed with NAFLD and/or chronic hepatitis B at SGH between 2006 and 2016. They compared liver fat assessment using the new SHG tool and by three expert pathologists. No significant differences were found between the two, demonstrating the accuracy of the automated SHG method.

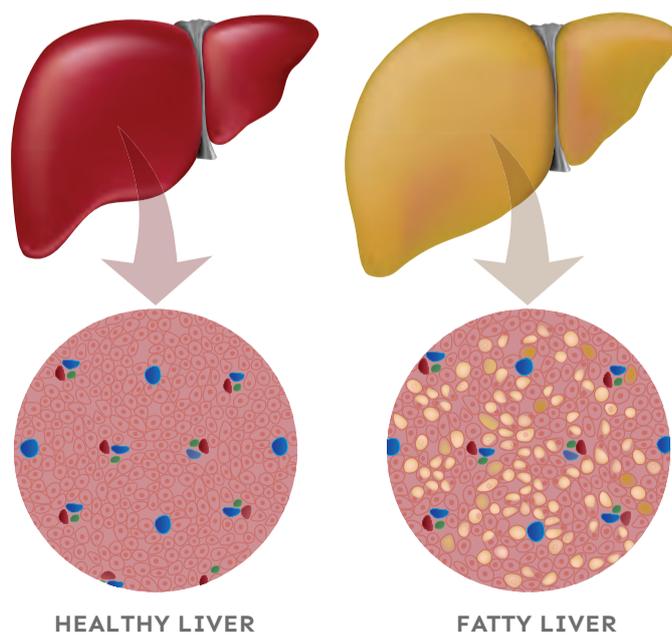
As the study was relatively small with sample tissues from just one centre, future studies are being planned to involve larger cohorts of participants from multiple centres, said Dr George Goh, Senior Consultant, Department of Gastroenterology and Hepatology, SGH, and the study's first author.

At the same time, the team is working with DxD Hub, a unit of A\*Star, to implement the algorithm into clinical practice at SGH, as well as international researchers to use SHG to measure other features of fatty liver disease.

Although "this assistive tool helps the pathologist quantify the liver fat in a more precise manner, removing inter- and intra-observer variations", it won't replace the pathologist just yet, said Dr Leow Wei Qiang, Consultant, Department of Anatomical Pathology, SGH. The algorithm may have been designed to pick out features specific to fatty liver, but it cannot tell if a biopsy is of a fatty liver tissue or something else in the first place.

The *Quantification of hepatic steatosis in chronic liver disease using novel automated method of second harmonic generation and two-photon excited fluorescence* study was published in *Scientific Reports*, a leading peer-reviewed science journal, on 27 February 2019. Other team members are Professor Tan Chee Kiat of the Department of Gastroenterology and Hepatology, SGH; Associate Professor Tony Lim and Dr Wan Wei Keat of the Department of Anatomical Pathology, SGH; and Dr Shen Liang of the Biostatistics Unit, Yong Loo Lin School of Medicine, NUS.

The team's breakthrough in measuring liver fat arose from an earlier collaboration with medical technology firms HistoIndex Pte Ltd and DxD Hub using SHG to stage liver scarring (fibrosis) in patients with NAFLD.



HEALTHY LIVER

FATTY LIVER

# Cutting another red tape

Patients no longer need to wait for over an hour for scheduled surgery date.



Some patients who plan to undergo surgery at Singapore General Hospital (SGH) no longer have to wait as long as an hour for their surgery date and other administrative details. Instead, they now receive a text message through their mobile phones informing them of the date, pre-surgery preparation and other administrative instructions.

The project kicked off in January 2016 and has been gradually implemented, with nine of SGH's 13 surgical departments using this process. As of 2018, the new practice has benefited more than 26,000 patients who underwent

surgery. By the second quarter of 2020, SGH plans to roll out the new process of scheduling planned surgery to its remaining four surgical disciplines.

"SGH firmly believes that patients should spend their time with us receiving care, not attending to administrative matters. With this conviction, we re-thought our processes to transform the way we deliver care and the way we work. We are pleased to be able to cut patient waiting time," said Mr Lee Jiunn Kee, Deputy Director, Division of Pre-Op and Admitting Services (POAS), SGH.

In the past and for the departments that have not adopted the new practice, patients have to proceed to what is known as a listing room at their Specialist Outpatient Clinic (SOC) to arrange for a surgery date, and get pre-surgery instructions and the estimated cost of their procedure and hospital stay. On average, patients wait about 30 minutes to be seen by the Listing Nurse, who takes another 15 minutes or so to validate the patient's particulars and other information. The actual time that the Listing Nurse takes to discuss with the patient what to do in the days leading to his surgery, as well as what to expect for his surgery, is less than 10 minutes. Apart from the waiting time, the listing room can also get uncomfortably congested, said Ms Michelle Loh, Executive, POAS.

## Less hassle

Patients whose surgery uses the new process can leave SGH after their clinic consultation. They will receive an SMS later the same day to notify them of their appointment date, their pre-surgery tests date and reporting location on admission day. For instance, patients going for knee replacement surgery under the Department of Orthopaedic Surgery will get pre-op instructions, such as

fasting before surgery, via SMS.

Patients can make surgery-related enquiries or change the dates by calling SGH Pre-Op Coordination Centre.

For patients, receiving the SMS at home allows them to go through and understand important information like estimated surgery costs at length. They can also discuss this with their family at their leisure.

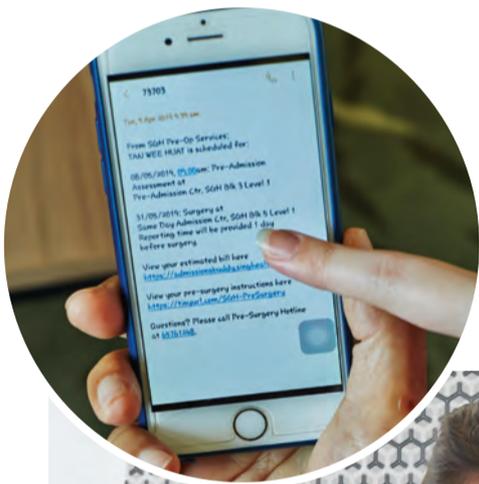
At the same time, capturing all essential information relating to a patient's surgery electronically and integrating it with their medical records enhances patient care and safety. Their medical records contain vital information, including medical history and drug allergies.

This new process involves standardising information specific to each type of surgery in an electronic form. But it also personalises the data in that it is able to use the information within the patient's record to highlight and prompt the surgeons about certain pre-admission tests appropriate for that patient.

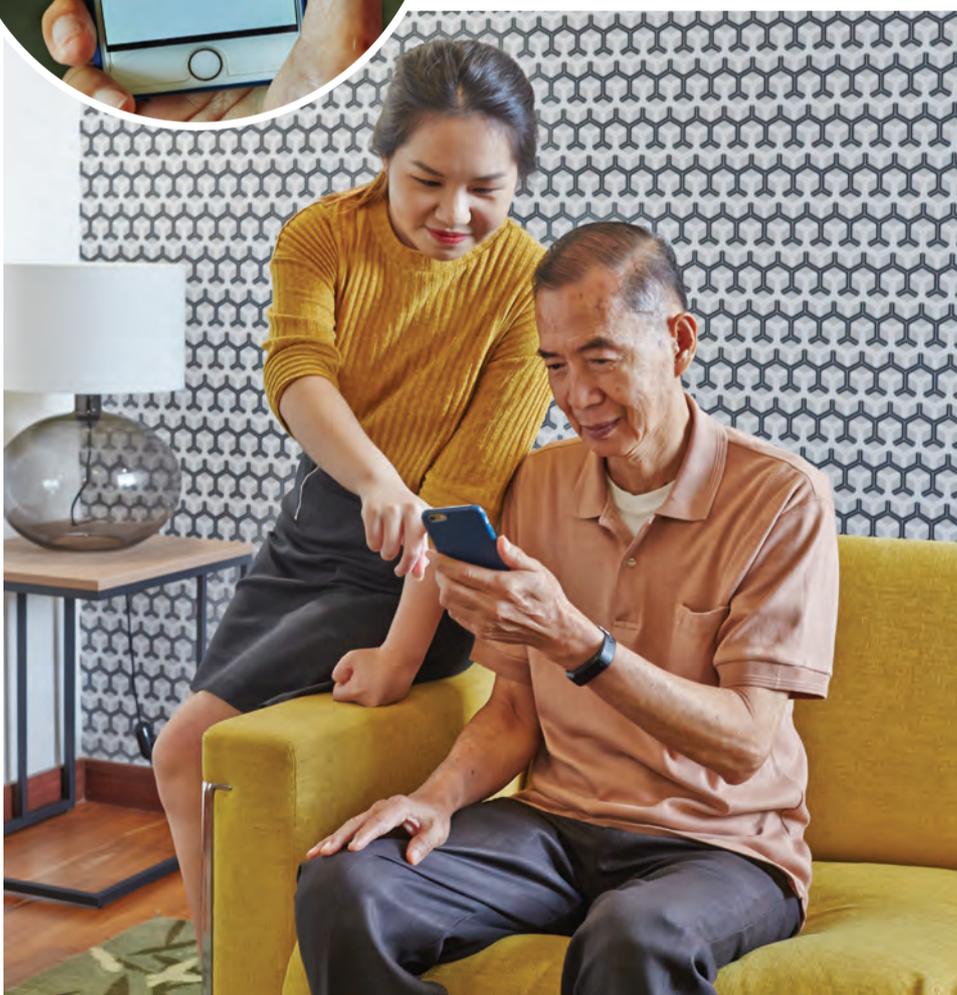
The electronic form also prompts surgeons if fields are left unfilled. Another advantage is that nurses no longer have to figure out illegible handwriting.

Essentially an administrative task, this job of arranging patients' surgery was done by nurses. For the hospital, this change in procedure means that nurses can now be deployed for clinical work while non-clinical staff are assigned to do surgery scheduling in their place.

One of many projects aimed at reducing red tape for patients, this new process is designed by a team led by Mr Lee. In addition to Ms Loh, the other members of the team are Ms Linda Lim and Mr Goh Zewei. The team from POAS won a Best Practice Medal (Workforce Transformation Category) at the National Healthcare Innovation and Productivity Awards 2019.



Under the new practice, listing staff (top), with the project team, check patients' details before sending SMSes to inform them of their surgery date and other administrative details.





# New attack on nose cancer gets results

A new method of treating nose cancer is helping to prevent relapses in more patients.

by Thava Rani

**W**hen nose cancer recurs in a patient, it is bad news because it is most often lethal. But a new treatment strategy is preventing relapses, and by this, increasing the survival rate of patients.

Developed by doctors from the National Cancer Centre Singapore (NCCS), the new treatment was tried out on 480 patients in clinical trials at 12 sites in China.

Results, published in the *New England Journal of Medicine* this year, showed that 95 per cent of patients survived the three-year mark — the highest ever

reported. This is five per cent more than previously seen.

In fact, the treatment proved so effective that it has now been adopted as the new standard of care for nose cancer globally.

Dr Melvin Chua, Senior Consultant, Division of Radiation Oncology, NCCS, who designed the trial, said the higher survival rate was because fewer patients had relapses in other parts of the body. A relapse happens when cancer cells escape detection and spread through the body.

He said, "Although survival rates were also good with the previous treatment, the cancer recurred in about 10 to 25 per cent of patients.

When this happens, it implies that the cancer has spread to the lungs, liver or bone. At that stage the patient becomes incurable."

The new treatment strategy is just that — a new way of delivering existing drugs.

The old way was to give chemo-radiation, which is a combination of chemotherapy and radiotherapy. The backbone of the treatment was radiotherapy where thin radiation beams were aimed at the tumour in the nose. Chemotherapy was added to attack the rest of the cancer cells. But relapses occurred when the chemo was insufficient to kill all the cancer cells.

## Killing the monster in the nose

The new treatment method involves adding a double-drug chemotherapy regimen to the existing treatment, Dr Chua said.

Patients are first given three cycles of this double-drug chemotherapy. They rest for a month and then are given the standard chemo-radiation. The whole treatment lasts for about four to five months.

"This way, we first attack the cancer cells at other locations in the body, and then come back later with chemo-radiation to kill the main monster in the nose," he said.

Side effects are tolerable. Some have infections that can be treated with antibiotics, or nausea or diarrhoea but not every patient needs treatment for it. Meanwhile, the success of this new treatment regimen is sparking similar strategies for other head and neck cancers.



» MRI scan of a nose cancer patient with a tumour (circled in red).

## The "Cantonese cancer"

It gets this nickname because it mostly affects the Chinese — the Cantonese, but also Teochews and Hokkiens.

It is the ninth most common cancer in Singapore men, with those aged 40 to 60 having the highest risk.

The cancer is sited behind the nose, and at the back of the throat. If diagnosed early, it is highly curable, but unfortunately there are no symptoms in the early stages.

It is not completely clear what causes nose cancer but some triggers have been identified. One is exposure to the Epstein-Barr virus, and the other a diet rich in salted fish and cured meats.

Dr Chua said that patients usually come in with a neck lump, bleeding in the nose, and other non-specific symptoms like ringing in the ear, blocked nose, or headache. "The majority would be in the advanced stages like Stages 3 or 4 when the tumour invades nearby structures, such as the throat, bones, and brain. The cancer cells are likely to have spread to the neck nodes, too."

Photo: Eddie Teo



» Dr Chua (standing) in the Ambulatory Treatment Unit at NCCS where patients get their chemotherapy.

►► Ms Nur Shahidah Ahmad (holding cooling pads) helps Prof Marcus Ong to put the cooling suit on a mannequin to demonstrate how the suit works.



# Freeze to save vital organs

During a cardiac arrest, it is important to cool the body temperature down quickly to preserve the function of the brain and other vital organs.

**I**t won't quite freeze a person the way Darth Vader did to Han Solo in *Star Wars*.

But a new cooling suit that has been developed by Singapore General Hospital (SGH) and an industry partner, Global Healthcare SG, for medical emergencies can quickly and safely lower the body temperature in victims of cardiac arrest.

Bringing the body temperature down to about 34.0°C from the normal 37.5°C has been shown in research to protect the brain and other vital organs while treatment is being given following a cardiac arrest, said Professor Marcus Ong, Senior Consultant, Department of Emergency Medicine, SGH.

"We don't want them to just survive. We want them to survive with intact brain function and be able to go back to normal life. That's the aim," said Prof Ong, who is also

Medical Director, Unit for Prehospital Emergency Care (UPEC), and Chairman, Pan Asian Resuscitation Outcomes Study (PAROS).

When cardiac arrest occurs, the heart suddenly stops functioning, and no oxygen goes to the brain and other vital organs. The priority is to restart the heart again. Once that is done, therapeutic thermal management or body cooling can be started. Patients are kept at 34°C for about 24 hours in intensive care, before the body temperature is gradually returned back to normal and the patient is woken up.

## Better than ice

The body can be cooled down quickly in other ways, such as using ice packs and circulating chilled saline through the veins intravenously. But these can be messy and bring on other complications.

Although cooling suits are available in the market, they are costly. For instance, a single-use cooling suit with coolant previously used in SGH was bulky and expensive — it cost US\$1,000 for each use. Thus, Prof Ong began exploring the idea of a reusable, cheaper cooling suit. Key to this was the use of a carbon graphite material, which is much more powerful than ice in lowering temperature.

"The result is a suit that can be adjusted to any body shape or size. It is reusable and cleaned after every use. It is also far cheaper at around US\$200 for each use," said Prof Ong.

The suit, named the CarbonCool® Suit™, consists of an outer garment

made of neoprene and thermoplastic polyurethane held together with velcro tape. It has pockets for 20 cooling pads known as MPads™, which are filled with a graphite water solution that can transfer heat 15 times better than ice.

## Safe and effective

In a study to examine its safety and viability, Prof Ong and a team of researchers collected data on patients with cardiac arrest sent to SGH between April 2010 and December 2017. Between 2010 and 2015, patients were given ice packs and cold saline to bring down their body temperature. From July 2015 to December 2017, patients were given the experimental cooling device, and their temperatures monitored via an oesophageal temperature probe.

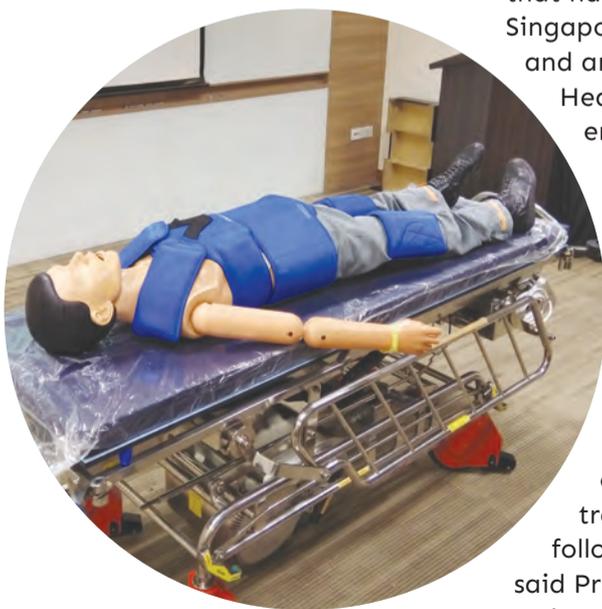
According to the study's author, Ms Nur Shahidah Ahmad, SGH Senior Clinical Research Coordinator, it took 73 minutes for the group of 40 patients who wore the cooling suit to have their body temperature lowered to 34°C, compared to 142 minutes for the other group of 84 patients.

"We wanted to hit the target temperature of 34°C within two hours. With the traditional devices — ice packs and intravenous cold saline — that target was more difficult to reach. With the cooling suit, we were able to reach the target," said Ms Shahidah.

Although the study didn't assess for survival, other research has shown that survival prospects were enhanced when body temperature was brought down quickly and in a controlled manner, Ms Shahidah said. However, she noted that since 2015, the percentage of patients who regained good brain function after cardiac arrest has risen to 60 per cent from 20-30 per cent before.

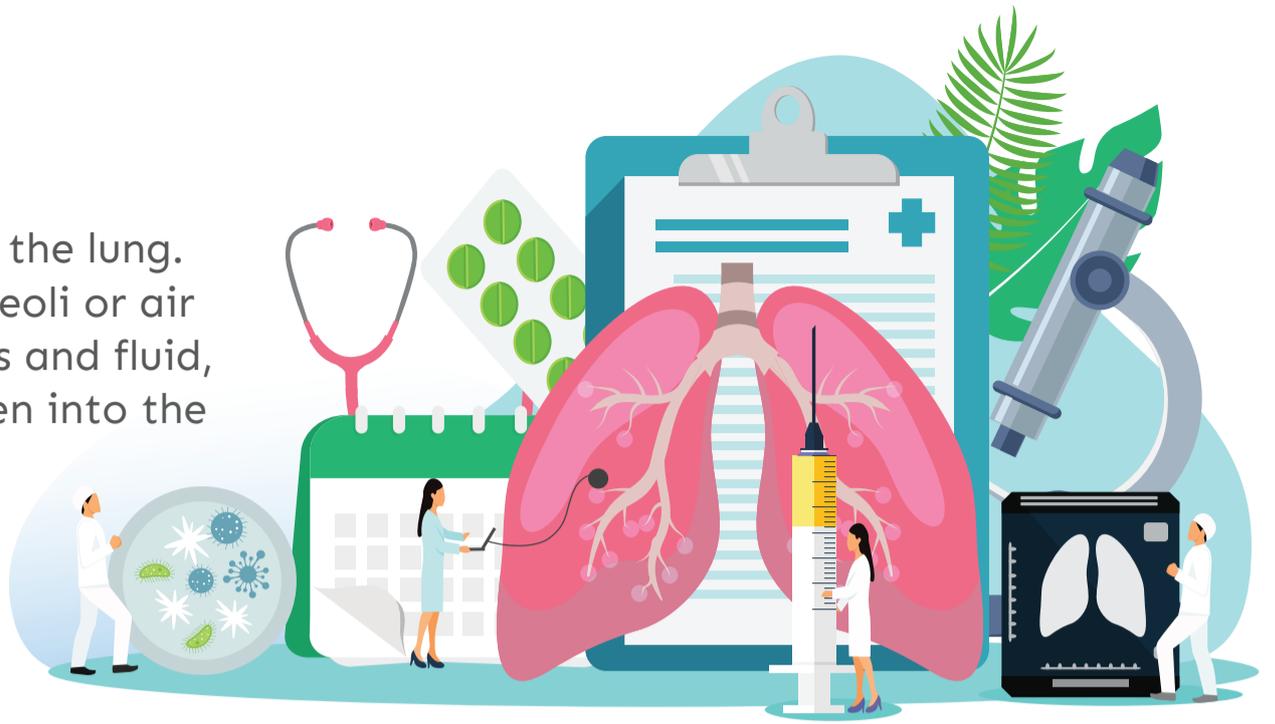
It is important for the study to show that the cooling suit is a safe, effective, and fast alternative to other cooling devices. The cooling suit is just one of a slew of emergency devices and initiatives that have been put in place in recent years to boost the survival of people who collapse at home or in public due to a heart attack or cardiac arrest.

The cooling suit is now used at SGH's emergency department as a standard-of-care treatment for post-resuscitation and heat stroke management. It also has the potential to be used in emergencies outside the hospital as it is reusable, portable, and does not require a power source.



# Pneumonia

Pneumonia is an acute infection of the lung. When you have pneumonia, the alveoli or air sacs in your lungs are filled with pus and fluid, hampering the absorption of oxygen into the blood. It is the single largest cause of death in children worldwide, killing at least 1.4 million children under five every year, according to the World Health Organization.



## Singapore

**Pneumonia** is the 2nd most common cause of death in Singapore, accounting for 20% of deaths in 2017. In 2012, pneumonia accounted for 17% of deaths. Pneumonia patients account for 3.2% of all hospital admissions in 2016, making the condition the 3rd most common cause of hospital admissions.



## How it is spread

Breathing in or touching objects exposed to the tiny droplets of fluid launched into the air when someone with pneumonia sneezes or coughs

## Who is most at risk?

- Children and the elderly
- People with long-term medical conditions such as diabetes mellitus, congestive cardiac failure, and chronic obstructive pulmonary disease
- Those with weakened immunity because they are under chemotherapy for cancer or immunosuppression following organ transplant, or they have HIV

## You may have pneumonia if you have...



Cough



Fever



Breathlessness

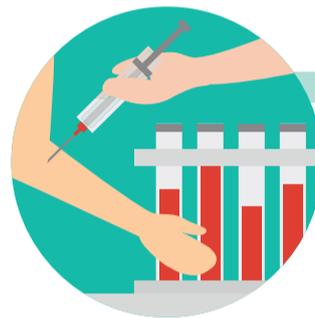


Saliva or mucus that is yellowish or greenish, or rust-coloured



Chest pain (may be aggravated by coughing and deep breathing)

## Is it pneumonia?

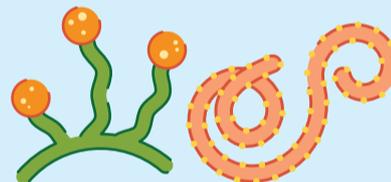


- Detailed clinical assessment from history and physical examination
- Chest radiograph
- Further tests (such as sputum and blood tests) to assess severity and possible cause of pneumonia

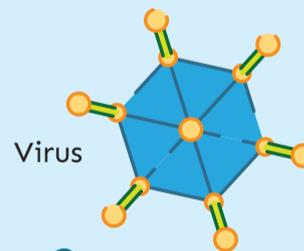
## It can be caused by



Bacteria



Fungi or parasites



Virus



Long hospital stay



**Pneumonia** is treated with antibiotics, and in severe or at-risk cases, the condition may need to be treated in hospital.



## How to stop it from spreading

- Immunisation
- Practise good hygiene like washing your hands frequently, wearing a mask in public, and avoiding crowded places when unwell

Information provided by

**Dr Phua Ghee Chee**

Senior Consultant and Head, Department of Respiratory and Critical Care Medicine, Singapore General Hospital (SGH)

**Dr Michelle Kam**

Associate Consultant, Department of Respiratory and Critical Care Medicine, SGH

# Processing Change

From part-time hawker helper to President's Nursing Award laureate, Ang Shin Yuh is shaping the future of healthcare, one process at a time.

by Annie Tan

**M**s Ang Shin Yuh spent much of her youth helping her mother sell *yong tau foo* at a school canteen. Business was relatively quiet except for the short recess period when the stall was very busy. The challenge facing her mother was how to serve as many students as possible without compromising the quality of her food.

Crucial for hawkers like her mother was streamlining the stall's processes, such as displaying the items available for order, queueing and ordering, cooking and serving, and payment.

Little did she know at the time that learning the ropes from her mother would prove to be an important lesson for her today. As Deputy Director, Nursing Quality Research & Transformation, Singapore General Hospital (SGH), Ms Ang oversees quality, research and transformation in healthcare.

"The main issues we face in healthcare are: how do we continue to improve the quality of care and experience, without making undue demands on resources such as manpower, technology and expenses?" said Ms Ang.

"It is very hard to strike a balance. What is quality care? How is it defined? What is a good experience? All these will evolve. The demand and type of experience people want will evolve. Healthcare will have to evolve as well. Our target keeps shifting."

One aspect of her work is working with colleagues and other people to enhance efficiency by improving hospital processes. Recently, one of her projects was introduced to patients at SGH wards — an app that lets patients post queries to



Ms Ang Shin Yuh's contributions towards improving the quality of care and patient experience won her the prestigious President's Nursing Award this year.

their care team, and access their daily schedules, test results and education materials. This project has been so successful that it will be implemented in other SingHealth institutions.

The bubbly 40-year-old — one of this year's President's Nursing Award winners, the highest honour in Singapore for nursing — studied nursing at King's College London. She had turned down an offer to study medicine locally, opting for the nursing scholarship instead because she wanted "to go and see the world".

"As a very timid, quiet little girl, I was thrown into an environment where I had to survive on my own

for four years," she said, adding that she became very outspoken and independent to survive in an unfamiliar environment.

She sees herself belonging to "a generation of transition" — born in 1979 when technology was in its infancy, and growing up amid dramatic technological changes. Straddling these two worlds, she feels she is well poised to drive the sort of changes in healthcare that she as an older person would want to see.

"In the next 30 years, I will be 70. I will be the one who needs healthcare. It is about building a healthcare system — the kind that I would want — for my generation," said Ms Ang.



In the next 30 years, I will be 70. I will be the one who needs healthcare. It is about building a healthcare system — the kind that I would want — for my generation.

Ms Ang Shin Yuh  
Deputy Director, Nursing Quality Research & Transformation,  
Singapore General Hospital

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Photos: Ahmad Iskandar

but I don't actually pass on values. We must also teach values because only then do we know when to apply those skills correctly," said Prof Ooi, who is also Senior Consultant, Department of Hepato-pancreato-biliary Surgery, SGH.

"A mentor must be a good role model, living the life of a good doctor first – not just in possessing skills, but in how you treat patients, how you treat people. The values must be seen as something they themselves would want to also have."

In this respect, it is Professor Russell Strong, the well-respected Australian surgeon who performed the world's first live donor liver transplant, that Prof Ooi considers his "real mentor". Besides learning about perseverance, direction

then can he have the confidence and magnanimity to pass on all he knows. Otherwise, the teacher might hold back some knowledge for fear of being overtaken by his students, he said.

Prof Ooi also looked to providing infrastructure for training, playing a heavy role in designing the skills simulation laboratories at the Academia, and engaging industry players to provide top-of-the-line, state-of-the-art instruments and operating theatre systems for training students.

"We saw the importance of technology in healthcare, and thought that if we were not at its forefront, our trainees would never move forward," he said.

Prof Ooi was instrumental in

A mentor must be a good role model, living the life of a good doctor first – not just in possessing skills, but in how you treat patients, how you treat people.

Professor London Ooi  
Senior Consultant, Department of  
Hepato-pancreato-biliary Surgery, SGH

# Mentor Extraordinaire

Professor London Ooi has spent more than 30 years as a surgeon, researcher, administrator and teacher at SGH.

But his true legacy might be as a mentor extraordinaire to successive generations of surgeons and clinicians, many of whom bear witness to his generous and inspiring leadership.

**H**is office at the Academia speaks volumes about Professor London Lucien Ooi's role as a mentor. Brimming with photos, cards and personal notes, it is testimony to the many lives he has touched in his more-than-three-decades-long career at the Singapore General Hospital (SGH).

But it is the door to his room that speaks the loudest about Prof Ooi as a teacher and mentor. He deliberately keeps it open at all times – a welcoming sign to anyone who needs to see him.

"Leaving it open shows that you're approachable, and so are better able to receive people," said this year's National Medical Excellence Awards' Outstanding Clinician Mentor.

His approachability is cited often by students and colleagues alike. Friendly and generous to a fault, he seldom if ever refuses students' requests for pre-examination tutorials. For his part, Prof Ooi said he is more than happy to oblige. Still, he stressed it's not enough to teach or impart knowledge.

"If I teach somebody, I'm only passing on my skills and knowledge,

and focus, key for Prof Ooi was in seeing how Prof Strong "always put his patient first, no matter what".

"If you mentor the person right, he will adopt the same values as you over time. He will then be ready to mentor the next generation," said Prof Ooi.

The mentor-mentee relationship must be built on trust and confidence. "The mentee must trust that his mentor will care enough for him to teach and guide him well," he said.

For a mentor to be comfortable in imparting knowledge generously, he must be competent himself. Only

establishing entities like SingHealth Transplant as a platform for developing and mentoring clinicians in leadership roles in transplantation; and SingHealth Tissue Repository as a powerful resource for clinician researchers.

Prof Ooi's appointments on advisory boards outside of Singapore underscore his international standing and repute. But perhaps Dr Tan Hiang Khoo, his successor as Surgery Division Chairman, puts it best when he hails Prof Ooi as "a true academic surgeon" – someone who excels in clinical expertise, research, teaching and administration, and combines all to be the mentor extraordinaire.



Prof London Ooi, who played a key role in setting up simulation rooms for training, chats with Residents practising their endoscopy skills.



Britain's Princess Eugenie wore a wedding gown that showed a long scar on her back to raise awareness of scoliosis, which she suffered from as a child.



# Standing tall

British royalty puts the spotlight on a common disorder which usually occurs in childhood.

by Sol E Solomon

**W**hen Britain's Princess Eugenie walked down the aisle in a gown that showed off a long scar on her back, she put scoliosis in the global spotlight.

She had developed the condition in her childhood, and had surgery to straighten her spine at 12. Showing off the scar at her wedding was a way of getting to terms with the trauma and pain that she felt at the time, she said. It was also a way of helping to take away the stigma of the disease that other young sufferers might feel.

A condition that can strike at any age, scoliosis, or a sideways curve of the spine, tends to occur more commonly among children and adolescents, particularly girls. It generally does not cause problems, especially if the condition is mild and treated early. If severe or left untreated, however, the disorder can lead to problems in later life, such as nerve compression, pain in the back and legs, and even breathing difficulties as the disorder leads to pressure on the lungs.

A school screening programme that started in 1982 picks out boys and girls with spine curvature from Primary 5 and sends them for follow-up if the angle of curvature is greater than 10°, said Dr Reuben Soh, Senior Consultant, Department of Orthopaedic Surgery, Singapore General Hospital (SGH).

The hospital tends to see young scoliosis patients between the ages of 10 and 16, he said. "That's when they have their pubertal growth spurt. The spine grows the fastest during this time, and it may curve and show up as scoliosis," he said.

"Six months before they start menstruating and two years after is the time when girls grow the fastest — and when they have the greatest chance of developing scoliosis," said Dr Soh. It's harder to determine when boys mature and when they stop growing, so "we tend to see them for a bit longer until they are midway through their National Service", he added.

The annual programme screens about 95 per cent of Singapore school children.

## Brace yourself

It is not clear why the spine curves for some and not for others. Even for twins, one may develop scoliosis, and the other not. In most cases, surgery is unnecessary

and treatment involves wearing a brace that applies corrective pressure on the growing spine to prevent the curve from progressing. A brace, which has to be used when the curvature is at least 20°, needs to be worn for 16 hours a day.

If the spine curves more than 45°, surgery is needed. Titanium pedicle screws are put into the affected vertebrae to straighten the spine. "We know that if they don't wear a brace, the scoliosis will progress. We also know that if the curve is over 45°, it will worsen 1° per year," said Dr Soh.

Getting children to wear a brace isn't easy as it can be uncomfortable in Singapore's warm climate. Children can also feel self-conscious wearing a brace, which is made from fairly stiff plastic moulded to fit the body.

Adults can also get scoliosis, but their condition is more likely to be due to the wear and tear of ageing. Those who had the disorder as children are also likely to suffer from it when they reach their 50s or 60s.

Women, in particular, should maintain their fitness to help boost muscle strength and flexibility to prevent or slow wear and tear of the spine. "Weight-bearing exercises, jogging, swimming, and Pilates are very useful for both men and women," said Dr Soh.

# Yes, organs can drop!

It's uncomfortable and inconvenient, but pelvic organ prolapse is not life-threatening. It can be treated and prevented.

by Thava Rani



If you feel pressure or discomfort in your vagina, as if something is falling out of it, you may have some form of pelvic organ prolapse.

But you are not alone. Nearly half of women aged 45 to 55 suffer from it, and many in Singapore are unaware of what it is, or how to prevent it.

According to Associate Professor Han How Chuan, Senior Consultant, Department of Urogynaecology, KK Women's and Children's Hospital (KKH), a study by the hospital last year found that only 35 per cent of the pregnant women surveyed knew about it. An equal number had symptoms but did not see a doctor.

"More awareness is needed, because early treatment means better results," said Prof Han.

## So, what is it?

The pelvic floor is a hammock-like layer of tissue and muscle, which holds the pelvic organs (womb, bladder and bowel). A prolapse happens when the pelvic floor weakens and can no longer support the organs. One or more of them will slip down and bulge into or through the vagina.

Prof Han said the pelvic floor can weaken or be stretched during pregnancy, childbirth, menopause, or through obesity, chronic cough, asthma, constipation, previous abdominal surgery, or by carrying heavy loads.

Women with prolapse may experience backache, difficulty or pain during intercourse, constipation, difficulty passing urine, or vaginal bleeding. Symptoms usually improve

when lying down, and worsen when standing for prolonged periods.

An untreated prolapse can lead to complications. "For example, a bladder that has dropped may cause a blockage in the urinary tube, which can lead to kidney failure, stones or frequent urinary tract infections," said Prof Han.

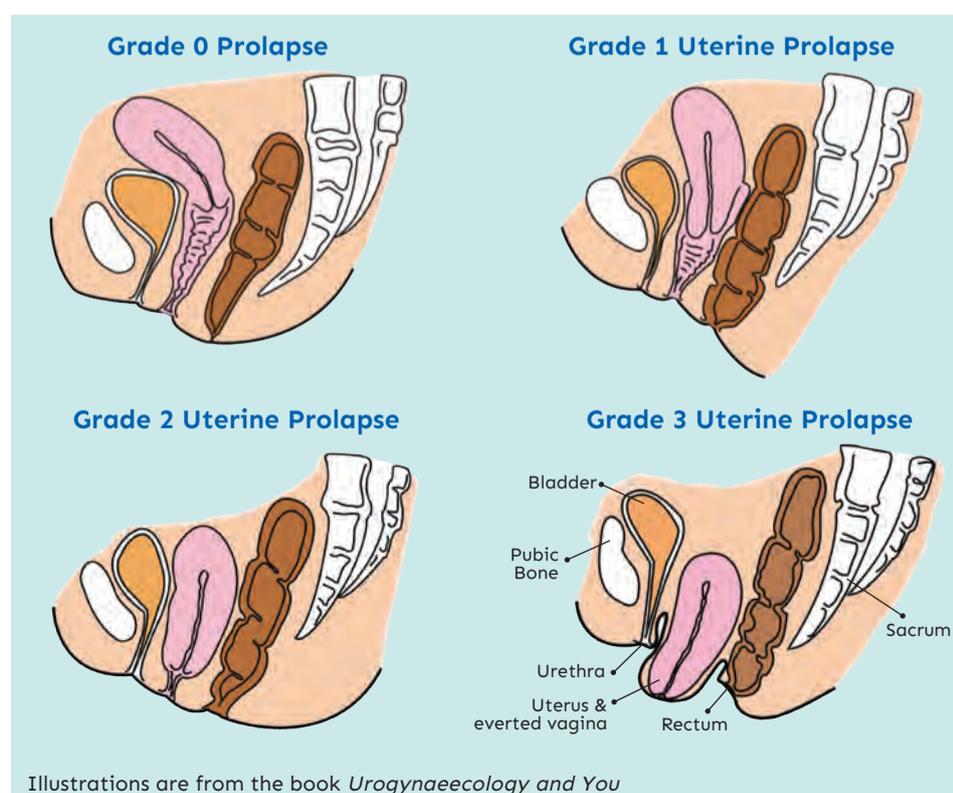
## Treat and prevent

Surgery will depend on the type and severity of the condition. A vaginal pessary can be fitted to support the prolapsed organ and relieve symptoms, but women on the pessary need follow-ups every three to six months.

Non-surgical methods include pelvic floor exercises. "Although

they may not cure the condition, these exercises help retrain and strengthen the pelvic floor, and are useful to alleviate symptoms in mild cases. Ideally, pregnant women should do these exercises every day during pregnancy and after childbirth," said Prof Han.

Women can also reduce strain on the pelvic floor with proper posture when lifting, and choosing low-impact exercises such as brisk walking, cross training and swimming. They should prevent constipation, and avoid straining, tightening their abdomen or holding their breath while passing motion. Similarly, leaning forward and backward after passing urine helps empty the bladder completely and prevents straining.



## Types of pelvic organ prolapse

### BLADDER

The most common is when the bladder drops and presses on the vagina wall.

### BOWEL (RECTUM)

When the rectum bulges into the vagina wall.

### WOMB (UTERUS)

When the uterus slips into the vagina and sometimes through it, protruding out of the vagina. If the womb has been removed, the rest of the vagina can still drop through the vaginal opening.

## Pelvic floor exercises

These exercises are done in a sitting position. If the prolapse bulges out of the vaginal opening, it is advisable to do them lying down.



### The squeeze

Squeeze and lift the pelvic floor muscles and vagina. This would feel like you are trying to stop passing wind and urine at the same time. Breathe normally.

### Repetitions

- Do 10 long squeezes followed by 10 short ones.
- Hold the long squeeze for 10 seconds, then relax the muscles for 10 seconds.
- Hold the short squeeze and relax as quickly as possible.

### Frequency

Three times a day. When symptoms improve after three to five months, once a day.



Information in the article was contributed by Associate Professor Han How Chuan, Senior Consultant, Department of Urogynaecology, KKH



# Cardiac tests when do you need one?

Not everyone with chest pain is having a heart problem or needs a series of cardiac tests.

by Annie Tan

## Common cardiac tests

- **CT Calcium Test** – x-rays measuring fatty plaques in the heart's arteries.
- **Myocardial Perfusion Imaging** – a radioactive tracer injected before and after exercise or medication to simulate cardiac stress. It identifies where the heart is not getting enough blood.
- **Echocardiogram (Echo)** – ultrasound scan to diagnose a weak or enlarged heart, valve problems, or heart muscle disorders.
- **Electrocardiogram (ECG)** – a snapshot of the heart's electrical signals.
- **Mobile ECGs** – devices worn by patients for 1 to 14 days to monitor their electrical heart signals.
- **CT Coronary Angiogram** – non-invasive test to find blockages in heart arteries via injecting a dye into the body. Not suitable for patients with weak kidneys.
- **Ambulatory Blood Pressure Monitoring Devices** – worn as a cuff by patients for 24 hours to take continuous blood pressure readings.

**A** 48-year-old man was worried that he had heart disease. He had chest pains after playing basketball but they went away after a week. However, he was concerned because he heard that this could mean he had coronary artery disease.

His pains were found to be like pinpricks that last a few seconds, and come and go during the day. There were no other worrying symptoms such as worsening chest pains on exertion, pain radiating to his jaw or left arm, or pain-related cold sweats.

He was active and did not have diabetes, hypertension, high cholesterol or a family history of heart disease.

## Common misconceptions

According to Dr Huang Weiting, Associate Consultant, Department of Cardiology, National Heart

Centre Singapore (NHCS), since the pain started after a strenuous game, it was most likely muscle strain. She said it is common for patients to have these misconceptions, but only 15 to 20 per cent of those referred to NHCS for cardiac tests each year, actually have heart disease.

"There are muscles, bones, lungs, and the food pipe in the chest. Any issues with these can show up as chest pain. What warrants medical attention is heavy or tearing chest discomfort, usually generalised and behind the chest, lasting more than 5 to 10 minutes, worsened by exertion, and radiating to the jaw or arm. Localised pinpricks or a sharp poking pain lasting less than a minute is usually benign, and can be musculoskeletal pain."

For low-risk patients, generally no further tests are required but if they want to know their future risk, they may have a non-invasive computed tomography (CT) Calcium Score test. It measures

fatty plaques in the artery walls and determines their 10-year risk of a heart attack or stroke. If their risk is elevated, cholesterol-lowering pills may be recommended to reduce the risk.

But Dr Huang said "low risk" does not mean "no risk", especially with Singapore's ageing population and earlier onset of heart disease.

"High blood pressure, diabetes, cholesterol problems, and/or a positive history of early-onset heart disease or stroke in relatives (males under 55 and females under 65) can increase the risk. Good control can help lower it. Also, healthy lifestyle habits and getting health screening from age 40 are highly encouraged," she said.

## When tests are really needed

Patients at intermediate to high risk of heart disease would need tests. Some common ones are the stress echocardiogram and myocardial perfusion imaging tests, which determine oxygenation of the heart muscles. A lack of oxygenation points towards significant heart artery blockage.

Cardiac stress can be induced by walking on a treadmill, or simulated with an injection of medication. Combined with cardiac imaging, doctors interpret the information, with the patient's symptoms and continuous electrocardiogram tracing, to come to a diagnosis.

Since tests are not 100 per cent accurate, patients should still monitor their symptoms even if they are given the green light. If worrying symptoms persist despite a negative stress test, other tests may be needed, including an invasive angiogram, which is the most accurate test available.

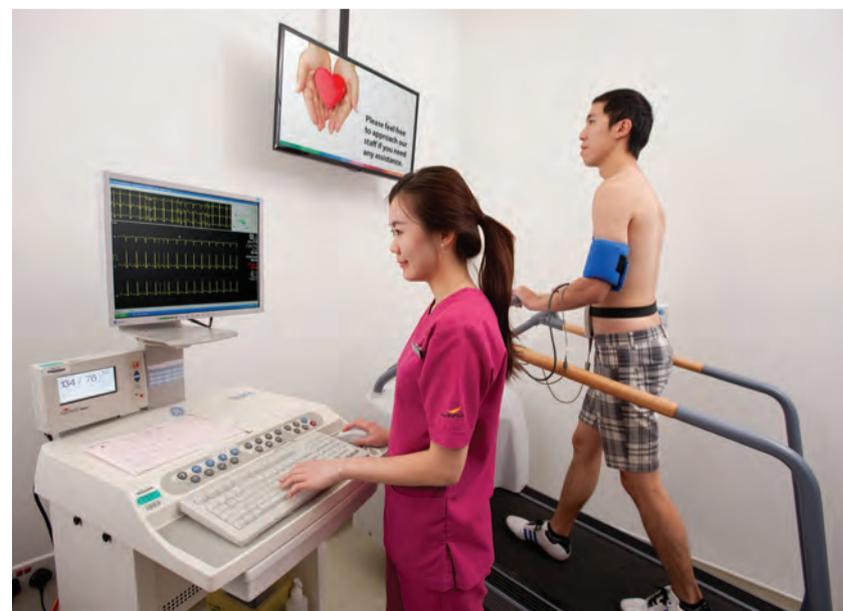


Photo: National Heart Centre Singapore

»» The electrical activity of a patient's heart is charted on the electrocardiogram monitor as he undergoes a cardiac stress test on the treadmill.

# Green fish curry

(4 servings)

## Ingredients

- 500 g *tenggiri* (Spanish mackerel) fillet, cut into 4 pieces
- 1 tbsp oil
- 130 g onion, sliced
- 1/2 thumbsize piece of ginger and 2 cloves garlic, chopped finely together
- 150 g tomato, half chopped into chunks, half chopped finely
- 2 stalks curry leaves
- 6 green chillies, blended with 1 cup water
- 1/4 cup low-fat yoghurt
- 1 tsp fennel seeds, roasted and ground (or fennel powder)
- 3 cups water
- 1 tsp salt
- 1 lime, juice squeezed
- 30 g coriander leaves, blended with 1/4 cup water
- coriander leaves for garnish

## Method

- 1 Heat oil in a large pot and fry sliced onion till fragrant.
- 2 Add finely chopped ginger and garlic.
- 3 Add finely chopped tomato and fry until it becomes soft. Then add curry leaves.
- 4 Add blended green chillies and cook for about 10 minutes.
- 5 Add yoghurt and ground fennel, and continue cooking.
- 6 Add 3 cups water, salt, and coriander paste, and bring to a boil.
- 7 Add fish slices and continue cooking for 10 to 15 minutes.
- 8 Add tomato chunks and lime juice.
- 9 When fish is cooked, garnish with coriander leaves and serve hot.

## Estimated nutrient content (per serving)

- Energy 250 kcal
- Carbohydrate 9 g
- Protein 26 g
- Fat 12 g
- Sodium 675 mg
- Cholesterol 95 mg



### HEALTH TIP

In this recipe, low-fat yoghurt is used instead of coconut milk. This reduces the amount of fat in the dish. Yoghurt is also a good source of calcium. Other ideal calcium sources include milk and cheese.



### CHEF'S TIP

Yoghurt sometimes curdles when added to hot dishes. To prevent this:

- Let the yoghurt warm to room temperature, then stir in a tablespoon of flour, such as corn flour, before use.
- Add yoghurt to the dish at the end of the cooking process, just before removing the pot from heat (if the recipe does not require you to add it earlier).

Adapted from *Where is the Fat? Cookbook*, a publication by Singapore General Hospital



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# Q&A



## Dad eating with abandon after heart operation

**I'm concerned about my dad. He's 65, had stents put in last year, and after getting better, he is now back to his bad old ways of eating (*nasi padang* every other day). He thinks he can eat what he likes because he takes his medicine for high cholesterol and high blood pressure. We tried encouraging him to eat healthier but he's stubborn. If we add brown rice to white, he complains he cannot swallow, and he won't eat fruits unless they are cut for him. He's a kind, loving man, and I'd like him to live long enough to see my kids grow up. His parents died of stroke and heart attack. What can I do?**

It is heartening to see that you are actively involved in caring for your father's health.

I presume the all clear given was because he did not need further procedures for ischaemic heart disease. However, studies show that post-treatment lifestyle changes and good adherence to medication are the most important things in preventing future recurrent cardiac events.

Regular moderate intensity exercise and healthy eating are what patients can do to help themselves. You can explore the possibility of enrolling your father in a cardiac rehabilitation programme in consultation with his cardiologist. Diets low in saturated fat and trans fat will help reduce LDL-cholesterol ("bad" cholesterol).

It might be helpful to start small and negotiate baby steps by replacing one meal a day with something healthier that is low in saturated and trans fats, and yet high in fibre. Having regular fruit snacks together as a family helps in bonding and will encourage him so he does not feel like only he must eat healthy foods.

**DR LIEW BOON WAH**

Chief and Consultant, Department of Cardiology, Changi General Hospital



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## Continue to work out when feeling sore?



**I have pain in the knees that hurt after the exercises the physiotherapist taught me. He said I should persevere but I don't want to aggravate the problem.**



It is increasingly recognised that exercise and continued activity will improve pain management outcomes, and patients who continue to be active tend to do better than patients who remain sedentary because of pain.

People who have been generally inactive or have not exercised for a while should start slowly. Starting slow and going slow allows the body to adapt and cope with activity and exercise. Take a break between workout days, especially at the start of the exercise regime. Gradually increase the intensity and frequency of the exercises, while sedentary time, such as watching television and lying down, should be reduced.

Different types of exercises are tailored for patients with different pain conditions. Strengthening exercises boost muscles that in turn can help reduce stress on the joints and prevent injury. Deep breathing exercises help relax the body and make the upper body less tense. Endurance exercises, such as walking, swimming, dancing and cycling, help with weight loss, which lessens stress on the joints. Low-impact aerobics improves fitness and helps keep one's weight in the ideal range, while gentle, sustained stretching can reduce muscle aches.

**DR DIANA CHAN**

Consultant, Department of Pain Medicine, Singapore General Hospital

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The service is free for normal delivery, but a fee is charged for urgent or bulky item delivery, re-delivery (no one was home to receive the package) or late changes to the delivery date. You can choose the date of delivery, which takes about three working days. An SMS will be sent to confirm the delivery details.

You can also choose where to have your medications delivered to — any address in Singapore (except the offshore islands), PILBOX (Prescription In Locker Box), and selected bluPORT lockers. Collection must be within a certain time, after which the medicine is returned to SGH. A second delivery can be arranged but it will be subject to a fee.

For more information, visit <https://www.sgh.com.sg/patient-care/visiting-specialist/Pages/medication-delivery.aspx>.



**FREE Medication Delivery!**

Sign up now at [www.sgh.com.sg/MedDelivery](http://www.sgh.com.sg/MedDelivery) or at any SGH Pharmacy

**SGH PHARMACY MEDICATION DELIVERY SERVICE**  
You order, we deliver.

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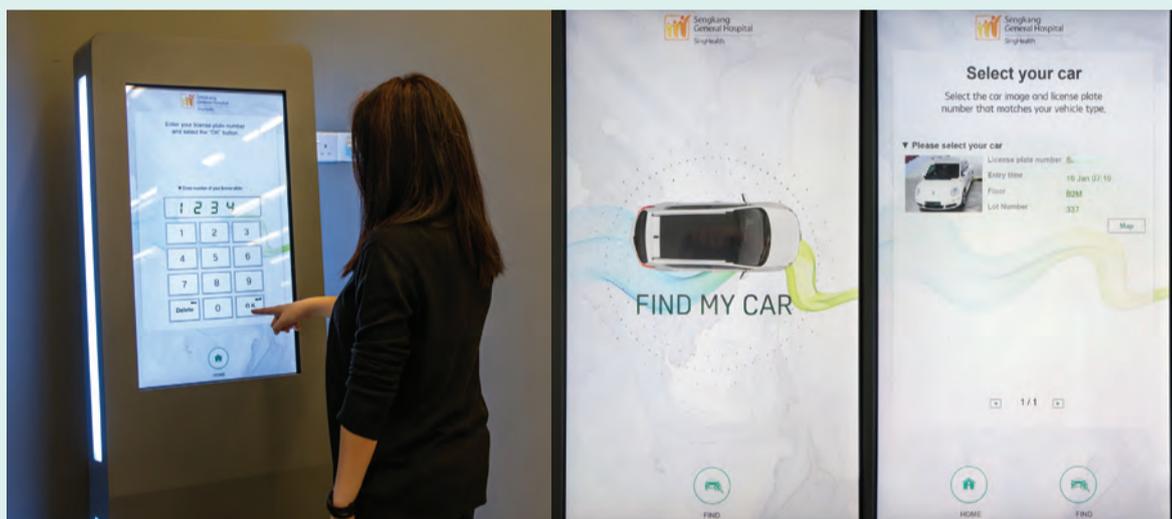
... that a vehicle tracking system at Sengkang General Hospital (SKH) can help you locate your car with ease?

"Find My Car" is a smart parking guidance system that is implemented campus-wide in SKH.

The tracking system uses a camera to capture images of parked vehicles and their license plate numbers. The information is then instantly transmitted to a database, which can be retrieved via the customised touch-enabled "Find My Car" kiosks conveniently located at the car park lobbies.

After you key in your license plate number at the kiosk, you will be informed of your car's exact location and the easiest route to get to it.

This system also enhances security by capturing the entry and exit timings of all parked cars.



### Toddler Feeding Workshop

**Date:** 2 Nov (Sat)  
**Time:** 10.00am-12pm  
**Venue:** Patient Education Centre Room 1, Women's Tower Level 1, KK Women's and Children's Hospital  
**Fee:** KK Parenting Club: \$10 per member/ non-KK Parenting Club: \$15 per participant  
**Registration:** Call 6394 1268 (Mon-Fri, 10.00am-4pm)

Feeding your child can be enjoyable and a great time to bond. During the session, KKH's Dietitian and Speech Therapist will share strategies on achieving stress-free mealtimes.

### Heavy Menstruation and Abnormal Bleeding Public Forum

**Date:** 9 Nov (Sat)  
**Time:** 12.30pm-4.30pm  
**Venue:** Auditorium, Level 7, National Heart Centre Singapore  
**Fee:** Free, but register ahead as seats are limited  
**Registration:** Call Susan at 6321 4668 (Mon-Fri, 9.00am-4.30pm), or email [obgyn.forum@sgh.com.sg](mailto:obgyn.forum@sgh.com.sg) before 5 Nov

Specialists from SGH's Obstetrics and Gynaecology, and Anaesthesiology departments will talk about heavy menstruation and abnormal bleeding, consequences such as anaemia, and how to manage the condition.

### Healthy Habits Happy Life

**Date:** 9 Nov (Sat)  
**Time:** 9.00am-10.30am (Mandarin), 11.00am-12.30pm (English)  
**Venue:** Room L1-S1, Academia  
**Fee:** \$6 per participant/session; \$8 per participant/session for walk-in  
**Registration:** Email your name and mobile number to [sgh.happylife@sgh.com.sg](mailto:sgh.happylife@sgh.com.sg), or call 6321 3974 (Mon-Fri, 9.00am-4.30pm)

SGH psychologists will offer suggestions on staying smoke-free, tips for a good night's sleep, and advice on ageing well. This forum is conducted in English and Mandarin.

### Neurology Public Forum on Headache

**Date:** 16 Nov (Sat)  
**Time:** 1.30pm-4.15pm  
**Venue:** Deck on 9, Block 6 Level 9, Singapore General Hospital  
**Fee:** Free, but pre-registration is required  
**Registration:** Visit <http://bit.do/headacheforum2019>

Join the doctors from SGH's Neurology Department as they speak on the causes and types of headaches, and complementary therapies that are beneficial for people with such problems. Find out when you need to seek medical attention for that throbbing pain in your head.



Stroke Services Improvement  
Supported by the Ministry of Health

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LEARN SOMETHING THIS  
**MEANINGFUL"**

—  
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Management Development  
Institute of Singapore  
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